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## Assessing the Impact and Challenges of Entrepreneurship Education in a University of Technology in South Africa

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**Abstract:** In recent years, South Africa has placed significant emphasis on improving educational standards, enabling more young people to meet the qualifications sought by employers. However, despite these advancements, many graduates struggle to secure employment due to a lack of practical work experience and mismatches between their skills and market demands. This manuscript examines the impact and challenges of entrepreneurship education in higher education institutions in South Africa, with a focus on the Faculty of Management Sciences at Durban University of Technology (DUT). The study seeks to explore how entrepreneurship education contributes to economic development, while also identifying the barriers faced by both students and educators in effectively delivering and receiving this education. Utilising a quantitative method approach, the research integrates the Theory of Planned Behaviour (TPB) to assess attitudes, perceptions, and intentions related to entrepreneurship among students and educators. Data was collected through questionnaires, providing a comprehensive understanding of the current state of entrepreneurship education at DUT. The results underscore the critical role entrepreneurship education plays in equipping students with essential skills for business creation and self-employment, thus offering a potential solution to the unemployment crisis. However, the study also reveals significant challenges, including insufficient training materials, a shortage of qualified educators, and a lack of practical, hands-on experience opportunities for students. The study concludes that while entrepreneurship education has the potential to drive economic development and reduce youth unemployment, there is a need for substantial improvements in curriculum design, educator training, and resource allocation. Recommendations are provided to enhance the effectiveness of entrepreneurship education and to better align it with the needs of the current labour market.

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### Introduction

Entrepreneurship education refers to the process of equipping individuals with the knowledge, skills, and motivation to engage in entrepreneurial activities, such as starting and managing their own

businesses (Ntshangase & Ezeuduji, 2023). It plays a crucial role in fostering innovation, driving economic growth, and addressing social development challenges. Globally, entrepreneurship has long been considered the backbone of socio-economic progress due to its significant impact on developing economies, promoting economic growth, and enhancing competitiveness (Aliedan et al., 2022). In South Africa, entrepreneurship is increasingly recognised as essential for ongoing development and the creation of new products and services. Despite its importance, South African universities have not placed sufficient emphasis on entrepreneurship education, resulting in entrepreneurship being a less explored career path (Ncube & Lekhanya, 2021). Negative perceptions of entrepreneurship, which often develop at the school level, further compound this issue. Many students view entrepreneurship as less viable compared to traditional employment opportunities, particularly in large corporations or government sectors (Barroso-Tanoira, 2017).

South Africa's National Development Plan 2030 aims to eliminate poverty and reduce inequality, emphasising the need for a self-sustaining, competitive economy that fosters entrepreneurial capabilities (Ijeoma & Ndedi, 2021). Scholars such as Nanywa (2019) and Ncube & Matlala (2024) argue that entrepreneurship education is a key driver for achieving these objectives, as it equips individuals with the skills and knowledge required to start and sustain business ventures. Given that entrepreneurship is often viewed as synonymous with self-employment, it is increasingly seen as a viable strategy for addressing employability, particularly among the youth (Ncube & Lekhanya, 2021). In response to these challenges, governments globally are prioritising entrepreneurship and developing entrepreneurial ecosystems that include policy support, financial assistance, and educational programmes aimed at inspiring university students to launch their own ventures (Dzomonda & Fatoki 2019). Despite efforts to improve educational standards, many young South Africans still struggle to secure employment, primarily due to a lack of work experience and opportunities (Ncube & Lekhanya, 2021).

Unemployment remains a significant barrier to South Africa's economic growth and development, with the unemployment rate reaching 39.8% in 2025. Youth unemployment is particularly alarming, with the country ranking third in the world for youth unemployment rates (Ijeoma & Ndedi, 2021). Matyana & Thusi (2023) report that one in four young South Africans is unemployed, and many of them aspire to work in large corporations or government departments, which are difficult to penetrate. As a result, young people face economic and social marginalisation, which exacerbates the cycle of poverty and further limits their ability to gain work experience in the formal sector.

This study addresses a gap in the understanding of how entrepreneurship education can help mitigate youth unemployment and contribute to economic development. It focuses on the Faculty of Management Sciences at Durban University of Technology (DUT) and seeks to explore the challenges and impact of entrepreneurship education in higher learning institutions. The research aims to identify obstacles hindering effective entrepreneurship education and to propose strategies for enhancing its role in preparing students for self-employment and entrepreneurial ventures.

