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EXAMINING THE INFLUENCE OF ENTREPRENEURSHIP EDUCATION ON ENTREPRENEURIAL INTENTION: A GENDER-FOCUSED ANALYSIS OF INTENTIONS AMONG UNDERGRADUATE STUDENTS

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Abstract:

Background: In recent years, there has been a growing interest in understanding the impact of entrepreneurship education (EE) on entrepreneurial intentions (EI) among undergraduate students, as EI is a critical precursor to actual entrepreneurial behaviour. However, there is limited research that specifically explores the influence of EE on EI with a focus on gender differences, especially in developing countries.

Purpose: This study investigates the influence of EE on undergraduate students' EI, with a focus on the cognitive, behavioural, and affective components of EE. Additionally, the study explores how perceived competence of entrepreneurship lecturers, adequacy of facilities and equipment, and perceived adequacy of instructional materials and curriculum content influence students' EI. Furthermore, the study examines whether the effect of these factors varies among male and female undergraduate students.

Methodology: The researchers collected data from undergraduate students over a three-year period via a self-reported online questionnaire. Hierarchical regression analysis was used for data analysis using SPSS version 24.

Findings: The findings reveal a positive relationship between students' EE and EI. The results further indicate that while cognitive attitudes do not influence EI, behavioural and affective attitudes do. Moreover, the study highlights that the influence of EE on EI differs among male and female students.

Implications and conclusion: This study provides valuable insights into the teaching and delivery of EE in higher education institutions (HEIs), emphasising the importance of instructional methods, materials, facilities, and equipment in shaping EI in developing countries.

Keywords: *Entrepreneurship education, entrepreneurship intention, attitudes, gender differences, developing countries*

Ethical Statement: This study adhered to ethical guidelines for research involving human participants. Informed consent was obtained from all participants, and their privacy and confidentiality were protected throughout the research process. The study was conducted in accordance with relevant institutional and national ethical standards, and appropriate approvals were obtained from the relevant authorities.

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INTRODUCTION

Most African countries place a high priority on the development of entrepreneurial skills among young people. In 2006, the Nigerian government enacted a public policy directive through the National Universities Commission (NUC) which made it mandatory for Nigerian tertiary institutions to introduce entrepreneurship courses across all disciplines and to establish Entrepreneurship Development Centres (EDCs) (Maxwell et al., 2018; Nwambam et al., 2018; Anosike, 2019; Olofinyehun et al., 2022). As part of the policy, undergraduates must study an entrepreneurship course between their second and final year (Olofinyehun et al., 2022). Once a student is enrolled in the entrepreneurship course at a university, they are required to complete it before the end of their regular course of study (Adekiya & Ibrahim, 2016; Anosike, 2019; Otache, 2019; Olofinyehun et al., 2022). Previous literature supports the view that the process of becoming an entrepreneur is influenced by entrepreneurship education (EE) (Nwambam et al., 2018; Sansone et al., 2021; Deveci, 2022). These studies have shown that university EE is important for two reasons. First, EE is crucial to the generation of knowledge and fostering of entrepreneurial activities, which are historically associated with economic growth (Sirelkhatim & Gangi, 2015; Hasan et al., 2017; Cera et al., 2020; Kim et al., 2020;). Second, the start-ups they create have been shown to improve economic conditions, by creating new jobs, and providing innovation and vitality (Ndofirepi et al., 2018; Othman et al., 2020; Paray & Kumar, 2020). Despite the increased interest in EE as a precursor to entrepreneurial intentions (EI), which has since been made mandatory in Nigerian Higher Educational Institutions (HEIs), there is limited empirical evidence linking EE and EI and studies explaining gender differences in EI. This is important because the effect of EE on EI by gender appears to have generated mixed results in the literature (Entrialgo & Iglesias, 2017; Ndofirepi et al., 2018; Brüne & Lutz, 2020; Justus, 2021). While some of these studies have indicated that women are more likely to start businesses and engage in entrepreneurial activities than men, others reveal otherwise (Ali & Salisu, 2019). In some studies, the positive effects of education on female students have been reported, but many others report little or no effect on female students' EI (Ndofirepi et al., 2018; Contreras-Barraza et al., 2021; Justus, 2021). Previous research argues that women may be discouraged from having high aspirations by gender stereotypes and may be deprived of the essential resources required to start and run their own businesses (Westhead & Solesvik, 2016; Scent et al., 2020).

