

Deficiencies In Existing Curriculum Models and Entrepreneurial Intentions in Ghana: The Mediation Roles of Students' Intrinsic Motivation and Risk Tolerance.



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Abstract

In this paper, the implications of the deficiency of the current curriculum models on the entrepreneurial intentions of Ghanaian university students will be examined with specific emphasis on the mediating influence of risk tolerance and intrinsic motivation. A quantitative approach was adopted for this investigation with a corresponding use of structural models among 370 final-year university students of various Ghanaian universities located at the Bono region of Ghana including the Valley View University, University of Energy and Natural Resources, Catholic University College of Ghana, Sunyani Technical University, and Anglican University. From the results, there was a negative influence of the entrepreneurial propensities among the university students as a result of perceived deficiencies among undergraduate curricular models of these students. In addition, these deficiencies positively and indirectly worked through intrinsic motivation and risk tolerance but with contrasting manners; background motivation was found to enhance entrepreneurial intentions whereas risk tolerance diminished them. The effect of curricular deficits on entrepreneurial intentions is further investigated here as a complex relationship with their influence on entrepreneurial ambitions and reveals that though their implications may retard university students' entrepreneurial intentions at the moment, there may be specific psychosomatic reactions from these implications which may counter or further accentuate them respectively. It provides imperative information for learning professionals and developers wishing to make up for the gap between the entrepreneurial potentials and the practical manifestations among Ghanaian university students as entrepreneurial entities themselves.

Keywords: Entrepreneurship, curriculum models, deficiencies, undergraduate education, entrepreneurial intentions, risk tolerance, motivation

INTRODUCTION

It is well documented that entrepreneurship is a major catalyst of economic growth and development. This is especially the case in developing countries like Ghana, as identified by Adu et al. (2020a). According to Costa and Mares (2016), the major aspect that characterizes entrepreneurs is that they are risk-takers who exploit opportunities. This makes the concept synonymous with resilience and effort made towards adjusting as a result of changes that affect the economy. Entrepreneurship is therefore the major factor that everyone associated with doing business is hoping would revolutionize industries and aid economic growth (Odeyemi et al., 2024; Cobbold, 2017).

Learning about and promoting people's entrepreneurial intention, which encompasses qualities such as entrepreneurial passion and entrepreneurial ambition, is a significant aspect associated with the promotion of an entrepreneurial culture, as pointed out by Esfandiah et al. (2019). The fact that people's entrepreneurial intentions are influenced by personality characteristics is verified by a study conducted by Karabulut (2016). There are enough ambitious dreamers with bright ideas who are eager to establish an enterprise of their own, but

they are believed to encounter unprecedented barriers in their bid to achieve their aspirations to turn their ideas into a reality. (Maheshwari et al., 2023; Shahruddin et al., 2024)

"Based on studies related to entrepreneurial intention, there are a number of key factors influencing one's decision to become an entrepreneur." Personal risk tolerance, self-efficacy, and motivations (both intrinsic and extrinsic) are included in the roster; according to Voda et al. (2019), "Engaging in a task for its intrinsic pleasure, interest, or satisfaction is referred to as intrinsic motivation." Intrinsic motivation relies in most instances upon key factors such as enjoyment or challenge; yet "those who are or feel most motivated have a positive mental outlook and a superior memory." The decision to begin a career in entrepreneurship and any other investment in one's future requires a person's risk tolerance as a key influencer and can be defined as "the degree to which a person is or wishes to be willing to take risks." Individuals who are less hesitant to take the risk are "more apt to be ambitious and want to become entrepreneurs," according to Brobbey et al. (2022) and would rather "become entrepreneurs than remain in a fixed-level job." One of the most

influential factors in making a decision related to becoming a successful entrepreneur is self-efficacy; it is deemed to be the belief in one's self-capability to "effectively carry out specific activities" as presented by Brobbey et al. (2022).

Intrinsic motivation explains other elements such as being motivated to work within entrepreneurial goals. It would seem to be a phenomenon in itself as it attracts a person's ambition and motivation to engage in a creative level or act to begin a journey as a newly formed personal ambition to act and react as one would be expected to be active and functional within the entrepreneurial environment of a startup. This is regarded as an adequate approach for education in establishing an entrepreneurial culture, and it also has potential effects on students' perceptions concerning risk-taking and their intentions to create their own enterprises. The perception concerning colleges teaching students to be innovative and identify opportunities in the business world is supported by Asitik and Nunfam (2019). However, most past studies have reported inconsistent results, where most aspects are individual. Thus, the impact of entrepreneurship education was inconsistent.