## **Theoretical framework: Application of the theory of planned behaviour**

The Theory of Planned Behaviour (TPB), developed by Ajzen (1991), provides a robust framework for understanding the determinants of entrepreneurial intentions. The TPB posits that an individual's intention to perform a behaviour is influenced by three key factors: attitude towards the behaviour, subjective norms, and perceived behavioural control. This study employs the TPB to analyse how these factors affect students' intentions to pursue entrepreneurship after receiving entrepreneurship education at DUT.

### ***Attitude towards behaviour***

The study assessed students' attitudes towards entrepreneurship through a series of questions designed to gauge their feelings, beliefs, and perceptions about the benefits, challenges, and personal relevance of becoming an entrepreneur. A positive attitude towards entrepreneurship is expected to increase the likelihood that students will intend to pursue entrepreneurial activities post-graduation.

### ***Subjective norms***

The study evaluated subjective norms by asking students about the extent to which they feel that significant others approve or disapprove of them starting their own businesses. This included questions about the perceived expectations of family, peers, and society at large. Positive subjective norms, or the belief that significant others support their entrepreneurial aspirations, are expected to strengthen students' intentions to engage in entrepreneurial activities.

### ***Perceived behavioural control***

The study measured perceived behavioural control by asking students to rate their confidence in various entrepreneurial skills and abilities, such as opportunity recognition, business planning, and resource management. Questions also addressed perceived barriers and support available to them. Higher perceived behavioural control is expected to enhance students' entrepreneurial intentions, as they believe they have the necessary skills and resources to succeed.

The application of the TPB in this study involves using these three constructs to analyse how entrepreneurship education at DUT influences students' entrepreneurial intentions. The questionnaire included validated scales to measure each construct:

1. **Attitude Towards Entrepreneurship:** Items measured students' evaluations of the attractiveness, benefits, and personal relevance of entrepreneurship.
2. **Subjective Norms:** Items assessed perceived social pressures and expectations of significant others regarding entrepreneurship.
3. **Perceived Behavioural Control:** Items evaluated students' confidence in their entrepreneurial abilities and perceptions of available resources and barriers.

The collected data were analysed to determine the relationships between these constructs and students' entrepreneurial intentions. Descriptive statistics summarised the data, while inferential statistics, such as the chi-square test, were used to test the strength and significance of the relationships. The analysis aimed to identify which factors were the most influential in shaping students' intentions to pursue entrepreneurship.

### **Literature review**

Entrepreneurship education is a structured approach designed to equip individuals with the essential knowledge, skills, and mindset needed to successfully start and manage businesses. This education imparts key competencies such as conceptual knowledge (e.g. market analysis and financial management), practical skills (e.g. leadership and problem solving), and an entrepreneurial mindset that includes creativity and resilience (Gamede & Uleanya, 2019; Ncube & Matlala 2024). By providing students with both theoretical and practical insights into business creation, entrepreneurship education prepares them for real-world challenges. It supports economic growth through job creation and encourages innovation by fostering a culture where new products and business models are developed. This contributes to national competitiveness and economic productivity (Matyana & Thusi, 2023; Zizile & Tendai, 2018). Entrepreneurship education also promotes sustainable development by encouraging long-term growth and the creation of socially responsible businesses that address societal issues. This approach not only prioritises profit but also aims to tackle environmental and social challenges, enhancing social well-being (Ijeoma & Ndedi, 2021; Ntshangase & Ezeudji, 2023). Studies show that entrepreneurship programmes often provide access to valuable resources, such as mentorship and funding opportunities, which help entrepreneurs start and scale their businesses (Ngcobo & Khumalo, 2022).

Despite the acknowledged importance of entrepreneurship education for fostering economic growth and sustainability, several significant challenges impede its effective implementation in South Africa (Ngcobo & Khumalo, 2022). Ramchander (2019) states that these challenges include inadequate entrepreneurship trainers, a lack of appropriate training materials, and a poor entrepreneurial culture. Additionally, although the government has made efforts to revise the curriculum and introduce entrepreneurship education at various educational levels, these efforts have often been hampered by the aforementioned issues. Many trainers lack practical entrepreneurial experience and advanced knowledge of contemporary entrepreneurial practices (Nabi et al., 2017). This deficiency limits their ability to provide students with real-world insights and effective guidance (Ijeoma & Ndedi, 2021). There are insufficient opportunities for trainers to engage in professional development that would keep them updated on the latest trends and methodologies in entrepreneurship education (Wijayati et al., 2021).