Whilst the literature acknowledges EE as having a significant influence on entrepreneurial activity, it is a recent phenomenon in Nigerian institutions (Maxwell et al., 2018; Olofinyehun et al., 2022). Though there is evidence in the literature to suggest that EE influences student attitudes towards entrepreneurship (Asghar et al., 2019; Jena, 2020; Othman et al., 2020; Iwu et al., 2021), it is not clear whether gender differences exist in the link between EE and EI in developing countries like Nigeria. There are limited studies focusing on this link and the role of gender from a developing country perspective (Westhead & Solesvik, 2016; Nowiński et al., 2019; Onjewu et al., 2021; Pech & Řehoř, 2021). Although, there are a handful of studies (Aladejebi, 2018; Bako et al., 2018; Mamman et al., 2018; Ndofirepi et al., 2018) exploring the link between EE and EI, they fail to account for gender differences in EIs among students in HEIs. Most studies that evaluate gender differences focus on women entrepreneurship (Garba & Kraemer-Mbula, 2018; Ndofirepi et al., 2018; Ali & Salisu, 2019). Other previous studies focus on the challenges of EE (Unachukwu, 2010; Barba-Sánchez & Atienza-Sahuquillo, 2018; Azuka, 2018; Kulo et al., 2018) and the effect of EE on youth employment generation (Anidiobu et al., 2016; Nwambam et al., 2018; Othman et al., 2020; Iwu et al., 2021).

Gender is an important social factor that can shape individuals' attitudes, beliefs and behaviours towards entrepreneurship (Westhead & Solesvik, 2016; Pech & Řehoř,, 2021). Women have been found to face unique challenges and barriers in entrepreneurship, including cultural norms, societal expectations, and access to resources (Ndofirepi et al., 2018; Paray & Kumar, 2020). Therefore, it is essential to examine how EE may impact male and female undergraduate students' EI differently in developing countries. Additionally, other contextual factors, such as perceived competence of entrepreneurship lecturers, adequacy of facilities and equipment, and perceived adequacy of instructional materials and curriculum content, may also play a role in shaping students' EI. These factors can impact the quality of EE delivery and may have differential effects on male and female students. Understanding the role of EE in influencing EI among undergraduate students, with a focus on gender differences and contextual factors, can provide valuable insights for educators, policymakers, and other stakeholders involved in EE and promotion efforts in developing countries.

Literature review and hypotheses

From the perspective of Human Capital Theory (HCT), education can increase productivity and efficiency of individuals (Schmidt, 1952; Anosike, 2019; Hung & Ramsden, 2021). HCT has recently been recognised as one of the most fundamental pillars of global education policy discourse. Based on HCT core tenets, education is an "investment" that yields returns, through building, and developing skills and knowledge. From this view,

human capital is the intangible economic value of an individual's experiences, knowledge and skills (Gillies, 2015; Boldureanu et al., 2020; Hung & Ramsden, 2021). Thus, human capital serves specifically as a tool for helping individuals identify and exploit opportunities that might otherwise be inaccessible to them. Human capital has been linked to entrepreneurship success in several ways. First, general education and practical experience gained through EE can improve venture performance (Anosike, 2019). By conceptualising and empirically testing EE as an antecedent of EI, this study draws upon HCT to provide insights that will enhance the discourse on EE and EI. Although the theory has been critiqued for being simplistic and flawed, it is useful because it posits that education and training can increase an individual's productive capacity. Consequently, this study provides empirical evidence regarding the significance of gender in shaping perceptions of EIs through EE. This suggests that education is a crucial factor in fostering an individual's entrepreneurial aspirations and in enabling them to create successful businesses.

Entrepreneurship Education and intention

People's attitudes are shaped by how they feel or think about something, which dictates how they act. As a result, attitudes are formed by a combination of feelings, beliefs, and values (Ajzen, 1991; Amanamah, 2018; Jena, 2020). These attitudes may be positive, negative, or neutral. According to Ajzen (1991), people are more likely to endorse a behaviour when they expect it to have desirable consequences and less likely to endorse a behaviour when they expect it to have undesirable consequences. According to Krueger, et al., (2000), people's attitudes and beliefs carry the potential to influence their behaviour. Kurniawan, et al., (2019) defined attitude as an emotion that is expressed through one's actions. Students' attitudes towards EE has been shown to increase students' EI in a number of previous studies (Ndofirepi et al., 2018; Anosike, 2019; Othman et al., 2020; Blankesteijn et al., 2021; Mukhtar et al., 2021) . Handayati et al. (2020) found that attitude towards EE acts a fundamental determinant of EI among students. Mukhtar et al. (2021) on the other hand found that there is no link between attitudes towards EE and EI. Though Onjewu et al., (2021) identified a link between attitudes towards EE and EI, and they found that this link is weak. The findings of Mukhtar et al. (2021) is consistent with the findings of Westhead and Solesvik (2016) which revealed that EE does not improve entrepreneurship skills across all participants in an EE programme. Walter and Block (2016) on the other hand found that attitudes towards EE have a strong relationship with entrepreneurial activity, however, this is hugely dependent on the context. Huang et al. (2020) found that whilst attitudes towards EE influences EI, perceived competence of lecturers plays a significant role in influencing the intentions of students. Accordingly, Iwu et al. (2021) found that attitudes towards EE significantly influences the intention of students. This is consistent with other findings which conclude that students' attitudes towards EE has an influence on EI of students (Nowiński et al., 2019; Lv et al., 2021; Onjewu et al., 2021). This study hypothesises that:

H1: *there will be a positive relationship between students' attitudes towards EE and EI of students in HEIs.*