Based on the ideas by Adewumi and Cele (2023), as well as Olutuase et al. (2023), traditional institutions of learning are inherently designed to discourage these qualities of an entrepreneur: innovation, critical thinking, and adaptability because the end objective of such institutions is to ensure that students leave after completing their studies with very high averages. Although it has come to be widely accepted that this quality of an entrepreneur is essential, the traditional format of university curriculums in Ghana is not adequately conducive to imbuing students to or to pursuing an entrepreneurial path. These manifest in many ways, but one such manifestation is the overarching lack of emphasis on learning by doing, as in simulating what would be experienced in real life by businesses. Development of soft skills and outdated subject matter that could suppress innovation and adaptability are two such areas that were pointed out by Adu et al. (2020) in terms of areas that could be bettered. There's a lack of engagement between industry and these institutions, not to mention an absence of counseling and mentoring to name but a few areas that could use improvement. It could be argued that children are not being equipped in formal education to develop the levels of confidence and critical thinking that would allow them to excel in business.

Currently, there is no study that investigate the effects of the gap in the contemporary curriculum models on the entrepreneurial intentions of learners, especially in the context of Ghana. The overall contribution of learners' intrinsic motivation as well as risk attitudes has also been overlooked in current literature. Even though the variables have

been found to be of greater importance in practice, the deficiency of the curriculum in the context of Ghana has also been stated as one of the inhibitive factors. It is important to recognize that the gap between the entrepreneurial capacity of the learners and their entrepreneurial performance exists within the context of the education system in the country. Therefore, the aim of this research is to explore how students' internal drives to succeed and risk attitudes mediate relationships between gaps existing in current curricular models affecting their intentions to launch their businesses in Ghana. It is very helpful to enhance entrepreneurship education so that students are able to emerge with enough preparation to launch their own businesses during and after school.

REVIEW OF LITERATURE AND CONCEPTUAL MODEL

Entrepreneurial Intentions

Entrepreneurial intention can be identified as an important concept in entrepreneurship study and practice because it may inform us what people will do when they start to create a business. In this respect, individuals with a strong desire to start an enterprise will be most likely to become successful entrepreneurs. Remeikiene et al. (2013) highlighted that entrepreneurial intention signifies the increasing awareness of an individual's desire to initiate a new venture or to create a new core value within an existing organisation. Accordingly, Zaman et al. (2024) define entrepreneurial curiosity as a desire, attractiveness, and readiness to exert significant effort or strive for excellence in meeting demands, unperturbed by potential risks, and a strong willingness to learn from failure. Ojiaku et al. (2018) say that creating jobs requires entrepreneurial intention. The desire to create a business will facilitate the creation of new firms and jobs and hence may considerably help economic development. It has been indicated that in many countries, a majority of jobs are created by startups, and most of them have emerged due to the entrepreneurial desire to initiate a firm (Velásquez et al., 2018). Entrepreneurial intention may motivate individuals to establish new enterprises that produce employment opportunities, foster economic growth, and facilitate the innovation of products and services.

The findings from Usman and Yennita (2019) proved that entrepreneurial intention drives people towards initiating new company initiatives. When new businesses are created, they often require large numbers of people to help them in running the business. Large businesses could provide new opportunities for people with various qualifications and skill levels. In addition, in order for an already running business to expand, then one needs to have entrepreneurial intentions as noted by Paul et al., (2017).

Deficiencies in Entrepreneurial Curriculum Models

There are several shortcomings in both current models of entrepreneurial education in Ghana that reduce the efficacy of entrepreneurial education. One of these shortcomings is that the course does not provide theoretical knowledge coupled with business skills that work in the real world of business (Opuni et al., 2022). One can acquire so much theoretical knowledge concerning entrepreneurship. However, in practice, it becomes very difficult to apply that knowledge in real life (Kant et al., 2025). This limits the application of theoretical approaches to entrepreneurial training concerning skills for successful business operations that encompass problem-solving, innovation, creativity, and risk management. Among the shortcomings that emerged in this survey are that there was a lack of career counselling, lack of technological integration, lack of emphasis on entrepreneurship, lack of experience in that field, lack of skills training, lack of soft skill training, among others.