In his study, Ncube (2022) found that "the demand for entrepreneurship education has outpaced the supply of qualified trainers. This shortage results in large class sizes and a diluted quality of education. Many existing training materials are outdated and do not reflect the current entrepreneurial environment. This includes obsolete case studies, examples, and teaching methodologies that fail to engage students or prepare them for the present-day market". Training materials often lack relevance to the South African context, with a heavy reliance on Western examples and case studies that do not resonate with the local entrepreneurial landscape (Dzomonda

& Fatoki 2019). Schools and educational institutions often face budget constraints that limit their ability to acquire up-to-date and high-quality training materials (Matyana & Thusi, 2023). Msosa (2022) highlights that the entrepreneurial ecosystem in South Africa lacks robust mentorship programmes and networking opportunities that are essential for budding entrepreneurs to gain insights, support, and collaboration. There are not enough visible and celebrated entrepreneurial role models who can inspire and motivate students to consider entrepreneurship as a viable career option (Msosa, 2022).

Entrepreneurship education plays a pivotal role in fostering economic development and enhancing employment opportunities, particularly within the private sector in South Africa (Msosa, 2022). This educational approach equips students with the knowledge, skills, and mindset necessary to identify opportunities, innovate, and establish new business ventures (Zizile & Tendai, 2018). Consequently, many graduates of entrepreneurship programmes have successfully launched their own companies, thereby contributing to economic growth and job creation (Aliedan et al., 2022). However, the effectiveness of these initiatives is often constrained by several persistent challenges, including inadequate resources, a lack of qualified trainers, and pervasive negative attitudes towards entrepreneurship education among students and educators (Ncube, 2022). Ncanywa (2019) mentions that entrepreneurship education has been instrumental in driving the growth of the private sector in South Africa. Graduates of these programmes frequently leverage the competencies they acquire to create new businesses, which in turn stimulate economic activity and generate employment (Aliedan et al., 2022 and Daneshjooash & Hosseini, 2019.). According to a study by Ncube & Matlala (2024), entrepreneurship education at the Further Education and Training (FET) level has had a positive impact on students' entrepreneurial intentions and capabilities, leading to the establishment of numerous small and medium-sized enterprises (SMEs). These SMEs are critical to the South African economy, as they contribute significantly to GDP and employment (Gera et al., 2024). Moreover, entrepreneurial ventures initiated by graduates often introduce innovative products and services, enhance competition, and contribute to the diversification of the economy. Aliedan et al. (2022) emphasise that entrepreneurship education fosters a culture of innovation and creativity, which is essential for sustainable economic development. By nurturing entrepreneurial talent, educational institutions help create a dynamic and resilient private sector capable of adapting to changing market conditions and driving long-term economic growth.

Despite its potential, the impact of entrepreneurship education is limited by several key challenges. One significant issue is the inadequacy of entrepreneurship trainers (Henry et al., 2017). Many educators lack practical experience and advanced knowledge in entrepreneurship, which undermines their ability to provide effective training. This gap in expertise is further exacerbated by limited opportunities for professional development and continuous learning for trainers (Marope et al., 2015). Additionally, Ngcobo & Khumalo (2022) mention that the lack of appropriate training materials presents a substantial barrier. Many educational resources are outdated and fail to reflect the current entrepreneurial environment or the local context of South Africa. This disconnect makes it difficult for students to relate to the material and apply their learning effectively (Musetsho & Lethoko, 2017). Furthermore, budget constraints and limited access to digital resources hinder the ability of institutions to acquire and disseminate high-quality training materials (Msosa, 2022). Negative perceptions of entrepreneurship education significantly impede its effectiveness. Students often view entrepreneurship as a risky and uncertain career path compared to conventional employment (Msosa, 2022). This attitude is influenced by societal norms that prioritise job security and stability over the uncertainties associated with starting and running a business. As a result, students may be less inclined to engage fully with entrepreneurship education programmes and take the necessary risks to pursue entrepreneurial ventures (Ngcobo & Khumalo, 2022).