Competence of lecturers and intention

In past studies, EE was examined using the Theory of Planned Behaviour (TPB) constructs to figure out the impact of EE on EIs of students (Paray & Kumar, 2020; Contreras-Barraza et al., 2021; Mohamed & Sheikh Ali, 2021). The majority of these studies have measured EE as a unidimensional construct with a few statements that ask respondents about their perceptions or experiences after an entrepreneurship course (Otache, 2019; Westhead & Solesvik, 2016; Hoang et al., 2021; Iwu et al., 2021; Mukhtar et al., 2021). Previous studies have argued that EE is a multidimensional construct that includes the role of entrepreneurship lecturers, adequacy of materials and equipment, adequacy of instructional materials and curriculum content (Falkäng & Alberti, 2000; Nwambam et al., 2018; Lv et al., 2021). However, Nwambam et al., (2018) found that those who facilitate EE are few in Nigerian universities. Consequently, some studies have asserted that lecturers' inadequacy and lack of depth in entrepreneurship knowledge is a major setback in EE implementation in Nigeria. However, very few studies have examined the link between the perceived competence of lecturers and the EI of students in HEIs in the context of Nigeria (Unachukwu, 2010; Nwambam, et al., 2018; Mamman, et al., 2018; Scent, et al., 2020; Olofinyehun, et al., 2022). Olorundare and Kayode (2014) noted that insufficient trainers have hamstrung EE in Nigeria mostly because those who facilitate EE are perceived to know little about entrepreneurship. Similarly, Chinonye and Akinbode (2014) asserts that Nigerian universities face a serious shortage of skilled lecturers for EE. This study therefore proposes the following hypothesis:

H_{2a}. *There is a positive relationship between perceived competence of entrepreneurship lecturers and EI of students in HEIs.*

Facilities, instructional materials and intention

The way entrepreneurship courses are structured and implemented can influence EI (Walter & Block, 2016b; Cera

et al., 2020; Contreras-Barraza et al., 2021). Entrepreneurship is a business education discipline that combines elements from multiple disciplines such as economics, finance, marketing and strategy (Otache, 2019). With its cross-functional and cross-sector orientation, the course is intended to increase awareness of entrepreneurial careers and enhance understanding of the process of creating a new venture. A new venture cannot be created without access to learning resources. Students' attitudes towards entrepreneurship is influenced both directly and indirectly by institutional resources (Ohanu & Shodipe, 2021). For students, these resources such as learning facilities, instructional materials, business mentoring initiatives, internships, business plan competition, and seminar presentations by local entrepreneurs may be abundantly or sparsely available. Resources therefore function as a link between intentions and entrepreneurial behaviour. The availability of resources will vary from institution to institution (Hasan et al., 2017; Nowiński et al., 2019; Van Ewijk & Belghiti-Mahut, 2019; Cera et al., 2020; Martínez-Gregorio et al., 2021). Obtaining knowledge about entrepreneurship can be accomplished most efficiently if universities provide more support and resources (Ohanu & Shodipe, 2021). Handayati, (2020) found that availability of institutional support can influence EI of students. Thus, assessing the role of facilities and instructional materials is relevant because previous studies have argued that there is an inadequate supply of EE teaching facilities, equipment, and infrastructure in Nigerian HEIs (Aladejebi, 2018; Nwambam et al., 2018). The following hypotheses have been proposed:

H_{2b}: *There is a positive relationship between adequacy of facilities and EI of students in HEIs.*
H_{2c}: *There is a positive relationship between adequacy of instructional materials and EI of students in HEIs.*

Curriculum content and intention

The entrepreneurial learning experience is guided by a curriculum (Maxwell et al., 2018). A review of curriculum and teaching methods indicates that curriculum content and teaching methods vary between programs, ranging from theoretical courses intended to increase entrepreneurial awareness to practical classes intended to prepare graduates for entrepreneurship. Most teaching methods used are dynamic and may differ depending on the needs of the institution. Curriculum developers must, however, take the entrepreneurial needs of students and the context into account when developing and implementing the EE curriculum (Sirelkhatim & Gangi, 2015; Adekiya & Ibrahim, 2016). In the context of entrepreneurial development, an entrepreneurship curriculum's effectiveness is not solely based on its potential to motivate learners to develop critical thinking skills and competence in idea generation (Maxwell et al., 2018; Sirelkhatim & Gangi, 2015), neither is it dependent on the students' commitment to accomplishing entrepreneurial goals upon graduation, but a combination of many of the identified factors (Maxwell et al., 2018). As Ratten and Usmanij, (2021) point out, EE is most effective when it is based on experiential learning and a hybrid approach to learning that incorporates case studies and business plan competitions are created to increase student engagement. Consequently, this study assumes that the content of EE positively influences students' perception of entrepreneurship. This is based on the assumptions of Iwu (2021) that the relevance of EE course contents can impact positively on students EI. Drawing from this argument the following hypothesis was developed:

H_{2d}: *There is a positive relationship between relevance of EE curriculum contents and EI of students in HEIs.*

