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Students' perception of tourism entrepreneurship: Composite-based structural equation modelling

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Research has confirmed that people's attitudes towards starting their own business may be influenced by their education, age, gender and prior entrepreneurial experiences. To support the employability and economic success of tourism graduates, this study, conducted in the South African context, aimed to explore the predictors of tourism students' interest and motivation towards starting their tourism-related businesses after graduation. A survey questionnaire was employed to gather information from 154 randomly selected tourism students at a comprehensive university in South Africa. The first phase of data analyses dealt with the assessment of the measurement model, while the second phase tested the structural model using the partial least square-structural equation modelling (PLS-SEM) method implemented on SmartPLS software. The results indicate that certain student profile characteristics (such as age, gender, completing entrepreneurship module, self-assurance and satisfaction level) had significant effects on entrepreneurial desirability and feasibility (DF), entrepreneurial attributes (EA) and entrepreneurship education (EE). Further, the results reveal that EE did not differ by age, EA did not vary by gender and DF was not influenced by tourism students' self-assurance (SA). The study suggests that the institution under investigation uses appropriate experiential pedagogical approaches to provide tourism students with the 'know-how' and other necessary 'hands-on skills' to improve their capacity to launch new businesses.

Contribution: This article is important for higher education in general, particularly in sub-Saharan Africa, because it not only contributes to the literature on entrepreneurship but equally helps higher education institutions to integrate tourism entrepreneurship modules into their curricula.

Keywords: entrepreneurship in tourism; education in entrepreneurship; entrepreneurial intent; entrepreneurial desirability and feasibility; PLS-SEM.

Introduction

Globally, unemployment has become a persistent macro-economic issue in both developing and developed countries (Ashi, Al-Maalwi & Al-Sheikh 2022; Bureau of Labour Statistics [BLS], 2023; Duma, Adewumi & Gumede 2023). Su et al. (2021) suggested four paths of economic stimulus and transformation, including optimising human capital, providing new work opportunities and implementing large-scale entrepreneurial skills training. According to Ahmad et al. (2019), entrepreneurship education is important to train prospective entrepreneurs regarding launching a variety of businesses. According to earlier studies (e.g. Iwu et al. 2019; Shah, Amjed & Jaboob 2020), entrepreneurship has increasingly become a professional choice among younger generations, including university students. Recently, researchers have shown an increased interest in entrepreneurship education worldwide. For example, many studies on entrepreneurial education, personality qualities and intent to become an entrepreneur have been published, using students as respondents (Ahmad et al. 2019; Fahinde et al. 2024; Martínez-Gregorio, Badenes-Ribera & Oliver 2021).

The research conducted by Dewi, Afifah and Suryani (2019) revealed that a significant number of students had favourable perceptions of entrepreneurship in the tourism industry because of their optimistic outlook on achieving success in this field. Dewi et al. further disclosed that individuals who had lost faith in the prospects of tourism entrepreneurship expressed reservations regarding the economic capacity of nations to effectively implement strategies for achieving success in the tourism sector. The previous studies (e.g. Masha et al. 2022; Ramakumba 2023) suggest aspects that may affect how students perceive tourism entrepreneurship. Literature has also highlighted the elements that predict a person's decision to launch a new

business, particularly one that is tied to tourism (e.g. Badi & Khan 2020; Ntshangase & Ezeuduji 2019; Nzama & Ezeuduji 2020). The predictors of students' perception of tourism-related entrepreneurship, which in this study has three components: entrepreneurial desirability and feasibility (DF), entrepreneurial attributes (EA) and entrepreneurship education (EE), have remained largely untested (Ayeh, Bondzi-Simpson & Baah 2023), even though age, gender, education level and prior entrepreneurial experiences all affect people's attitudes on starting their businesses (Ntshangase & Ezeuduji 2020).

Previous studies (such as Meoli et al. 2020; Ncanywa 2019; Nyoko & Fanggidae 2019) might have explored the consequence of participation in an EE programme individually or explored general entrepreneurship, but few studies (e.g. Duma et al. 2023; Iwu et al. 2019; Maziriri, Tafadzwa & Nzewi 2019; Ncanywa 2019) have concentrated on the national higher education sector, for example South African universities. Scholars have engaged in extensive deliberation regarding the influence of EE on entrepreneurial intentions (EIs) (Ahmad et al. 2019; Ayeh et al. 2023; Esfandiar et al. 2019; Lim, Kim & Kim 2021). However, limited attention has been given to the predictors that determine the EIs of tourism students in universities within South Africa. The literature reviewed (such as Erasmus, Rudansky-Kloppers & Strydom 2019; Mseleku 2022) revealed low entrepreneurial activity among youth and a high level of graduate unemployment. Hence, there is a strong need for researchers to model and encourage youth entrepreneurial activity and entrepreneurial knowledge from the South African perspective (Erasmus et al. 2019), given the significance of entrepreneurialism in developing the economy, and alleviating unemployment (Meoli et al. 2020; Mseleku 2022).

Therefore, this research focuses on tourism students, who are typically trained to seek employment after graduation, instead of creating their own employment through tourism entrepreneurship (Ezeuduji et al. 2023). As a result of South Africa's high tourist influx (Sisulu 2022), there are many business opportunities for graduates who want to start their businesses in the tourism industry (Ramukumba 2023; Luong 2020; Luong & Lee 2023); therefore, there is a huge demand for tourism businesses managed by skilled individuals (Ezeuduji et al. 2023; Ramukumba 2023). Tourism directly contributed 3.7% of South Africa's gross domestic product (GDP) after the coronavirus disease 2019 (COVID-19) pandemic (Sisulu 2022), surpassing agriculture, utilities and construction. Nonetheless, research into how certain predictors (e.g. age, gender, completing entrepreneurship module, self-assurance [SA] and satisfaction level [SL]) of students' perceptions of tourism-related entrepreneurship contribute to students' DF, EA and EE from the perspectives of Shapero and Sokol's entrepreneurial event (SEE) model (Shapero & Sokol 1982) in South Africa is still lacking. Shapero and Sokol's (1982) model of the entrepreneurial event theory struck out for clarity is relevant in understanding EI formation. Most recent literature has used it as the theoretical framework to conduct similar studies (Ahmad et al. 2019; Luong 2020; Luong & Lee 2023). Not having entrepreneurial skills and intentions have been identified as both the reasons for youth or graduate unemployment (Ahmad et al. 2019; Loung & Lee 2023), and there is evidence of the poor quality of EE in South Africa (Mseleku 2022; Ramakumba 2023). Previous studies (Iwu et al. 2019; Masha et al. 2022; Ojo 2019; Ramakumba 2023), for example, claim that most research in the field of EE has focused on university-based entrepreneurship curriculum, showing a gap in literature relating to pre-university entrepreneurship (Delim et al. 2022). The studied university and tourism department offer entrepreneurship modules in their Bachelor's degree programme only during the first year second semester (June–December) of a 3-year study period, and with no follow-up on the students' entrepreneurship development until they graduate. Relatedly, entrepreneurship modules are available in the first and second years of the diploma programme.