Inadequate career counselling

One of the flaws in most of the designs in entrepreneurship education is the lack of appropriate career counseling. This makes it difficult for the students to learn how to become entrepreneurs (Keshf & Khanum, 2022). Almeida and Amaral (2019) indicated career counseling as one of the most important elements to help a student in making a career decision. It enables a student to align personal skills, interests, and goals with the demands and offerings of the industry or the business world.

This important consideration is overlooked; a myriad of problems arises to hamper the development of entrepreneurial skills and orientation in the students.

Students may find it difficult to grasp all the job opportunities offered by entrepreneurship unless they receive adequate career counseling (Keshf & Khanum, 2022). According to Seun and Taiwo (2017), entrepreneurship is not an overarching subject area. You could make many kinds of businesses, ranging from very small businesses to rapidly expanding businesses and even social entrepreneurship businesses. Career counseling assists students in weighing their alternatives and determining which kinds are most suitable for their skills (Iwu et al., 2021).

Lack of Technology Integration

Technology is one of the most crucial factors that contribute towards the success of startups within the current changing business environment. However, the current educational structure for entrepreneurship does not appropriately integrate

technology into the curriculum, leading to a massive gap between preparing students and would-be entrepreneurs towards the current business environment (Giones & Brem, 2017; Okoye et al., 2023). This gap emerges and creates major implications on the effectiveness of entrepreneurship education. It becomes impossible for the students to learn about the utilization and understanding of technology that is essential for the functioning of a business because it is not integrated into the entrepreneurship curriculum. Entrepreneurs operating their business endeavors within the current business environment require essential skills about the utilization of diverse technology aspects like e-commerce sites, digital marketing tools, data management, and social media management tools (Al-Gindy et al., 2022; Audretsch et al., 2019). If students do not master the skills on how to operate all these technology aspects during school-going hours, would-be business starters will find it difficult to adapt to the current business environment that is technology-driven. If you're not ready, you will miss the opportunity that comes along and will also find it impossible to operate your business processes the way you would have wanted (Zaheer et al., 2019).

Bosompem et al. (2017) highlight that the world of entrepreneurship is undergoing fast changes, with technology and digital innovation emerging as important determinants in the success of the corporate world globally. Yet the major omission of the entrepreneurial curriculum in most schools in Ghana is the lack of focus on digital entrepreneurship or the use of technology in starting and running businesses (Afriyie & Boohene, 2014). It is essential to note that leaving the pupils behind in the entrepreneurial programs of most schools is that the benefitting of the digital world is that pupils need to be computer literate as well as proficient in the use of computers. It is important for the new generation of entrepreneurs to be able to apply digital marketing on social media and online businesses as well as recognize the impact of emerging technologies like blockchain and artificial intelligence on their businesses (Olutuase et al., 2023).

Insufficient focus on entrepreneurship

Entrepreneurial models of curriculums are set to equip the learner with the required information, skills, and attitude for pursuing entrepreneurial activities (Zaheer et al., 2019). However, the challenge with most of the models is the poor treatment of entrepreneurship as a fundamental part of the learning experience (Jafari-Sadeghi et al., 2021). Such shortcoming might occur in various ways, which in the end affects the success of the programs in developing entrepreneurial skills and creativity. One manifestation of the issue is that entrepreneurial learning does not apply

interdisciplinary approaches (Leonidou et al., 2020). Entrepreneurship often requires you to have the skills and be proficient in many areas of study. For example, in entrepreneurship, you need to be proficient in fields such as business, technology, design, as well as the social sciences. Entrepreneur programs are often restricted within departments of business schools. It can be difficult for the programs to expose the pupils to other viewpoints. It is even harder for the programs to provide the learners with the skills to apply their understanding of various subjects in other fields (Hsieh & Wu, 2019).

According to Steininger (2019), another challenge that was identified is that students are not provided ample opportunities to learn about entrepreneurship. Many students are taught more about the theories rather than applying what they learn to real-life by doing practical work, which is a very important aspect to acquire business skills to be a success later on (Drobyazko et al., 2019). This could be a challenge to students since it might be rather difficult for them to apply what they learned from class to a real-life business problem if they are not provided ample opportunities to carry out tasks such as business simulations, startup ventures, or internships with entrepreneurs.