Gender differences and intention

The findings on how male and female learners develop EI are ambiguous. While some studies show that EE increases EI more positively (or less negatively) among men than among women (Westhead & Solesvik, 2016; Ndofirepi et al., 2018; Paray & Kumar, 2020; Pech & Řehoř, 2021), others report no significant differences reported across the two groups (Entrialgo & Iglesias, 2017; Van Ewijk & Belghiti-Mahut, 2019). Martin and Petr (2021) demonstrate a strong positive effect of EE on male students' attitudes, while Van Ewijk and Belghiti-Mahut (2019), demonstrated no significant difference between male and female students and that female students are more likely to experience a positive change in EI than their male counterparts. Ndofirepi et al. (2018) reports that women are less likely to start businesses than men. Ndofirepi et al. (2018) found a significant difference in EIs between the two groups. Also, Westhead and Solesvik (2016) found that there were significant differences in intention intensity among males than females. Martin and Petr (2021) found no significant difference betw een male and female students' intentions. However, in comparing, the findings show that EE's positive effects can be felt more by female students than male students (Westhead & Solesvik, 2016). Van Ewijk and Belghiti-Mahut (2019) on the other hand reported that EE no longer presents a substantial gender gap in entrepreneurial skills. The research further argued that female students are more likely than male students to achieve positive changes in their skills after completing entrepreneurship courses (Van Ewijk & Belghiti-Mahut, 2019). While Onjewu et al. (2021) found that EE has a greater positive influence on females' self-efficacy than on male students, Justus (2021) concluded that female students may have less risk

tolerance and entrepreneurial self-efficacy than male students. The following hypotheses have been proposed to guide this study:

H_3: *The influence of EE on HEIs students' EI differs between male and female undergraduate students.*

Research Design

This study employs a quantitative approach. The research approach is guided by the positivist research philosophy. A research philosophy describes the theoretical framework that guides the overall approach of a researcher (Tsang, 2016). There are various philosophies a researcher can choose from such as positivism, interpretivism, critical theory or constructivism (Gul, 2011; Risjord, 2022). The choice of a researcher is guided by the research objectives and the nature of the research phenomena being explored (Morrow & Brown, 1994). This study adopts a positivist philosophy and objectivist ontology because it uses a survey to gather quantitative data from undergraduate students to establish a relationship between EE and EI. To achieve the objectives of this study, a cross-sectional strategy was used to generate the data. This study collected data over a period of three years from undergraduate students. In this case, a cross-sectional strategy was used to collect data at a specific time. By utilising this strategy, students at various stages of their academic journey were assessed for their entrepreneurial intentions in relation to EE. By using a cross-sectional approach, the study explored variations in EI among students who have been exposed to EE at different points in their undergraduate studies. In addition to capturing changes in EI over time, the three-year data collection period provides a chance to analyse trends and patterns that may emerge. As part of the cross-sectional design, this longitudinal element enhances the study's ability to analyse whether the relationship between EE and EI is stable and consistent.

By employing a positivist paradigm and a cross-sectional strategy, the research aims to generate empirical evidence that contributes to the understanding of how EE influences undergraduate students' EI. This approach allows for rigorous data analysis, identification of causal relationships, and has the potential to inform policy and educational interventions aimed at fostering entrepreneurship among students.

Sample and Data Collection

An online questionnaire was distributed to students who completed entrepreneurship courses. The data was collected from three sets of undergraduate students (2018/2019, 2019/2020 and 2020/2021 academic sessions) from Accounting and Business Management students at Benue State University who had taken entrepreneurship courses. To increase response rate, the researchers offered vouchers to selected participants. In total, four hundred and seventy-two participants (n=472) completed the questionnaire. This study followed Manfreda and Vehovar (2012) ethical recommendations for designing surveys. As part of this research, all participants were informed about how the findings would be utilised. Consent was sought before participation. Participants were not required to provide their names or any other information that could identify them as part of the study. Though some biographical information was required such as gender, age and level. However, the question was not mandatory, and the researchers assured the respondents that the information they provided would not be used to identify them. It was completely voluntary for the participants to take part in the research, and they had the right to withdraw at any time prior to the analysis of the data. Students were informed during lectures and through student representatives. In addition, information about the researchers and their contacts was included in the research to support and clarify questions.

Measurement of variables

The measures of EI and EI were adopted from Jena (2020). In this study, attitudes towards EE were measured using three components (cognitive, affective and behavioural). To measure EE, this study used four dimensions; perceived competence of entrepreneurship lecturers; adequacy of facilities/equipment; adequacy of instructional materials and relevance of EE curriculum contents. The measures for EE were adopted from Nwambam et al., (2018). EI has been conceptualised as a conscious decision that precedes action, as well as the motivation behind enterprise-related actions such as starting a business and becoming an entrepreneur (Aladejebi, 2018; Asghar et al., 2019; Mei et al., 2020). A multi-item, 6-item scale was used to measure EI. Each research question was graded on a 5-point Likert type scale ranging from strongly agree (5) to strongly disagree (1).