This study therefore used a structural equation model (SEM) that points to predictors of students' perceptions of tourism entrepreneurship concerning EA, EE and DF (entrepreneurial intentions) in the South African perspective, drawing from the works of SEE theory by Shapero and Sokol (1982). Instead of general business management students (Ezeuduji et al. 2023; Ratten 2023), who have more developed entrepreneurial abilities and readiness, the focus of this article was on tourism students (from both bachelor's degrees and diploma programmes). This study enriches knowledge on entrepreneurship and helps higher education institutions systematically integrate tourism entrepreneurship modules into their curricula, making it important for higher education institutions, particularly those in parts of sub-Saharan Africa. To provide students with the 'know-how' abilities they need (Shah et al. 2020), it might also encourage institutions of higher learning to use experiential pedagogical approaches and create custom business development services (Ahmad et al. 2019; Luong 2020; Luong & Lee 2023; Nzilano, Tundui & Ndyetabula 2023). According to Iwu et al. (2019), EE and business formation have a favourable impact on a nation's economic development. The following section presents the literature reviewed.

Literature review

Unemployment is one of the world's major issues (Geza et al. 2022; Mseleku 2022). According to recent research, one of the highest percentages of global youth unemployment is found in South Africa (Mseleku 2022). For instance, the unemployment rate for young people between the ages of 15 and 24 was 63.9% in the first quarter of 2022, and 42.1% for youth aged 25–34 years, according to Statistics South Africa (StatsSA) (2022). This was much higher than the unemployment rate in the United States of America (USA), where the young unemployment rate was 8.5% in July 2022

(Bureau of Labour Statistics [BLS] 2022). In the United States of America, this was down from the rate of July 2021 (10%) but was barely different from July 2019 (9.1%). Most research on youth unemployment in South Africa has focused on studies that draw attention to employment skills gaps, educational attainment and industrial (particularly tourism industry) shifts (Mseleku 2022; Oyedemi & Choung 2020; Webb 2021).

According to Dewi et al. (2019), a substantial proportion of tourism students had favourable attitudes, passion, attributes and strong intentions towards tourism entrepreneurship because of their hopeful outlook on reaching success in this sector. Dewi et al. also revealed that those who had lost faith in the prospects of tourism entrepreneurship expressed worries about nations' economic capabilities to properly adopt methods for success in the tourism industry. A similar finding is also evident in the research conducted by Esfandiar et al. (2019) and Su et al. (2021), wherein it was observed that students specialising in tourism perceive entrepreneurship as the pursuit of opportunities, contingent upon them being deemed desirable and feasible. However, these scholars (Esfandiar et al. 2019; Su et al. 2021) argue that the perception of opportunities varies among students because of the inherent differences in their desires and abilities. For example, according to Ahmad et al. 2019 and Esfandiar et al. (2019), tourism students place greater emphasis on their aspirations for a career in entrepreneurship rather than on the feasibility and skills required to pursue such a career (e.g. becoming an entrepreneur and establishing or co-owning a business after graduation). Conversely, the study conducted by Najafabadi, Zamani and Mirdamadi (2016) yielded different results, as it revealed that DF ranked as the fourth most influential factor in motivating Iranian agricultural students to form their agricultural businesses. In the study by Najafabadi et al. (2016), DF was followed by self-efficacy, psychological traits (such as risk-taking, innovation and creativity, independence, and achievement) and social norms, respectively.

Recent scholars (e.g. Ezeuduji et al. 2023) have noted that in the South African context, the development of tourism skills is crucial for employability. As a result, according to Esfandiar et al. (2019) and Su et al. (2021), students of tourism and hospitality are expected to graduate with a solid foundation in tourism-related skills (including entrepreneurial skills). The establishment of methods to promote entrepreneurship in a nation, particularly among young people, can be assisted by knowledge of the variables linked to the intent to launch a business (Erasmus et al. 2019; Iakovleva & Kolvereid 2009). The elements that can be used to predict students' opinions of tourism entrepreneurship in terms of EAs, EE and DF of launching a tourism-related business in the future are now a focus of the current research. Webb (2021) contends that there are many barriers that young people face when looking for stable employment and one of such barriers is their little experience in the labour market.

Many tourism graduates, from a South African perspective, struggle to become employed immediately after graduation. Thus, much focus is being placed on developing the entrepreneurial skills of these tourism students, to be able to create jobs for themselves instead of relying on salaried employment (Ezeuduji et al. 2023). The authors of this study therefore anticipate that tourism entrepreneurship and entrepreneurship education could be seen as a means of improving the economy of a nation and having the power to change the tide by generating business opportunities for tourism graduates regardless of their socio-demographic profile (Oyedemi & Choung 2020). Recent research by Geza et al. (2022) and Masha et al. (2022) indicated that the likelihood of a South African being trapped in poverty is sometimes influenced by socio-demographic profile (such as gender, ethnic group, location, etc.). The survey study conducted by Masha et al. (2022) revealed that a further impediment to entrepreneurship is a dearth of appropriate business training and mentoring. The literature suggests that a lack of entrepreneurship-related mentorship in many South African universities has relatedly increased inequality and led to severe graduate poverty (Masha et al. 2022; Radebe 2019). Graduate internship programmes and other work experience-related programmes are increasingly being supported to combat youth unemployment, among graduates in South Africa (Mseleku 2022). For example, the Department of Basic Education (DoBE) has successfully implemented the Presidential Youth Employment Stimulus (PYES), which began in December 2020. The effectiveness of such current government interventions (PYES) to combat youth unemployment is however questionable (Masha et al. 2022; Mseleku 2022; Oyedemi & Choung 2020).