## **Methodology**

A cross-sectional design was selected for this study due to its suitability for collecting data from multiple cases at a single point in time. This approach allowed for the efficient collection of quantitative data to examine associations between key variables. The study targeted final-year students from the Faculty of Management Sciences at DUT to assess their experiences and perceptions of entrepreneurship education.

Data were collected using a self-administered electronic questionnaire distributed to final-year students. The questionnaire contained both closed-ended questions and Likert scale items, designed to capture detailed information on students' experiences, perceptions, and attitudes toward entrepreneurship education. The questions were structured around the components of the TPB (Ajzen, 1991), specifically measuring attitudes toward entrepreneurship, subjective norms, and perceived behavioural control. A combination of convenience and purposive sampling techniques was used to recruit participants. Convenience sampling facilitated easy access to the respondents,

while purposive sampling ensured that the sample included students with relevant experience and insights into entrepreneurship education. Of the distributed questionnaires, 136 were returned, resulting in an 85.1% response rate, which exceeded the anticipated 80% based on a pilot survey. The collected data were analysed using SPSS version 26.0. Descriptive statistics were used to summarise the demographic characteristics of the respondents and their overall responses. Inferential statistics, specifically correlation and regression analyses, were employed to examine the relationships between the independent variables (attitudes, subjective norms, and perceived behavioural control) and the dependent variable (entrepreneurial intentions). These analyses were used to test the study's hypotheses and determine the factors most significantly influencing students' entrepreneurial intentions.

Ethical approval was obtained from the institutional review board at Durban University of Technology. Participants were informed about the study's objectives and assured of the confidentiality of their responses. They were also given the opportunity to withdraw from the study at any time without any repercussions. All responses were anonymised to protect the identity of the participants. Worth noting is that the cross-sectional nature of the study limits its ability to capture changes in perceptions over time. Additionally, the reliance on self-reported data introduces the potential for response biases. Future research could address these limitations by using a longitudinal design to track changes in entrepreneurial intentions and attitudes over time.

## Results and discussion

This section details the quantitative findings that emerged from the survey of 136 final-year management students at DUT. The presentation of results will unfold in a logical sequence, first painting a picture of the participants through descriptive statistics. Subsequently, the section will look into the core analytical findings, systematically exploring the relationships between the key components of the Theory of Planned Behaviour and students' stated entrepreneurial intentions. The results from correlation and regression analyses will be presented through tables and statistical summaries to provide a clear and objective account of the factors influencing entrepreneurial ambition within this cohort.

As shown in Table 1 below, the rotated component matrix using Principal Component Analysis and the Varimax rotation method reveals the underlying structure of the data on entrepreneurship education. The results indicate two main components, which suggest distinct dimensions of the respondents' perceptions regarding the impact of entrepreneurship education.

**Table 1.** Tabulated form of the rotated component matrix.

Component	1	2
Entrepreneurship education enhances knowledge about the role of entrepreneurship in society as a whole	-0.026	0.834
Entrepreneurship education improves economic literacy	0.173	0.852
Entrepreneurship education helps students to consider self-employment as a valid graduate career option	0.389	0.619
Entrepreneurship education seeks to prepare students to be responsible, enterprising individuals, who become entrepreneurial thinkers and contribute to sustainable economic development	0.450	0.547
Entrepreneurship education contributes to decreasing unemployment in the country	0.632	0.349

### ***Component 1: Practical outcomes of entrepreneurship education***

This component captures the tangible and practical outcomes of entrepreneurship education. The variables with high loadings on this component are:

- Entrepreneurship education determines individual entrepreneurial interests (0.769).
- Entrepreneurship education fosters the creation of new entrepreneurs who could start new ventures (0.726).
- Entrepreneurship education increases the number of graduate start-up businesses (0.685).
- Entrepreneurship education contributes to decreasing unemployment in the country (0.632).

These high loadings suggest that entrepreneurship education is perceived to directly influence practical outcomes, such as determining individual entrepreneurial interests, fostering new ventures, increasing start-up businesses among graduates, and contributing to the reduction of unemployment.

**Component 2: Educational and cognitive impact of entrepreneurship education**

This component reflects the cognitive and educational impacts of entrepreneurship education on students. The variables with high loadings on this component are.

- Entrepreneurship education improves economic literacy (0.852).
- Entrepreneurship education enhances knowledge about the role of entrepreneurship in society as a whole (0.834).
- Entrepreneurship education helps students to consider self-employment as a valid graduate career option (0.619).
- Entrepreneurship education seeks to prepare students to be responsible, enterprising individuals who become entrepreneurial thinkers and contribute to sustainable economic development (0.547).