Validating the scale/questionnaire items

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed on the data (see Table 1). This step aimed to explore the data, assess indicators, and perform the test of reliability. In the process, questionnaire items were explored to ensure that items had no low factor loadings (<.4) and multiple cross-loadings (>.4). The results are presented in Table 1. The data was analysed using IBM SPSS Statistics version 24 and SPSS AMOS version 22.

Table 1 Results of exploratory factor analysis (EFA)

Construct	Item statement	Standardised Factor Loadings
Behavioural Component α=0.84	I enjoyed lectures on entrepreneurship as offered in the university.	0.720
	Lectures on entrepreneurship I received in the university have increased my interest to pursue an entrepreneurial career.	0.762
	I consider entrepreneurship as a very important course in the university.	0.738
	Entrepreneurship education courses I have undergone in the university have prepared me to make informed decision on entrepreneurial career choices.	0.762
	I am happy to have had entrepreneurship education in my university.	0.785
	I sincerely consider entrepreneurship a desired career option.	0.691
	My entrepreneurship lecturers have helped me to meet and interact with successful entrepreneurs.	0.618
	My university entrepreneurship staffers help students to meet successful entrepreneurs who provide motivation to students to become entrepreneurs.	0.646
Cognitive Component α=0.92	University entrepreneurship courses have enabled me to identify business-related opportunities.	0.724
	Entrepreneurship courses I took in the university have taught me to create a service and/or products that can satisfy the needs of customers.	0.809
	University entrepreneurship courses have taught me to develop business plans successfully.	0.741
	Due to the university entrepreneurship education program, I now have the skills to create a new business.	0.813
	With the university entrepreneurship education program, I had undergone, I can now successfully identify sources of business chances.	0.801
	Entrepreneurship program of the university has taught me to perform feasibility studies.	0.749
	The university entrepreneurship courses have stimulated my interest in entrepreneurship.	0.804
	Through the university entrepreneurship program, my skills knowledge and interest in entrepreneurship have improved.	0.815
	Overall, I am very satisfied with how entrepreneurship education program is been taught in my university.	0.696
Affective Component α=0.81	I would want to be an entrepreneur after my study.	0.745
	The idea to become an entrepreneur and work for myself is appealing to me.	0.836
	I really consider self-employment as something very important.	0.862
	The entrepreneurship program in university has effectively prepared me to establish a career in entrepreneurship.	0.759
Adequacy of Instructional Materials α=0.83	The available instructional materials are adequate for studies.	0.811
	Entrepreneurship education/studies textbooks are accessible to students.	0.829
	Library provides necessary textbooks for entrepreneurship studies to students.	0.853
	Students get most of the material for entrepreneurship studies through the internet.	0.796
	Lecturers improvise instructional materials for entrepreneurship studies.	0.829
Perceive competence of Lecturers α=0.84	Lecturers are adequate to teach entrepreneurial students/ education.	0.456
	Specialists teach entrepreneurial studies/education.	0.846
	Lecturers have good knowledge of the subject matter of the entrepreneurial education/studies.	0.844
	Lecturers deliver the lesion appropriately in line with the entrepreneurial studies curriculum contents.	0.898
	Lecturers attend entrepreneurial studies classes as at when due.	0.800

Table 1 Results of exploratory factor analysis (EFA) Contd.

Construct	Item statement	Standardised Factor Loadings
Adequacy of Facilities & Equipment α=0.90	The classrooms are adequate for the teaching and learning of entrepreneurship studies.	0.858
	The classroom has public address system for teaching and learning of entrepreneurship studies.	0.815
	Practical entrepreneurship studies are carried out in the laboratories/ workshop.	0.846
	The laboratories/ workshops are adequately equipped.	0.880
	There are uninterrupted power supplies during entrepreneurial studies/ education classes.	0.819
Adequacy of Curriculum Content α=0.85	The curricular contents of the entrepreneurial studies are relevant for sustainable development in Nigeria.	0.647
	Entrepreneurial skills acquired through entrepreneurial studies will help in establishing personal business outfits.	0.627
	The knowledge acquired through entrepreneurial studies is enough for students to put into practice the vocation or trades learnt.	0.655
	Students are satisfied with the skills, aptitudes and capacities provided to them through entrepreneurial studies/education.	0.729
	Entrepreneurship studies are helpful in students' area of specialisation.	0.685
Entrepreneurial Intention α=92	A career as an entrepreneur is attractive to me.	0.810
	If I had the opportunity and resources, I would like to start a business.	0.835
	People I care about would approve of my intentions to become an entrepreneur.	0.861
	Most people who are important to me would approve of me becoming an entrepreneur.	0.798
	Being an entrepreneur gives me satisfaction.	0.826
	Being an entrepreneur implies more advantages than disadvantage to me.	0.838
	Amongst various options, I would rather be an entrepreneur.	0.785

Cronbach's alpha (α=0.70) was used to assess the internal reliability of the scales. As shown in Table 1, the α ranged between 0.81 to 0.92, suggesting that the instrument is reliable. CFA was performed to evaluate the overall measurement model. A discriminant and convergent validity assessment was conducted to evaluate the validity of the measurement model. The *discriminant validity* measures the extent to which it measures factors that are not relevant to the construct being measured. To assess discriminant validity, this study adopted the Fornell and Larcker (1981) approach. Using this technique, the AVE of each construct should be higher than the squared correlation between the construct and other constructs. Table 2 shows that this study reflects a satisfactory discriminant validity. As shown in Table 2, the multiple squared correlations (in bold†) between the variables and AVE values range from 0.51 to 0.71. This means that diagonal variables are higher than AVE values, which suggests that all constructs in the study display good discriminant validity.