Entrepreneurship has become a crucial subject in many undergraduate and postgraduate programmes, especially among hospitality and tourism schools, in a country such as the United Arab Emirates (Ahmad, Bakar & Ahmad 2018), where the goal is to prepare and train future entrepreneurs to launch businesses (Ahmad et al. 2018). Similar concerns have been raised about the best strategies to teach entrepreneurship in higher education within tourism departments (Ratten 2019). In less developed nations such as South Africa, not much is known regarding training aspiring entrepreneurs who desire to launch their own businesses, particularly businesses in the tourism industry (Esfandiar et al. 2019; Ratten 2019). Additionally, a literature review on EE has shown that entrepreneurial programmes are valuable in encouraging entrepreneurs to start their businesses because they also boost their entrepreneurial performance (Iwu et al. 2019; Ntshangase & Ezeuduji 2024). In this study, the department of tourism in the university under consideration does offer some modules on EE (e.g. travel and tourism management, business management, and business tourism and entrepreneurship) and work integrated learning (WIL) to help prepare students for the real industry, not for tourism entrepreneurship after they have graduated.

Study concepts, theoretical underpinning and hypotheses development

Previous researchers (e.g. Bird 1988; Shapero & Sokol 1982) have developed several models of EIs, for example, implementing entrepreneurial ideas' (IEI) model (Bird 1988), which posits that entrepreneurial behaviour is a planned action conditioned by the potential entrepreneur's attitudes, which depend on DF beliefs. Another related model is the maximisation of expected utility (MEU) model (Douglas & Shepherd 2002), which posits that entrepreneurial behaviour is a planned action conditioned by the potential entrepreneur's consequences being preferable to some uncertain threshold. The SEE model as proposed by Shapero and Sokol (1982) was tested in a university setting by Krueger (1993). Ajzen's (1991) theory of planned behaviour (TPB) is another model to measure EIs. The authors aligned the discussion with the theory of the entrepreneurial event (Shapero & Sokol 1982) because the current study is looking at how tourism students perceive entrepreneurship in the industry in terms of EAs, EE and DF. According to Krueger (1993), Shapero and Sokol's (1982) model is implicitly an intention model with a focus on entrepreneurship. Shapero and Sokol (1982) identified five features of the entrepreneurial event: initiative, resource consolidation, organisational management, relative autonomy and risk-taking. The SEE model derives EIs from the perspectives of perceived attractiveness and feasibility, as well as the propensity to act on opportunities. According to Nzilano et al. (2023), this model defines perceived desirability as the allure of establishing a business, perceived feasibility as the degree to which the person feels capable of doing so, and propensity to act as the person's natural predisposition to follow through on their decisions.

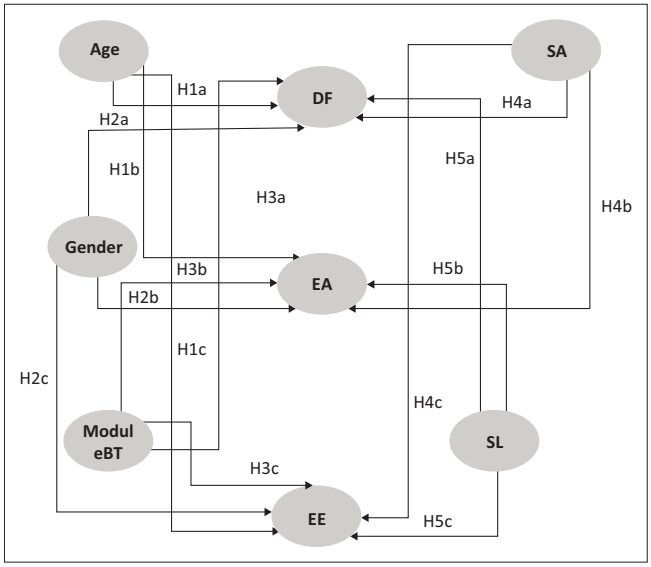
The choice of an individual to pursue company start-ups is influenced by formal institutions such as the financial, educational and legal systems (Nzilano et al. 2023). For instance, financial institutions, government laws, programmes and regulations may influence a person's decision to pursue business start-ups. In the meantime, a person's view of how fair the game is may increase their self-assurance when starting a business (Fahinde et al. 2024). Universities may help and develop graduates by providing entrepreneurship courses and hosting seminars and conferences to provide them with the knowledge, abilities and attitudes necessary for success (Ntshangase & Ezeuduji 2024). Through field assignments in entrepreneurial initiatives, creating company strategies, and exchanging experiences with successful entrepreneurs, graduates get practical skills for business start-ups (Nzilano et al. 2023).

Researchers frequently define EIs differently (Ehsanfar, Namak & Vosoughi 2023; Luong & Lee 2023). Entrepreneurial intention has been defined in some studies as the intent to become self-employed (Peterman & Kennedy 2003), or the intention to start an enterprise (Krueger, Reilly & Carsrud 2000; Iakovleva & Kolvereid 2009). These ideas can differ from one another. People who start enterprises may not have the intention of working for themselves (Iakovleva & Kolvereid 2009), but rather to operate a side business or hire employees to run the company. Some business owners or founders had no intention of working full-time jobs during the early phases of their venture, according to Ahmad et al. (2019). Additionally, people have the option to acquire or inherit an existing company and take on the role of owner or management. Based on the empirical literature presented, the following hypotheses were formulated and tested:

- **H1a, b, c:** Age will have a significant relationship to entrepreneurial desirability and feasibility, entrepreneurial attributes and entrepreneurship education.
- **H2a, b, c:** Gender will have a significant relationship to entrepreneurial desirability and feasibility, entrepreneurial attributes and entrepreneurship education.
- **H3a, b, c:** ModuleBT will have a significant relationship to entrepreneurial desirability and feasibility, entrepreneurial attributes and entrepreneurship education.
- **H4a, b, c:** Self-assurance will have a significant relationship to entrepreneurial desirability and feasibility, entrepreneurial attributes and entrepreneurship education.
- **H5a, b, c:** Satisfaction level will have a significant relationship to entrepreneurial desirability and feasibility, entrepreneurial attributes and entrepreneurship education.