Lack of Industry-Relevant Experience

“Furthermore, it is argued that another large issue with most entrepreneurial curriculum approaches is that they place too little emphasis on relevant experience in the field,” according to Lüdeke-Freund in 2020. Educational institutions tend to impart their students with a very strong background educationally in subject matter and basic entrepreneurial skills; nevertheless, these programs impart little or no direct experience relevant to industries, which is very essential and directly related to practical skills (Tondeur et al., 2019). This can make entrepreneurship education not very efficacious. One very big issue is that students are not given an exposure or glance at what actually exists in reality, meaning they lack exposure to problems faced by entrepreneurs (Oliver & Oliver, 2022). This is because they learn about ideal aspects or examples rather than real scenarios through case studies that do not contain or reflect the dynamics and unpredictability of the business world (Hsieh & Wu, 2019). Thus, they are not exposed or trained for any real challenges in running their own organizations or business setups.

Additionally, for a businessman or woman to be successful, they must be well-versed in their business because every business has its unique environment or dynamics (Chen, 2025). Students would not be able to grasp these nuances because their learning would not encompass practical learning related to their field of interest. Take, for example, a tech businessman; they would need to stay updated about the latest advancements or

regulations concerning intellectual properties. A person involved in the food business would need to stay updated about health regulations as well as supply chain management (Chege & Wang, 2020). Students would come up with ideas for their business that may be excellent on paper but not practical when applied to their field of interest because they would not encounter these challenges. Another key aspect is the lost networking and advisory contacts that come with having a job in the industry (Mat et al., 2015). This is because those who want to start their own companies will be able to network with industry professionals and future business associates by gaining experience in the industry.

Lack of Practical skills

One major flaw in most of the curricular frameworks in the area of entrepreneurs is the lack of attention to skills training (Oladele et al., 2025). Even if it is true that most training courses aim to provide theoretical information and basic skills to entrepreneurs, they are just as inadequate in providing the pertinent practical experience requested to successfully enter a particular industry (Zaheer et al., 2019). There might be a discrepancy between what one learns in school and what a business requires, and it could be harmful to the training of would-be entrepreneurs.

Students often do not have access to real-world problems that businesses face (Jafari-Sadeghi et al., 2021). The typical experience provided in most fields of study is based on optimal scenarios and case studies that are very helpful but do not adequately depict the complexity and instabilities of the real world. This often results in students being unprepared to deal with real-world issues in running a business enterprise on their own (Leonidou et al., 2020). Unless people are prepared, it becomes difficult to apply their knowledge in an efficient manner as business practices.

Limited focus on soft skills

There are many reasons why soft skills are important for entrepreneurs. For instance, communication skills play a significant role in idea presentation, negotiation, establishing relationships with clients, and establishing relationships with collaborators (Llorente et al., 2023). For entrepreneurs to attract investors, hire good employees, and grow their businesses, they must demonstrate their ability to articulate their vision and value proposition in an effective manner—convincing their audiences. On the other hand, leadership skills are valuable for motivating employees, encouraging them to work hard, and establishing a good working environment. Entrepreneurs lacking strong leadership qualities may find it difficult to motivate their staff, thereby

frustrating their business success (Puceanu et al., 2021; Ahmad, 2025).

Another key soft skill is emotional intelligence. It enables entrepreneurs to cope with stress and pressure when things go wrong. It also enables them to work with people and make good decisions when they encounter problems. It involves understanding yourself and your own behavior and feelings and understanding another person and being able to see things from another person's point of view. Also, entrepreneurs with high emotional intelligence can accept criticisms and make a positive place of work. Problem-solving is another key soft skill that enables entrepreneurs to cope with problems and change when they occur. They should not only analyze problems but also come up with innovative ideas to resolve problems and take appropriate steps to convert those ideas into reality and bypass problems and take opportunities.