Table 2 Reliability, validity statistics and correlation

Variables	CR	AVE	1	2	3	4	5	6	7	8
Cognitive Component (1)	0.93	0.60	**0.76†**							
Behavioural Component (2)	0.88	0.51	.75**	**0.80†**						
Affective Component (3)	0.88	0.63	.69**	.59**	**0.72†**					
Per. competence of Lect. (4)	0.89	0.62	.62**	.49**	.45**	**0.77†**				
Adeq. of Fac. & Equip. (5)	0.93	0.71	.56**	.47**	.38**	.64**	**0.82†**			
Adeq. of Inst. Materials (6)	0.88	0.71	.56**	.47**	.38**	.64**	.81**	**0.84†**		
Curriculum Content (7)	0.91	0.67	.71**	.68**	.54**	.65**	.69**	.69**	**0.77†**	
Entrep. Intention (8)	0.94	0.68	.62**	.59**	.79**	.44**	.39**	.39**	.58**	**0.80†**

A *convergent validity* test measures how closely variables that should measure a single construct align with each other. The average variance explained (AVE) and composite reliability were used to assess convergent validity in this research. All constructs should have composite reliability (CR) above 0.6 and the AVE values above 0.5. The results shown in Table 2 indicates that CR ranges between 0.88 and 0.94, while the AVE values range between 0.51 to 0.71. It can therefore be concluded that the results meet the criteria for convergent validity.

Table 3 CFI Model Fit Indices

Model Fit Measure	Threshold	Value
CMIN/DF	<3.0	3.138
CFI	>.90	.90
RMSEA	<.08	.06
GFI	>.80	.83
NFI	>.90	.86
SRMR	<.08	0.07

CFI= Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; Goodness of Fit; SRMR = Standardised Root Mean Square Residual; NFU = Normal Fit Index

Prior to the test of hypotheses, model fit was examined to determine how well the model fits the data. To assess model fit (see Table 3), CMIN/DF (3.138). RMSEA (0.06), CFI (0.90), GFI (0.83), NFI (0.86) and SRMR (0.07) were used in this study. Based on Table 3, all fit indices fall within the recommended thresholds for evaluating model fit. Thus, the model fits well with the data and can be used to test the proposed research hypotheses.

Results

To assess H1 and H2, a hierarchical regression analysis was performed. H1 addressed the linkage between attitudes towards EE and EI of students, while H2 was related to the linkage between perceived components of EE and EI. To conduct the hierarchical regression analysis, the independent variables measuring attitudes towards EE were added to Model 1 to investigate cognitive, behavioural, and affective components of entrepreneurial attitudes and EI of students. In Model 2, the study explored the linkage between perceived competence of entrepreneurship lecturers, adequacy of facilities, instructional materials, curriculum content and EI. The regression models used factor scores derived from the EFA conducted previously.

Table 4 Hierarchical Regression Analysis for H1 and H2

	Variables	Entrepreneurial intention		Tolerance Limit	VIF
		Model 1	Model 2		
Attitudes Towards EE	Cognitive Component	.04	.04	.332	3.012
	Behavioural Component	.16***	.10*	.411	2.486
	Affective Component	.67***	.66***	.517	1.934
Components of EE	Perceived competence of Lect.		.13*	.511	2.105
	Adequacy of Fac. & Equipment		.39***	1.00	1.000
	Adequacy of Inst. Materials		-.65	.460	2.206
	Curriculum Content		.545***	.443	3.175
F-value		293.851***	83.444***		
R^2		.65	.35		
Adj. R^2		.65	.34		
∇R^2		.65	.35		

Note: ***$p < .001$, **$p < .01$, *$p < .05$

As shown in Table 4, there is a positive significant relationship between students' attitudes towards EE and EI (R^2=.65, p<.001). Specifically, the relationship between cognitive attitudes ($\beta = .04, p > .05$) and EI is not significant while the relationship between behavioural ($\beta = .16, p < .05$), affective attitudes ($\beta = .67, p < .001$) and EI is significant. These findings provide support for H1, indicating that there is a positive relationship between students' attitudes towards EE and EI. In Model 2, this study examined the impact of four components of EE, namely: perceived competence of lecturers, adequacy of facilities, instructional materials, and curriculum content on EI. Perceived competence of lecturers ($\beta = .13, p < .05$), facilities and equipment ($\beta = .39, p < .001$) and curriculum content ($\beta = .55, p < .001$) positively influences EI. The findings suggest that curriculum content has the greatest effect on EI, followed by adequacy of facilities and perceived competence of lecturers, respectively. The results indicate that adequacy of instructional materials does not influence EI of students ($\beta = -.65, p > .05$). These results provide support for H2a, H2b and H2d while H2c is not supported.