Figure 1 displays the conceptual model, which guided this research design.

The constructs of the DF, EA and EE are modelled as being influenced by factors such as age, gender, ModuleBT, self-assurance and level of satisfaction from the entrepreneurship module. To assess their effects on how students perceive DF, student involvement in the entrepreneurship module was taken into account. Age, gender, ModuleBT, students' level of satisfaction with the module content and self-assurance



Note: ModuleBT, module for business tourism and entrepreneurship.
SA, self-assurance; SL, satisfaction level; EE, entrepreneurship education; DF, entrepreneurial desirability and feasibility; EA, entrepreneurial attributes; H, hypotheses.

FIGURE 1: Research conceptual model demonstrating hypothesised relationships.

serve as the model's independent variables in this study, while DF, EA and EE serve as the model's dependent variables. Research design, study population, data collection procedures and analytical approaches are discussed in the next section.

Research methods and design

Study design and setting

This research is located in the positivism paradigm, as a statistical model is being developed. It relies on deductive logic and is concerned with research hypotheses testing (Mertens & Recker 2020). To generate and statistically evaluate the links between the research constructs, it is preferable to use numbers to define the concepts being studied (Mertens & Recker 2020). Thus, a positivist-based quantitative research methodology (questionnaire survey) is useful for the investigation (Kmetty & Stefkovics 2022). The institution in question is one of the few universities in South Africa that offer bachelor's degrees and diplomas in tourism and postgraduate qualifications. Students are frequently used to test intention models and there is a higher likelihood that young individuals would have EIs (Ehsanfar et al. 2023; Luong & Lee 2023).

Study population and data collection

The study targeted tourism undergraduate and graduate students in a large institution in South Africa from both campuses. Two senior academic staff members evaluated the survey questionnaire, and the pilot study was conducted on 10 tourism students from both campuses. This study employed a probability sampling method to select 154 students, as respondents (Riyaz et al. 2020). During the main study, the researchers distributed questionnaires to a total of 43 undergraduates studying tourism on the university's smaller campus, while 250 students, consisting of both undergraduates and postgraduates, were approached on the main campus, which is larger in size. This distribution was carried out through email and/or in-person interaction. It is important to note that only 36 students from the smaller campus and 118 students from the main campus provided completed questionnaires, which were considered suitable for data analyses. The total sample size of 154 respondents was deemed sufficient for study conclusions, particularly because the overall population of tourism students across both campuses did not exceed 300 during the academic year of 2022 when the study was conducted. It implies that more than half of the student population was included in the survey.

Earlier studies on EE were used as the basis for questionnaire variables (e.g. Ahmad et al. 2018; Badi & Khan 2020; Esfandiar et al. 2019; Iwu et al. 2019; Meoli et al. 2020; Ncanywa 2019; Ntshangase & Ezeuduji 2023a; 2023; Peterman & Kennedy 2003; Shah et al. 2020). The questionnaire had both categorical and ordinal questions, and the latter ('students' perceptions of tourism entrepreneurship', 'perceptions of entrepreneurial desirability and feasibility' and 'measurement of entrepreneurial attributes') were formulated on a five-point Likert scale (from 1 = 'strongly agree', to 5 = 'strongly disagree').

Data analysis

The first phase of the analyses dealt with the assessment of the measurement model (i.e. construct validity and reliability of the instrument), while the second phase tested the structural model using a partial least square-structural equation modelling (PLS-SEM) method involving a multivariate analytical technique implemented on SmartPLS software version 4.0.8. Partial least square-structural equation modelling, which has been advocated for, by recent research, in terms of its sophistication to measure constructs' relationships in social science studies, when research objectives are for prediction (Ayanwale et al. 2022; Hair, Howard & Nitzl 2020), was used in this work to analyse the data. Partial least square-structural equation modelling is good for theory development and explanation of variance, handles both observed and latent variables together, is non-normality of data and is very apt for complex models (Hair et al. 2020). The measurement and structural models were evaluated using the SmartPLS software version 4 (Ringle, Wende & Becker 2022). Internal consistency, convergent validity and discriminant validity of the measurement model were evaluated. The significance of the path coefficient was assessed using bootstrapping with 5000 resamples on the structural models ($p < 0.05$). In this study, because survey-based studies are prone to common method bias (CMB) (Hair et al. 2020), various techniques have been employed to reduce potential bias.

Ethical considerations

Ethical clearance to conduct this study was obtained from the university's Faculty of Humanities and Social Science Research Ethics Committee, in 2021 (UZREC 171110-030-PGD-2021/73).

Results and discussion

Respondents' profiles are displayed in Table 1.

According to Table 1, 68.2% of respondents who had completed entrepreneurship courses were pleased with their practical and academic content. Even though a large portion of the population came from backgrounds without entrepreneurs (nearly 60% of respondents claimed that their parents were never entrepreneurs), the study found that around 66% of people expected to launch their own businesses in the future. These results support Ahmad et al.'s (2018) conclusion that young people view themselves as entrepreneurs and have a good attitude towards starting their businesses. While educated youths are willing and increasingly engaged in entrepreneurship, the main issue, particularly in South Africa, is that most of them do not show the required level of experience along the process, leading to

TABLE 1: Profile of respondents and general responses (N = 154).