Limited interdisciplinary approach

Moreover, the narrow multidisciplinary focus of the curriculum obstructs the development of holistic perspectives as well as the required creativity for entrepreneurship. Entrepreneurship is naturally multidisciplinary since it encompasses concepts cut across different fields of study like business, economics, psychology, sociology, engineering, among others (Israr & Saleem, 2018). Students might cultivate narrow/partial concepts about entrepreneurship since they will not get the chance to encounter multiple concepts. It might be difficult for the students to formulate new ideas as well as react amid dynamism in the businesses. Moreover, entrepreneurship often involves the solution of complex problems that require multidisciplinary approaches as well as collaboration (Velásquez et al., 2018). Students might have difficulty in acquiring the required skills in critical thinking as well as creativity in order to successfully seek as well as resolve the problems if they lack experience in multidisciplinary approaches while in learning institutions (Sieger et al., 2018). The lack of readiness might make the individual reluctant or unwilling to become entrepreneurs since they might believe that they lack the capacity to manage the challenges that accompany entrepreneurship. In conclusion, the manner in which learning institutions are organized in silos might discourage individuals to work together as well as be innovative. In addition, failure to adopt an interdisciplinary approach may hinder the emergence of new ideas (Kummitha, 2019). A multidisciplinary education system promotes creativity by giving students a

chance to benefit from a wide range of ideas and approaches. Students may forego opportunities for innovative idea generation at the nexus of subject matter specialties unless they are educated about them (Lynch et al., 2021). Note that the integration of business acumen and technical understanding may provide for more creative and lucrative outcomes, as opposed to a curriculum that seems too specialized (Ementa et al., 2017). By the same token, the practical relevance of the education being offered will decrease as a curriculum becomes too specialized or narrowed. Entrepreneurs tend to operate in environments which require them to make use of a wide array of knowledge from a variety of subject matter specialties. Too specialized a curriculum may therefore divorce theory from practice (Lüdeke-Freund, 2020; Tondeur et al., 2019). There may therefore be a diminished likelihood of practical entrepreneurship training because students may find it difficult to implement their knowledge in a complex manner as it may exist in real-world situations that require simplicity for resolution.

Outdated content

Secondly, the inclusion of outdated or irrelevant material in the curriculum significantly hinders the ability to teach entrepreneurship effectively. Entrepreneurship is evolving rapidly due to the introduction of new technologies and market dynamics. The inclusion of outdated material in entrepreneurial education courses renders these courses less effective and less relevant too. According to Adewumi & Cele (2023), the inability of students to have access to the latest trends, technologies, and best practices will render them inability to adapt easily into the ever-changing world of entrepreneurship. This will widen the gap between their entrepreneurial aspirations and their actual achievements. According to Adewumi and Cele (2023), entrepreneurship thrives by innovation and adaptability, and training in obsolete knowledge can hinder students' creativity and the development of innovative firm ideas. As a result, students may demonstrate lower motivation to pursue entrepreneurial endeavors if they perceive their education as outdated or irrelevant to real-world challenges and opportunities.

The work is guided by the conceptual model as illustrated in Figure 1. The model illustrates the proposed correlation between inadequacies in current curriculum models and their impact on entrepreneurial intention.



Figure 1: Conceptual Model (Author's Construct, 2024)

The conceptual framework of this research postulates that there is a relationship modeled by which the lack of effectiveness of existing curriculum models impacts entrepreneurial intentions of students, which is moderated by students' internal motivation to start businesses and risk tolerance. The given paradigm is based on existing frameworks under which researchers evaluate an existing relationship through channels which might have an influence on entrepreneurial objectives (Nunfam et al., 2022; Rengiah&Setosa, 2014).

The independent variable that represents the core of the framework is a lack of effectiveness of current curricular designs. As mentioned in the introduction, a lack of effectiveness of current curricular designs creates a problem in a number of university education sectors conducted in Ghana that are intended to promote entrepreneurship development among students. A number of examples include a lack of focus on practical or real-life business situations within practical learning sessions, a lack of emphasis on digital entrepreneurship and the use of technology, a lack of development of relevant soft skills, a lack of relevance and up-to-date knowledge, a lack of interdisciplinary approaches, a lack of career advice or mentorship programs, and a lack of industry engagement. These variables are seen as potential inhibitors of promoting entrepreneurial readiness among students.

The key purpose of the framework is to concentrate on the Entrepreneurial Intentions. This concept reveals how much a person is passionate and committed to beginning a new venture. Many individuals believe that wanting to become entrepreneurs is a significant milestone to become

one, and it's crucial to be aware of what hinders or drives individuals to become entrepreneurs to promote new business ventures to begin.