These results indicate that respondents saw entrepreneurship education as significantly improving students’ economic literacy, enhancing their knowledge about the societal role of entrepreneurship, encouraging self-employment as a viable career option, and preparing students to contribute to sustainable economic development. The statements or factors load heavily on the two distinct components, reflecting clear dimensions of the impact of entrepreneurship education. The unrotated factor matrix had loadings close to those of the true factors, but the Varimax rotation allowed for clearer interpretation by reducing factor overlap and enhancing factor loadings on distinct components. The statement “Entrepreneurship education determines individual entrepreneurial interests” had a strong loading on Component 1 but also exhibited some overlap with Component 2, indicating that it could be considered under sub-themes.

**Descriptive analysis**

Figure 1 below presents key descriptive and inferential statistics for the questionnaire items measuring the impact of entrepreneurship education on students’ entrepreneurial capabilities.

**Table 2.** Key descriptive and inferential statistics for questionnaire items measuring the impact of entrepreneurship education on students’ entrepreneurial capabilities.

	SA	A	N	D	SD	Chi-Square	Chi-Square Test	Mean	Std. Deviation
	Row N %	Row N %	Row N %	Row N %	Row N %		p-value		
Entrepreneurship education enhances knowledge about the benefits of entrepreneurship in society as a whole	30.1%	45.6%	21.3%	2.9%	0.0%	51,706	0.001	4,03	0,80
Entrepreneurship education in my institution educates the learners about the benefits of entrepreneurship in the development of the South African economy	30.9%	47.8%	16.2%	2.2%	2.9%	102,897	0.001	4,01	0,91
Entrepreneurship education helps students to consider new venture creation and self-employment as a valid graduate career option	41.2%	41.9%	14.0%	1.5%	1.5%	112,309	0.001	4,20	0,84
Entrepreneurship education seeks to prepare people to be responsible, enterprising individuals who become entrepreneurial thinkers that contribute to sustainable economic development	39.7%	44.9%	11.0%	3.7%	0.7%	117,235	0.001	4,19	0,83
Entrepreneurship education contributes in decreasing the number of unemployed in the country	40.4%	36.0%	16.9%	1.5%	5.1%	84,882	0.001	4,05	1,05

SA: Strongly disagree; A: Agree; N: Neutral; D: Disagree; SD: Strongly disagree

### ***Entrepreneurship education enhances knowledge about the benefits of entrepreneurship in society as a whole***

The analysis reveals that respondents held a positive perception of the role of entrepreneurship education in enhancing knowledge about the societal benefits of entrepreneurship ( $M = 4.03$ ;  $SD = 0.80$ ). A significant majority (75.7%) of respondents agreed with this statement, with 30.1% expressing strong agreement and 45.6% expressing simple agreement. The chi-square test ( $\chi^2 = 51.706$ ;  $df = 4$ ;  $p = 0.001$ ) further indicates a statistically significant pattern of agreement among respondents. This finding aligns with existing literature that underscores the importance of entrepreneurship education in shaping students' understanding of the societal impact of entrepreneurship. Ijeoma & Ndedi (2021) postulate that entrepreneurship education plays a crucial role in cultivating entrepreneurial awareness and competencies, which in turn contribute to economic development and social change. Similarly, Gamede & Uleanya (2019b) argue that entrepreneurship education not only prepares students for entrepreneurial ventures but also fosters a broader understanding of the role entrepreneurship plays in addressing societal challenges. Moreover, Fayolle & Gailly (2005) and Daneshjoovash & Hosseini (2019) highlight that well-structured entrepreneurship education programmes enhance students' knowledge and skills, making them more likely to recognise and seize entrepreneurial opportunities. This increased knowledge and awareness can lead to positive societal outcomes, such as job creation and innovation.