Variables	Categories	Frequencies (%)
Gender	Males	42.5
	Females	57.5
Age grouping	Between 18 and 25 years	89.0
	30 years or more	11.0
'How satisfied are you with the entrepreneurship modules' content and practical, in your first year of study?'	'Highly satisfied'	38.2
	'Mostly satisfied'	30.0
	'Neutral'	30.0
	'Mostly dissatisfied'	1.8
	'Highly dissatisfied'	0.0
'Would you want to start your own tourism business in the future?'	'Yes'	65.7
	'No'	34.3
'Is any of your parents an entrepreneur?'	'Yes'	39.8
	'No'	60.2
'Do you know enough to start a business?'	'Yes'	58.7
	'No'	41.3
'How sure are you of yourself regarding business start-up?'	'Very sure of myself'	50.6
	Sure of myself'	35.6
	'Neutral'	8.5
	'Unsure of myself'	5.3
	'Very unsure of myself'	0.0

an unexpectedly high percentage of loss of business (Ramasobana & Fatoki 2017). Roughly 86% of those surveyed agreed that they were confident in their ability to launch a business, and about 59% of respondents went even further to say that they 'know enough to start a business'.

Assessment of measurement model

It was crucial to evaluate the psychometric qualities of the assessment scales employed in this article because they had previously been used in studies with a Western perspective (Ntshangase & Ezeuduji 2024; Nzilano et al. 2023). Before testing the hypotheses, the validity and reliability of the measurements were evaluated based on the measurement model. According to Table 2 and Figure 2, upon removing four items that fall below the threshold (EA5 = 0.343, EA6 = 0.560, EA11 = 0.477 and EA12 = 0.354), all outer loadings exceeded 0.60 (Dash & Paul 2021). A loading factor of 0.60 or more contributes significantly to each construct (Hair et al. 2020). The average variance extracted (AVE) is more than the benchmark score of 0.50, as reported by Ayanwale et al. (2022). For this investigation, the AVE score produced by the measurement model can be accepted (see Table 2). Given these findings, one might conclude that the measurement scale did not point to any convergent validity concerns. The current study's composite reliability scores (Hair et al. 2022) and Cronbach's alpha values (Oluwadamilare & Ayanwale 2021) were all above the advised limit of 0.70. The internal consistency reliability has therefore been established (see Table 2). In addition, the heterotrait-monotrait ratio of correlation (HTMT) was also used to evaluate the divergence validity. There were limitations in the previous steps, but this approach can help overcome them, and it should result in correlation coefficients lower than 0.85 (Ayanwale, Molefi & Matsie 2023; Henseler, Ringle & Sarstedt 2015).

TABLE 2: Assessment of measurement model.

Indicators	Factor loadings	Cronbach's Alpha	rho_A	CR	AVE	VIF
Age_1	1.000	1.000	1.000	1.000	1.000	1.000
Gender_1	1.000	1.000	1.000	1.000	1.000	1.000
ModuleBT_1	1.000	1.000	1.000	1.000	1.000	1.000
SA	1.000	1.000	1.000	1.000	1.000	1.000
SL	1.000	1.000	1.000	1.000	1.000	1.000
DF1	0.724	0.900	0.917	0.916	0.523	1.855
DF2	0.768	-	-	-	-	2.375
DF3	0.655	-	-	-	-	1.658
DF4	0.758	-	-	-	-	2.286
DF5	0.707	-	-	-	-	2.159
DF6	0.677	-	-	-	-	1.613
DF7	0.704	-	-	-	-	1.812
DF8	0.689	-	-	-	-	1.978
DF9	0.796	-	-	-	-	2.005
DF10	0.741	-	-	-	-	1.764
EA1	0.736	0.896	0.910	0.914	0.519	1.918
EA2	0.691	-	-	-	-	1.905
EA3	0.715	-	-	-	-	1.948
EA4	0.604	-	-	-	-	1.491
EA7	0.751	-	-	-	-	1.979
EA8	0.761	-	-	-	-	2.020
EA9	0.837	-	-	-	-	3.092
EA10	0.807	-	-	-	-	2.395
EA13	0.617	-	-	-	-	1.657
EA14	0.644	-	-	-	-	1.977
EE1	0.822	0.912	0.931	0.925	0.555	2.636
EE2	0.681	-	-	-	-	1.813
EE3	0.719	-	-	-	-	1.858
EE4	0.704	-	-	-	-	1.854
EE5	0.789	-	-	-	-	2.179
EE6	0.742	-	-	-	-	1.979
EE7	0.842	-	-	-	-	2.814
EE8	0.746	-	-	-	-	2.977
EE9	0.713	-	-	-	-	2.800
EE10	0.675	-	-	-	-	2.779

Note: Age_1 (18 years–25 years); Gender_1 (male); ModuleBT_1(yes), module for business tourism and entrepreneurship.

CR, composite reliability; AVE, average variance extracted; VIF, variance inflation factor; SA, self-assurance; SL, satisfaction level; EE, entrepreneurship education; DF, entrepreneurial desirability and feasibility; EA, entrepreneurial attributes.

Results in Table 3 indicate that values of all HTMT reported were lower than the threshold value of 0.85 after getting rid of variables EA5, EA6, EA11 and EA12 because the HTMT value between EA and DF was 0.967. The above implies that this measurement model does not suffer from divergent validity when the four items were deleted. Finally, all the constructs and indicators that were identified during the evaluation process were found suitable for testing the hypotheses and evaluating the model.

Both convergent and discriminant validity tests were examined regarding the validity of the constructs. The correlation values for a well-established construct of discriminant validity should be less than the AVE square root along the diagonals, and the HTMT ratio should attain the correlation strength (not less than 0.85) (Fornell & Larcker 1981). Furthermore, convergent and divergent validity are methods for evaluating the construct validity of a measurement procedure (Campbell & Fiske 1959). Convergent validity helps to establish construct