As Table 5 shows, the cognitive, behavioural, and affective component of entrepreneurial attitudes explained 71% of male students and 55% of female students' variance in EI. The three sub-scales of entrepreneurial attitudes towards EE shows that for male students, cognitive ($\beta = .06, p < .05$), behavioural ($\beta = .12, p < .05$) and affective ($\beta = .69, p < .001$) significantly influences the EI of male students, while for female students, only behavioural ($\beta = .15, p < .05$) and affective attitudes ($\beta = .69, p < .001$) influence the EI of female students. In comparison, the results suggest that whilst cognitive attitude has a positive influence on male students EI, it does not affect the EI of female students. Behavioural attitude has a slightly higher influence on female students EI than it has on males. However, for affective component, there is no difference in EI of female and male students as it influences the EI of male and female students equally.

Table 5 Gender Differences in EI (Attitudes towards EE)

		Entrepreneurial intention	
	Variables	**Male**	**Female**
Attitudes Towards EE	Cognitive Component	.06*	-.05
	Behavioural Component	.12*	.15*
	Affective Component	.69***	.69***
F-value		232.704***	72.922***
R^2		.71	.55
Adj. R^2		.71	.54
∇R^2		.71	.55

Note: ***$p < .001$, **$p < .01$, *$p < .05$

As shown in Table 6, perceived competence of lecturers, facilities and equipment, instructional materials and curriculum content explained 43% of male students and 25% of female students' variance in EI. The results indicate that three sub-scales of components of entrepreneurial EE, perceived competence of lecturers ($\beta = .17, p < .05$), instructional materials ($\beta = -.20, p < .01$) and curriculum content ($\beta = .65, p < .001$) have a higher influence on the EI of male students when compared to females. Female students reported a lower influence in the relationship between instructional materials ($\beta = -.17, p < .05$) and curriculum content ($\beta = .32, p < .001$). Perceived competence of lecturers does not affect the EE of female students ($\beta = .05, p > .05$).

Table 6 Gender differences in entrepreneurship intentions among students

		Entrepreneurial intention	
	Variables	**Male**	**Female**
Components of EE	Perceived competence of Lecturers	.17*	.05
	Adequacy of Fac. & Equipment	-	-
	Adequacy of Inst. Materials	-.20**	.17*
	Curriculum Content	65***	.32***
F-value		70.037***	19.654***
R^2		.43	.25
Adj. R^2		.43	.23
∇R^2		.43	.25

Note: ***$p < .001$, **$p < .01$, *$p < .05$

The findings obtained in this study indicate that the influence of EE on HEIs students' EIs differ by gender, depending on the specific component that is examined.

Discussion

This study responds to calls by previous studies (e.g., Kabongo & Okpara, 2010; Unachukwu, 2010; Ali & Salisu, 2019; Anosike, 2019; Olofinyehun et al., 2022) to further explore the links between EE and EI and how gender diversity can influence entrepreneurial outcomes in developing countries. This is crucial because where negative gender stereotyping exists, it can be pervasive and as Van Ewijk, et al., (2019) puts it, such a cognition has the potential to affect the behaviour and EI of women. This paper advances the argument that EE can influence students' EIs based on gender differences. Thus, it is important to re-evaluate how EE curriculum and pedagogy are designed and executed to account for context-specific attitudes towards entrepreneurship whilst recognising that gender differences exist in the development of EI. This has important policy implications because such an awareness can create an ecosystem that encourages students regardless of gender to engage in entrepreneurial ventures. Likewise, it can improve female participation in entrepreneurship, especially in developing countries like Nigeria where entrepreneurship participation is skewed (Ndofirepi et al., 2018; Onjewu et al., 2021).

The findings suggest that there is a positive relationship between EE and EI. Specifically, the results indicate that there is a relationship between behavioural and affective component of entrepreneurial attitudes and EI. This means that what students learn, how they learn and who they learn from can encourage changes in attitudes toward starting a new business or getting involved in entrepreneurial activities within an existing organisation. This finding is consistent with other previous findings in other contexts suggesting that how EE is delivered, who delivers the content and the content of the course, can influence the intention of students (Hasan et al., 2017; Nwambam et al., 2018; Nowiński et al., 2019; van Ewijk & Belghiti-Mahut, 2019; Cera et al., 2020; Iwu et al., 2021; Martínez-Gregorio et al., 2021; Ohanu & Shodipe, 2021). This suggests that behavioural skills are crucial to the identification of opportunities in ways that can improve the capacity of individuals to make spontaneous decisions. It also enhances students' ability to establish and build mutually beneficial relationships with stakeholders. This way, EE can influence student mindset, attitudes, beliefs, and values in a way that enhances their decision to be entrepreneurs (Deveci & Seikkula-Leino, 2018; Boldureanu et al., 2020). This is consistent with the findings of Fayolle and Klandt (2006) that effective EE contributes to specific situations, behaviour, and developing an entrepreneurial mindset. The findings provide evidence to show that affective (related feelings and emotions) and behavioural aspects of EE (related to overt response, behaviour and willingness) can determine an individual's response towards EE (Shepherd & Patzelt, 2018; Jena, 2020). It is important to note that the effective implementation of EE requires cooperation and constructive collaboration between the policymakers, universities, lecturers, and the students (Alakaleek, 2019; Ratten & Jones, 2021).