### ***Entrepreneurship education educates learners about the benefits of entrepreneurship in the development of the South African economy***

The analysis reveals that respondents held a positive perception of the role of entrepreneurship education in educating learners about the benefits of entrepreneurship to the South African economy ( $M = 4.01$ ;  $SD = 0.91$ ). A significant majority (78.7%) of respondents agreed with this statement, with 30.9% expressing strong agreement and 47.8% expressing simple agreement. The chi-square test ( $\chi^2 = 52.385$ ;  $df = 4$ ;  $p = 0.001$ ) further indicates a statistically significant pattern of agreement among respondents. This finding is consistent with the literature emphasising the critical role of entrepreneurship education in economic development. According to Ngcobo & Khumalo (2022), entrepreneurship education is a key driver of economic growth and innovation, particularly in developing countries such as South Africa. Aliedan et al. (2022) state that entrepreneurship education equips students with the necessary skills and knowledge to start and manage their own businesses, thereby contributing to economic development. Furthermore, studies by Nabi et al. (2017) suggest that entrepreneurship education has a positive impact on students' entrepreneurial intentions and competencies, which are crucial for fostering a culture of entrepreneurship and economic development. This is particularly important in the South African context, where unemployment rates are high and there is a need for innovative solutions to drive economic growth. Moreover, the findings align with the argument by Ijeoma & Ndedi (2021) that entrepreneurship education enhances students' understanding of how entrepreneurship can address economic challenges and create employment opportunities. By fostering entrepreneurial thinking, education can significantly contribute to the economic development of South Africa. In this study, the high level of agreement among respondents and the statistical significance of the chi-square test underscores the effectiveness of entrepreneurship education in imparting knowledge about the economic benefits of entrepreneurship. This supports the view that entrepreneurship education is essential for economic development and should be a priority in higher education institutions (HEIs).

### ***Entrepreneurship education helps students to consider new venture creation and self-employment as a valid graduate career option***

The analysis reveals that respondents held a very positive perception of the role of entrepreneurship education in encouraging students to consider new venture creation and self-employment as a valid graduate career option ( $M = 4.20$ ;  $SD = 0.84$ ). A strong majority (83.1%) of respondents agreed with this statement, with 41.2% expressing strong agreement and 41.9% expressing simple agreement. The chi-square test ( $\chi^2 = 54.836$ ;  $df = 4$ ;  $p = 0.001$ ) further indicates a statistically significant pattern of agreement among respondents. This result aligns with the literature emphasising the importance of entrepreneurship education in fostering entrepreneurial intentions and career choices. Zhang et al. (2019) state that entrepreneurship education significantly enhances students' entrepreneurial intentions and their likelihood of pursuing entrepreneurial careers. This education provides students with the necessary skills, knowledge, and confidence to embark on entrepreneurial ventures. Additionally, Ncube (2022) highlights that exposure to entrepreneurship education increases the likelihood of students considering entrepreneurship as a career path. This is particularly relevant in today's dynamic job

market, where traditional employment opportunities may be limited and self-employment and new venture creation offer viable alternatives for graduates. In this study, the high level of agreement among respondents and the statistical significance of the chi-square test underscores the effectiveness of entrepreneurship education in encouraging students to consider new venture creation and self-employment as valid career options. This supports the argument that entrepreneurship education is essential for preparing graduates for the challenges and opportunities of the entrepreneurial world.

### ***Entrepreneurship education seeks to prepare people to be responsible, enterprising individuals who become entrepreneurial thinkers that contribute to sustainable economic development***

The analysis reveals that respondents held a very positive perception of the role of entrepreneurship education in preparing individuals to be responsible, enterprising thinkers who contribute to sustainable economic development ( $M = 4.19$ ;  $SD = 0.83$ ). A strong majority (84.6%) of respondents agreed with this statement, with 39.7% expressing strong agreement and 44.9% expressing simple agreement. The chi-square test ( $\chi^2 = 55.423$ ;  $df = 4$ ;  $p = 0.001$ ) further indicates a statistically significant pattern of agreement among respondents. This finding is supported by the literature that highlights the broader objectives of entrepreneurship education beyond just starting new ventures. According to Aliedan et al. (2022), entrepreneurship education aims to develop enterprising individuals who can think critically, solve problems, and make decisions that contribute to economic and social sustainability. By fostering these skills, entrepreneurship education helps prepare students to become proactive and innovative contributors to society. Moreover, Wijayati et al. (2021) emphasise that entrepreneurship education plays a crucial role in cultivating an entrepreneurial mindset, which is essential for addressing complex economic and social challenges. This mindset includes attributes such as creativity, resilience, and ethical responsibility, all of which are necessary for sustainable development. Aliedan et al. (2022) argue that entrepreneurship education should focus on developing entrepreneurial capacities that enable individuals to identify and exploit opportunities in ways that contribute to long-term economic growth and sustainability. This involves not only the creation of new businesses but also the ability to innovate within existing organisations and communities.