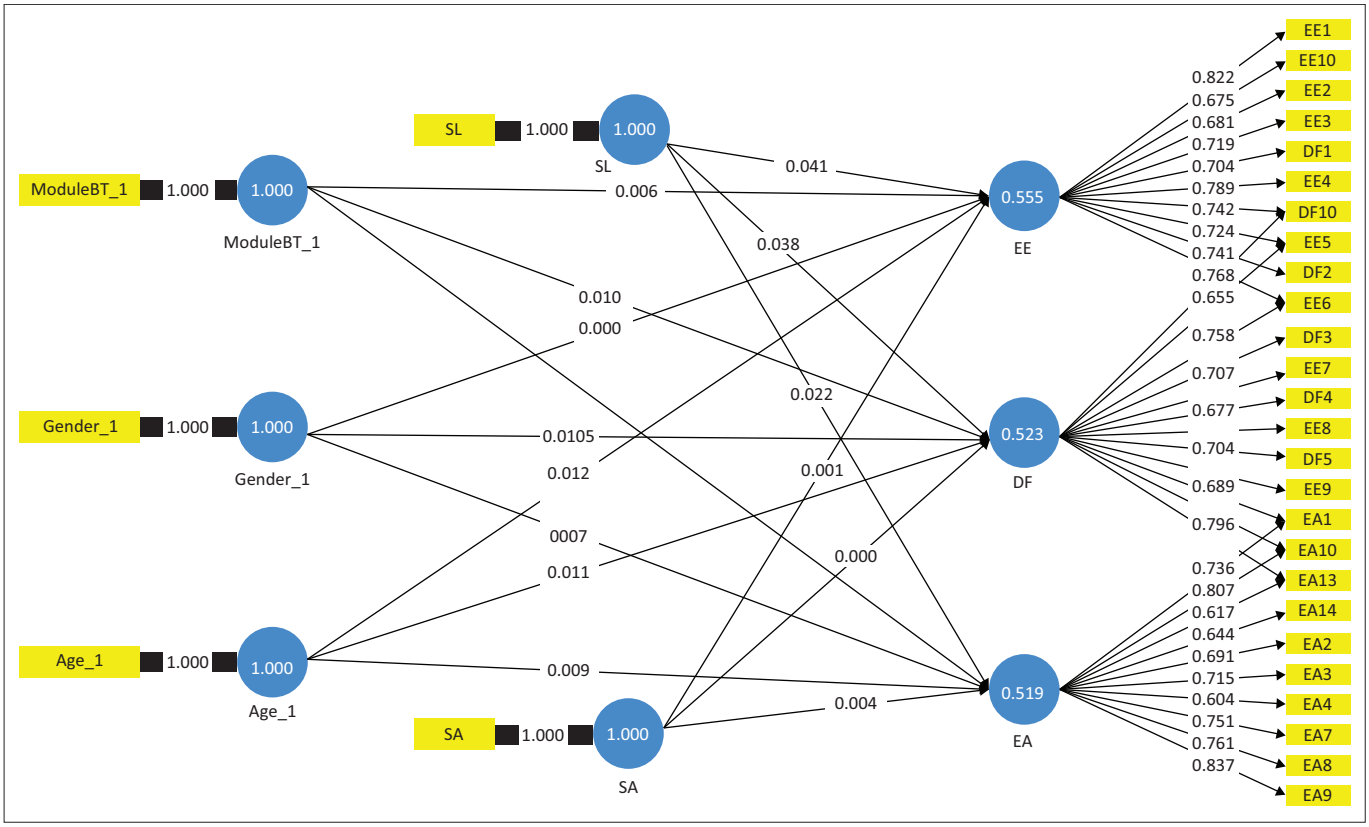
validity by demonstrating that the construct one is interested in is different from other constructs that might be present in the study. In this study, Table 3 presents the assessment of the divergent validity of the constructs in the model.

Hair et al. (2020) state that an HTMT ratio of less than 0.9 is regarded as appropriate. The results of Table 3, which display values less than 0.9, satisfy the requirement. The robustness of the structural model was also examined (see Table 4). On the advice of Hair et al. (2020), path coefficients and *R*-squared indicators were also applied. The use of the *t*-statistics test revealed that, at the 0.05 level, all connections between the items and their latent variables were significant.

Structural model assessment

To determine whether the path coefficients are biased by collinearity, the researchers looked first at the structural model. As suggested by Hair et al. (2020) and Kock (2015), the variance inflation factor (VIF) was employed to check for any potential common methods variance. An increase in VIF over 5 indicates pathological collinearity, which often indicates the presence of common methods variance (Kock 2015). This study has no common methods variance issues, as all reported VIF values were lower than 5.0 (see Table 2).

The next step was determining the model's predictive accuracy by examining the coefficient of determination (*R*2 value). In EA, DF and EE, the proposed model accounted for 68.2%, 72.1% and 56.9% of the variance respectively (*R*2 = 0.682, 0.721 and 0.569), thus indicating adequate predictive accuracy (Hair et al. 2020). Lastly, path coefficients were assessed for significance. The hypothesis testing was performed using a bootstrapping procedure and 95% bias-corrected confidence intervals using 5000 samples and no sign change options. Nominal predictors such as age, gender



SA, self-assurance; SL, satisfaction level; EE, entrepreneurship education; DF, entrepreneurial desirability and feasibility; EA, entrepreneurial attributes

FIGURE 2: Measurement model.

TABLE 3: Divergent validity – the heterotrait-monotrait ratio of correlation.

Constructs	Age_1	DF	EA	EE	Gender_1	ModuleBT_1	SA	SL
Age_1	-	-	-	-	-	-	-	-
DF	0.067	-	-	-	-	-	-	-
EA	0.072	0.767	-	-	-	-	-	-
EE	0.093	0.841	0.737	-	-	-	-	-
Gender_1	0.138	0.097	0.092	0.072	-	-	-	-
ModuleBT_1	0.173	0.106	0.090	0.066	0.229	-	-	-
SA	0.099	0.076	0.092	0.071	0.141	0.142	-	-
SL	0.066	0.192	0.161	0.195	0.045	0.022	0.209	-

Note: Age_1 (18 years–25 years); Gender_1 (male); ModuleBT_1(yes), module for business tourism and entrepreneurship.
SA, self-assurance; SL, satisfaction level; EE, entrepreneurship education; DF, entrepreneurial desirability and feasibility; EA, entrepreneurial attributes.

TABLE 4: Testing of hypotheses.