This study contributes to reducing the ambiguity in findings related to gender differences in EIs. Whilst some of the findings regarding gender differences in EE are not consistent with some previous findings such as Van Ewijk and Belghiti-Mahut, (2019) which finds that gender differences do not exist in EE and EI, Westhead and Solesvik (2016) and Ndofirepi, et al. (2018) found a significant difference in the EIs of male and female students. This study provides evidence that differences exist depending on the aspect of EE in consideration and the context. Whilst certain aspects of EE such as those that facilitates information and knowledge have more impact on male students' intentions, others have greater impact on the intentions of female students. However, affective component of attitudes which comprise of feelings and beliefs have a strong effect on both male and female students, indicating that EE can effectively influence students' attitudes. This study has a significant role to play in the implementation of entrepreneurship pedagogy in Nigerian universities. Institutions and policy makers can focus on aspects of EE that have the greatest outcome on students' learning. A part of the Nigerian Universities Commission's mission is to encourage students to become entrepreneurs, the findings are in support of the policymakers' efforts to build an entrepreneurship-friendly environment through EE. This study argues that EE can be particularly tailored to promote a strong students' attitude towards entrepreneurship, intrapreneurship, and venture creation by focusing on gender diversity.

In the context of EE, these findings contribute to the development of human capital theory by pointing out the role that EE plays in acquiring knowledge, addressing gender differences, emphasising the influences of attitudes and behaviour, and emphasising the role of universities in promoting entrepreneurship (Anosike, 2019; Hung & Ramsden, 2021). Specifically, this study makes four specific contributions to the development of Human Capital Theory (HCT). First, HCT emphasises the acquisition of knowledge and skills as a crucial component of an individuals' productivity and economic success (Martin, McNally, & Kay, 2013; Aboobaker & Renjini, 2020). The discussion highlights the

positive relationship between EE and EI, suggesting that EE plays a vital role in enhancing students' entrepreneurial attitudes and mindsets (Anosike, 2019). Secondly, EE provides students with the necessary skills, knowledge, and competencies for entrepreneurship, supporting the notion that EE contributes to human capital development (Aboobaker & Renjini, 2020). The discussion in this research highlights the effect of gender differences in EE on EI. Secondly, HCT recognises that individuals' characteristics, including gender, can influence the accumulation of human capital and subsequent economic outcomes. The study adds insights to human capital theory by considering the intersection of gender and EE by acknowledging context-specific attitudes and gender differences in EI development. The findings emphasise the importance of tailoring EE to promote equal entrepreneurship participation and gender equality.

Thirdly, HCT holds that individuals' attitudes and behaviours' play an integral role in the formation and utilisation of human capital (Sofoluwe, Shokunbi, Raimi & Ajewole, 2013; Marvel, Davis & Sproul, 2016). The findings in this study emphasises that EE can influence students' attitudes, thereby influencing their entrepreneurial decision-making. The findings further highlight the behavioural component of EE, indicating that students' ability to identify opportunities, make decisions, and build relationships can be enhanced by behavioural skills acquired through EE. This aligns with human capital theory's emphasis on attitudes and behaviours in entrepreneurial success (Aboobaker & Renjini, 2020). Finally, HCT recognises the role of institutions in fostering human capital development (Aboobaker & Renjini, 2020; Boldureanu et al., 2020). The research finds how EE programs are delivered, the facilities that universities provide and the perceived competence of those that design and deliver EE, can shape student's intentions. Thus, institutions and policymakers can foster entrepreneurship among students by focusing on the aspects of EE that are most influential on their learning and taking gender diversity into account. This aligns with human capital theory's emphasis on the role of institutions and policy interventions in shaping individuals' human capital accumulation.

Limitations and future research

Whilst this study has made some contributions, there are some limitations worth mentioning. First, the study reports the effect of EE in one institution. Although the study examined the effect of EE on EI of three different sets of students over a three-year period, other institutions may report slight differences. Future studies can examine this link and compare the changes across different HEIs to examine if cultural and other context-specific factors contribute to a higher EI. Secondly, the study examined the effect of EE on current students. This excludes graduates who may have benefitted from EE. Future studies can adopt a longitudinal approach to examine whether the students translated their learning into practice after graduation from the University. Finally, the study measures students' perceptions of EE and not the EE that students received. Hence, another limiting factor is the self-report of participants. Despite these limitations, there are many benefits institutions can derive from the findings of this study in the design, delivery and the methods used to deliver EE.

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