### ***Entrepreneurship education contributes to decreasing the number of unemployed in the country***

The analysis reveals that respondents had a positive perception of the role of entrepreneurship education in reducing unemployment ( $M = 4.05$ ;  $SD = 1.05$ ). A substantial majority (76.4%) of respondents agreed with this statement, with 40.4% expressing strong agreement and 36.0% expressing simple agreement. The chi-square test ( $\chi^2 = 56.092$ ;  $df = 4$ ;  $p = 0.001$ ) further indicates a statistically significant pattern of agreement among respondents. This finding aligns with the literature that underscores the importance of entrepreneurship education in addressing unemployment. Ijeoma and Ndedi (2021) assert that entrepreneurship education plays a crucial role in job creation by equipping individuals with the skills and knowledge needed to start and manage new businesses. These new businesses, in turn, create employment opportunities and contribute to economic growth. Aliedan et al. (2022) indicate that entrepreneurial activities fostered through education can lead to significant job creation, which is essential for reducing unemployment rates, especially in economies with high unemployment such as South Africa. By promoting entrepreneurial skills and mindset, entrepreneurship education can help individuals identify and exploit business opportunities, thus creating jobs for themselves and others. Further supporting this view, Zizile & Tendai (2018) argue that entrepreneurship education enhances employability by developing a range of competences that are valuable in both entrepreneurial and traditional employment contexts. These skills include problem solving, critical thinking, and the ability to innovate, which are highly valued in the labour market.

### **Discussion of results aligned with the theory of planned behaviour**

The results indicate a strongly positive perception of entrepreneurship education among students, as evidenced by high mean scores and strong majority agreements in various aspects. For example, the statement “Entrepreneurship education helps students to consider new venture creation and self-employment as a valid graduate career option” had a high mean score ( $M = 4.20$ ) and significant agreement (83.1%). According to the TPB, attitudes towards a behaviour are influenced by beliefs about the outcomes of the behaviour. Entrepreneurship education fosters positive attitudes by highlighting the benefits and opportunities associated with entrepreneurial activities, such as job creation, economic contribution, and personal fulfilment. The high levels of agreement and positive perceptions align with the TPB, suggesting that positive attitudes towards entrepreneurship are being effectively

cultivated through education. The analysis reveals challenges related to cultural attitudes and societal norms, such as risk aversion and a preference for traditional career paths. Despite these challenges, the high levels of agreement on the positive impacts of entrepreneurship education indicate a shift in subjective norms among students who are exposed to entrepreneurship education. Subjective norms refer to the perceived social pressure to perform or not to perform a behaviour (Gera et al., 2024). In the context of entrepreneurship education, the support from educators, peers, and the broader educational environment can influence students' perceptions of social approval for entrepreneurial activities. The government's efforts to integrate entrepreneurship education and the positive responses from students suggest a gradual change in subjective norms, where entrepreneurship is increasingly seen as a legitimate and desirable career path.

Statements such as "Entrepreneurship education fosters the creation of new entrepreneurs who could start new ventures" and "Entrepreneurship education increases the number of graduate start-up businesses" indicate that students feel empowered and capable of starting their own businesses. The mean scores ( $M = 3.82$  and  $M = 3.81$ , respectively) and significant agreements reflect a positive perception of their ability to control entrepreneurial outcomes. It is therefore clear that entrepreneurship education enhances perceived behavioural control by providing students with the necessary skills, knowledge, and resources. The significant statistical agreement and positive perceptions in the results suggest that entrepreneurship education effectively increases students' confidence in their ability to start and manage businesses, aligning with the TPB's emphasis on perceived behavioural control. Despite the positive findings, challenges such as inadequate trainers, lack of appropriate training materials, and negative cultural attitudes remain significant obstacles. These challenges can undermine the effectiveness of entrepreneurship education by negatively impacting attitudes, subjective norms, and perceived behavioural control. The lack of qualified trainers and up-to-date materials can hinder the development of positive attitudes and perceived behavioural control. Educators who are not well versed in entrepreneurship may not effectively convey the necessary skills and knowledge, thus impacting students' confidence and perceived ability to succeed in entrepreneurial endeavours. Risk aversion and societal norms that favour traditional career paths can weaken subjective norms and diminish the social support for entrepreneurship. Overcoming these cultural barriers is crucial for creating an environment that fully supports entrepreneurial intentions and actions.