Hypotheses	Relationships	β	*t*	*p*	Decision
H1a	Age_1 -> DF	0.34	2.22	0.02	Supported
H1b	Age_1 -> EA	0.28	2.88	0.01	Supported
H1c	Age_1 -> EE	−0.35	1.46	0.14	Not supported
H2a	Gender_1 -> DF	0.21	2.93	0.03	Supported
H2b	Gender_1 -> EA	0.01	0.88	0.38	Not supported
H2c	Gender_1 -> EE	0.25	3.15	0.00	Supported
H3a	ModuleBT_1 -> DF	0.66	4.82	0.01	Supported
H3b	ModuleBT_1 -> EA	0.76	5.44	0.00	Supported
H3c	ModuleBT_1 -> EE	0.65	3.84	0.00	Supported
H4a	SA -> DF	−0.02	0.17	0.86	Not supported
H4b	SA -> EA	0.78	7.02	0.04	Supported
H4c	SA -> EE	0.63	4.91	0.00	Supported
H5a	SL -> DF	0.60	4.13	0.03	Supported
H5b	SL -> EA	0.49	3.29	0.02	Supported
H5c	SL -> EE	0.62	5.27	0.02	Supported

Note: Age_1 (18 years–25 years); Gender_1 (male); ModuleBT_1(yes), module for business tourism and entrepreneurship.

SA, self-assurance; SL, satisfaction level; EE, entrepreneurship education; DF, entrepreneurial desirability and feasibility; EA, entrepreneurial attributes.

and business tourism and entrepreneurship module cannot be used directly in SmartPLS in their current categories without being transformed into dummy variables first. For comparison purposes, and to avoid zero variance and multicollinearity errors (Oluwajana et al. 2019), one of these categories was regarded as a reference group. Statistically, the association is significant at alpha < 0.05 if the *t*-value is larger than or equal to 1.645 (one-tail).

According to Table 4, the results of the hypothesis testing have shown that the effect of Age_1 to DF (β = 0.34, $t = 2.22$, $p < 0.05$) and EA (β = 0.28, $t = 2.88$, $p < 0.05$) had a significant positive effect. As a result, both H1a and H1b were supported. In support, Păunescu, Popescu and Duennweber (2018) have likewise revealed that socio-demographic variables (such as age, level of education, income being earned and status in society) are key factors in determining if entrepreneurship is desirable. There is also evidence indicating that Gender_1 had positive and significant effects on DF and EE (β = 0.21, $t = 2.93$, $p < 0.05$ and β = 0.25, $t = 3.15$, $p < 0.05$). These findings are consistent with some previous studies (such as those of Nguyen 2018; Ntshangase & Ezeuduji 2023b; Nzama & Ezeuduji 2021) that have also shown males displaying a greater amount of desirability and feasibility (entrepreneurial intentions) than females. The survey study conducted by Nguyen (2018) indicated that compared to female business students, male business students exhibit stronger entrepreneurial intent. The study further found that ModuleBT_1 had a significant positive relationship to DF, EA and EE (β = 0.66, $t = 4.82$, $p < 0.05$; β = 0.76, $t = 5.44$, $p < 0.05$ and β = 0.65, $t = 3.84$, $p < 0.05$), thus H2a, H2c, H3a, H3b and H3c were supported. The results, however, are consistent with entrepreneurship literature because education is linked to strong judgements of feasibility and desire (Ntshangase & Ezeuduji 2023a). Relatedly, education offered by educational institutions fosters a mindset that emphasises human control over a problem including some degree of inventiveness. This study advocates that age (the level of maturity), gender and tourism-related entrepreneurship modules are significant factors in tourism entrepreneurship decisions. In line with this notion, scholarly research by Diaz-Garcia, Saez-Martinez and Jimenez-Moreno (2015) revealed that students' interest in the attractiveness of entrepreneurship increased after taking an entrepreneurship course.

In addition, there was a significant positive influence of SA on EA and EE (β = 0.78, $t = 7.02$, $p < 0.05$ and β = 0.63, $t = 4.91$, $p < 0.05$), while there were significant relationships between SL and DF, EA and EE (β = 0.60, $t = 4.13$, $p < 0.05$; β = 0.49, $t = 3.29$, $p < 0.05$ and β = 0.62, $t = 5.27$, $p < 0.05$). Consequently, H4b, H4c, H5a, H5b and H5c were all supported. Participants in entrepreneurship programmes have higher levels of self-efficacy at the end of the programme, according to research by Diaz-Garcia et al. (2015), and these authors suggested that these levels should be maintained over time. Similar to this, after some time, the participants showed more entrepreneurial inclinations than the non-participants (Diaz-Garcia et al. 2015). It can be predicted that if these higher entrepreneurial aspirations are not maintained, students' interest in entrepreneurship as a career option will decrease. According to Lim et al. (2021), students' EI is directly impacted by EE and entrepreneurial self-efficacy. Entrepreneurial self-efficacy, according to Hsu, Wiklund and Cotton (2017), is the conviction that one can successfully carry out the duties of the entrepreneur. In this study, however, EE was not impacted by Age_1 (β = −0.35, $t = 1.46$, $p > 0.05$). Also, Gender_1 showed no significant relationship to EA (β = 0.01, $t = 0.88$, $p > 0.05$) and DF was not influenced by SA (β = −0.02, $t = 0.17$, $p > 0.05$). Based on the above results, H1c, H2b and H4a were not supported. These results partially support what was reported by Epstein, Duval-Couetil and Huang-Saad (2022).

Epstein et al. (2022) found that there are no gender differences in the opinions of entrepreneurship training programmes as well as perceptions of programmes' usefulness. The current study has however revealed that entrepreneurial DF in the respondents' opinion of tourism entrepreneurship is more dependent on age, gender, and ModuleBT. While EE in the respondents' opinion of tourism entrepreneurship is more dependent on gender, ModuleBT and SA, EA in the respondents' perception of tourism entrepreneurship is dependent on ModuleBT. Self-assurance, EA and EE are therefore important in predicting tourism students' SL. While age and gender are not influenced by EA and DF, they are not either influenced by tourism students' SA. These findings suggest that age, gender, ModuleBT and self-assurance are important predictors of tourism students' perceptions of entrepreneurship, which can be used to improve the feasibility and desirability of individuals adopting entrepreneurial behaviours, according to the SEE model (Shapero & Sokol 1982). Importantly, these predictors are vital towards tourism students' entrepreneurial desirability, entrepreneurial attributes and entrepreneurship education. These findings are

consistent with previous research in general entrepreneurship (Epstein et al. 2022; Lim et al. 2021) where age, gender and self-confidence were found to improve individuals' feasibility and desirability of adopting entrepreneurial behaviours.