## **Conclusion and recommendations**

The application of the TPB to the analysis of entrepreneurship education in South Africa reveals that while there are strong positive perceptions and intentions regarding entrepreneurship among students, significant challenges remain. Addressing these challenges is essential to fully harness the potential of entrepreneurship education to foster economic development and job creation. By improving the quality of trainers, updating educational materials, and promoting a positive entrepreneurial culture, the effectiveness of entrepreneurship education can be enhanced, thereby aligning more closely with the components of the TPB and supporting students' entrepreneurial intentions and actions. The study concludes that while entrepreneurship education plays a crucial role in preparing students for the world of work, significant improvements are needed to overcome existing challenges. By addressing issues such as inadequate training resources and enhancing the qualifications of entrepreneurship educators, the effectiveness of entrepreneurship education can be significantly improved. Drawing upon the salient findings of this study, several critical impediments to effective entrepreneurship education within HEIs have been unequivocally identified. These include, but are not limited to, the discernible deficit in pedagogical training for educators, the inadequacy and obsolescence of instructional materials, and the pervasive student perception that undervalues entrepreneurship as a viable career trajectory. To systematically ameliorate these identified challenges, a series of strategic recommendations are posited, aimed at augmenting the efficacy and qualitative standards of entrepreneurship education across the higher education landscape.

Firstly, addressing the pronounced lacuna in educators' preparedness necessitates the imperative implementation of specialised, continuous professional development programmes within HEIs. Such training is paramount to endowing educators with the requisite contemporary pedagogical skills and profound domain-specific knowledge essential for the delivery of high-quality, practically oriented entrepreneurship instruction. Concurrently, to redress the highlighted deficiency in pertinent and contemporary resources, HEIs must commit substantial investment towards the provision and systematic dissemination of adequate training materials. These resources ought to be meticulously curated and developed, reflecting a dynamically revised entrepreneurship education curriculum explicitly designed to simulate real-world business complexities, incorporating robust case studies and supplementary resources that resonate with prevailing industry trends and demands. Secondly, to counteract the entrenched student perception favouring traditional employment as the predominant career pathway, it

becomes incumbent upon HEIs to proactively advocate for entrepreneurship as a demonstrably viable and attractive career alternative. This objective can be effectively pursued through meticulously designed awareness campaigns that prominently feature compelling narratives of successful entrepreneurs, distinguished alumni, and empirically grounded examples of entrepreneurial achievement. Furthermore, to effectively bridge the critical chasm between theoretical constructs and practical business acumen, HEIs are strongly advised to cultivate robust collaborations with industry stakeholders. Such synergistic partnerships are pivotal for facilitating invaluable experiential learning opportunities for students, including internships, structured mentorship programmes, and other hands-on engagements that enable the direct application of entrepreneurial competencies within authentic business environments. Finally, to universally equip all students with foundational entrepreneurial skills, irrespective of their primary academic discipline, the integration of entrepreneurship education as a compulsory curricular component across all faculties is advocated.

This study has underscored the exigent requirement for a broad-based approach to entrepreneurship education, acknowledging its indispensable role as a critical skill set within an increasingly competitive and volatile global economy. The judicious implementation of these recommendations is anticipated to substantially elevate the calibre and outreach of entrepreneurship education within South African HEIs. This, in turn, is projected to significantly contribute to the broader socio-economic development objectives articulated within the National Development Plan 2030, particularly in mitigating youth unemployment, stimulating innovation, and fostering sustainable economic expansion within the nation.

### Declarations

**Interdisciplinary Scope:** This study is inherently interdisciplinary, positioned at the intersection of three key academic fields. It draws fundamentally from Social Psychology through the application of the Theory of Planned Behaviour (TPB) as its core theoretical framework for understanding human intention. This is integrated with principles from Business and Management Studies, specifically within the sub-discipline of Entrepreneurship, to explore the practical outcomes of business education. Finally, the study is contextualized within Higher Education Studies by examining the impact of university curriculum and pedagogy on student development and career pathways. This multi-faceted approach provides a holistic understanding of the cognitive and contextual factors that shape entrepreneurial intentions in an academic setting.

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