Recommendations

Implications for theory and practice

This study has some implications for South African universities, teaching and learning administrators, and educators. Earlier studies were restricted to general entrepreneurship education, but this study explored what may predict students' perception of tourism entrepreneurship using a type of structural equation modelling of tourism students' business start-up intentions. Universities should improve their traditional methods of instruction, paying close attention to practical pedagogical techniques (exchanging ideas with other educators) rather than a theoretical focus in class. To shape innovative ideas, content and teaching-based courses and projects must incorporate collaborative learning and teamwork. Furthermore, workshops must be included to allow tourism students to maximise their entrepreneurial practical knowledge. After receiving permission from the university administration, the department of tourism should redesign the current curriculum for the undergraduate programmes (bachelor's degree and diploma) to include a new entrepreneurial track. The department only includes entrepreneurial courses in its first year of study for the bachelor's degree programme, and it does not monitor the students' progress for the remaining duration of the study. The current investigation, however, has not evaluated the consequences of this phenomenon. During the first 2 years of diploma study, entrepreneurial modules are provided. Although 68% of the student sample reported being satisfied regarding their entrepreneurial education, this number may rise with more sustained and meaningful entrepreneurial engagement. It can be said that the research on entrepreneurship education has a good impact on the entrepreneurial goals of tourism students, including their opinions of whether it would be desirable and feasible, as well as how confident they would feel about starting up some tourist-related businesses after graduation. Therefore, it is recommended that the Department of Higher Education and Training (DHET) in South Africa improve cooperation between academic institutions, businesses and the government. Such cooperation is essential for preparing tourism graduates to launch new businesses. Sequel to these findings, future studies could be able to use a theoretical model to predict and explain students' perceptions of tourism-related entrepreneurship.

Study recommendations

This study provides some recommendations to the actual and relevant university staff at the institution under investigation:

- The university tourism department should invite guest educators, such as entrepreneurs, to co-teach students. Incorporating real-life experiences into classroom teaching may help students transition into entrepreneurs and establish productive businesses. Universities could inform educators to take on the role of advocates (provide support) and effect this change. Allowing successful businesspeople to speak as guest speakers and share their success stories may increase the appeal of starting a business among tourism students. This method of instruction differs from traditional modes of instruction in that it helps to bridge the gap between academia and industry.
- The university should use experiential pedagogical techniques when developing customised business development services to give graduates the knowledge and practical experience they need to increase their potential to launch new businesses.
- The institution should implement some reform programmes to improve the employability or self-employment of university graduates in the tourism industry. One of them is expanding the undergraduate curriculum to include a new entrepreneurial track. This will assist entrepreneurial-minded tourism students in building professional networks, expanding their understanding of the entrepreneurship process and increasing their self-confidence.
- The staff of the department of tourism should start asking students to indicate interest in the education track on tourism entrepreneurship in their first year of study. This track includes business training and individualised mentorship meetings with industry actors. The entrepreneurship mentorship programmes should concentrate on pairing students of entrepreneurship with prosperous entrepreneurs found in the tourism industry to reduce their impediments and help them make entrepreneurial decisions.
- In the final year of undergraduate study, students should have the chance to create and deliver a business plan to a carefully selected panel of judges made up of academics and business partners. The development of professional networks, improvement of self-efficacy and accuracy of the students' business ideas will all result from this.
- The department's staff should establish solid working ties by establishing a memorandum of understanding (MoU) with various tourism sector players, particularly small business owners who can mentor students studying tourism entrepreneurship and offer them internships once they graduate. The signing of this MoU between the university administration and industry players should be facilitated by the legal department of the university.
- The department's employees should improve coordination between the DHET, universities, businesses and the government. Such cooperation is essential for preparing tourism graduates to launch new businesses.

The evolution of the entrepreneurial ecosystem in South African universities was examined in the National University Entrepreneurship Ecosystem Baseline Report (2020). It acknowledged that there was a lot of activity going on in the field of entrepreneurship, but that this activity was fragmented and required more support, communication and guidance. Thus, management personnel, faculty and department heads at universities should participate as

co-creators in the growth of entrepreneurship. Universities should act as incubators for business and talent development, utilising all the resources at their disposal to boost students' participation and production. This can be accomplished by entrepreneurship professionals working with university academics to facilitate the project design and development process to foster innovation in the entrepreneurship system. The institution's values and the distribution of its resources must, however, be compatible with these activities. It must be understood that it will take time for the considerable entrepreneurial development injection into South African universities and colleges to become visible. Therefore, it is worthwhile to pursue a progressive approach that uses entrepreneurship to provide university graduates with opportunities for economic engagement. Implementing the aforementioned suggestions will benefit both the nation and society significantly because the country needs a young generation that can address the real economic problems facing society.

Limitations and further study

This current study focussed on one comprehensive university in South Africa and used a relatively small sample size of 154 students; hence, other researchers may conduct similar studies in other South African universities to establish a national model. It also suggests further research with a focus on early start-up tourism businesses with the graduates of the entrepreneurship programme. Conducting such research is needful as the students will have to face the reality of access to capital, access to markets, management skills and the importance of tourism entrepreneurship. To give policy implications for national graduates, other research should involve graduates from different areas.

Conclusion

Students who take part in tourism entrepreneurship education receive business coaching and training as well as instruction on how to build, alter or improve a preliminary business concept. They also learn how to find funding for a small, medium and micro tourism business, how to improve from mistakes, how to rely on their own ingenuity to grow their company and how to succeed in the field. The study found that demographic variables (such as age, gender, the module – 'Business Tourism and Entrepreneurship', students' self-assurance and satisfaction level) have a significant effect on entrepreneurial desirability, feasibility, entrepreneurial attributes and entrepreneurial education. These variables were found to significantly predict students' interest in starting their own business as well as motivation for doing the same thing. It was also established in this research that entrepreneurship education was unaffected by age, the level of entrepreneurial attributes was unaffected by gender, and entrepreneurial desirability and feasibility was not affected by tourism students' level of self-assurance, respectively. However, these variables (e.g. age and gender) may support their development of entrepreneurial attributes, entrepreneurial desirability and feasibility.

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Data availability

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