The mediating variables Students' Intrinsic Motivation and Students' Risk Tolerance are key explanatory variables in the relationship that exists between curriculum gaps and entrepreneurial behavior. In the area of entrepreneurship studies, this could be because of the clear appeal that exists in innovating or in responding to business challenges. Students' Risk Tolerance, on the other hand, refers to an individual's predisposition to taking risks. This is considered an important personality dimension in determining decision-making behavior in entrepreneurship. Individuals who tend to take many risks tend to display strong entrepreneurial behavior. The study proposes the following hypotheses related:

H1: Flaws in existing Curriculum Models negatively impact students' entrepreneurial spirit.

H2: Gaps in curriculum learning negatively impact (a) their innate entrepreneurial inclination to start their own businesses and (b) their disposition to take risks in regards to establishing their own businesses.

H3: More intrinsic motivation to be an entrepreneur will lead to higher entrepreneurial intentions.

H4: Elevated risk tolerance would be hypothesized to enjoy a positive relationship with entrepreneurial tendencies.

H5: It is proposed that intrinsic motivation (a) and risk tolerance (b) act as mediators in the relationship between the deficit of the curriculum and entrepreneurial intentions.

Although other psychological factors like self-efficacy are acknowledged to be important predictors of intention to be entrepreneurs and mediators of motivation-based factors, it is the mediating influences of intrinsic motivation and risk tolerance upon which this particular model focuses in attempting to identify distinct pathways by which curriculum weaknesses could appear in the Ghanaian setting as indicated by the mode of analysis in terms of structural equation modelling to provide empirical confirmation for the direct and indirect effects.

MATERIALS AND METHODS

Research Design, Participants and Sampling

The research aimed to investigate issues pertaining to curricular models that reduce people's willingness to establish their own businesses in Ghana, and it was carried out using a quantitative research design. The use of numbers to investigate hypotheses and generate conclusions about a larger population defines a quantitative research design (Apuke, 2017). The research design calculates the relationship between variables to determine their numerical values (Apuke, 2017). The target population includes final-year students from the

University of Energy and Natural Resources, the Catholic University College of Ghana, Sunyani Technical University, Anglican University, and Valley View University. The total number of final-year students stood at 11,145. To determine the sample size, the formula provided by Yamane (1967) and a confidence level of 95% was used, and the sample size consisted of 387 students sampled using both proportional and simple random sampling techniques. However, 370 questionnaires were returned, and the response rate stood at 96%.

Data Analysis

Structural Equation Modeling (SEM) tools were used to analyze the data and explore the relationships between issues with the current models of curriculum, intrinsic motivation, risk tolerance, and entrepreneurial intentions. Structural equation modeling allows for the simultaneous testing of multiple linkages and latent constructs within a common analytical framework. First, a confirmatory factor analysis (CFA) was conducted to assess the validity and reliability of the measurement model, which was then followed by path analysis to test the proposed relationships between the latent constructs.

RESULTS AND DISCUSSIONS

Table 1: Demographic Data of Students

Questions	Categories	Number	Percentage
Gender	Male	191	51.6
	Female	179	48.4
	Total	370	100
Age	21 – 25 years	158	42.7
	26 – 30 years	83	22.4
	31 – 35 years	67	18.1
	36 – 40 years	36	9.7
	Above 40 years	26	7.1
	Total	370	100

Source: Field Data (2024)

- The analysis of Table 1 indicates that 51.6% (191 students) of the survey respondents are male. There are 179 female students, which makes up 48.4% of the total, a few less than the male population. The age demographic of the students reveals that they are all in various stages of their life cycles. This reveals that a vast variety of individuals are in educational institutions. The largest demographic of individuals belongs to the 21-25 age group, which consists of 42.7% (158 pupils) of the total. This largest demographic reveals that those individuals are in late teens/early twenties and are either in college or have recently started their graduate coursework. The next demographic includes individuals aged 26-30 years. This ages 22.4% (83 pupils) of the total individuals polled. There are also 18.1% (67 individuals) in the 31-35 age demographic that

reveal that a vast majority of individuals are going back to college. This would reveal that individuals are going back for a master's degree, further training in their current job position, or specializing in a certain path having a few years of experience in a current position. There are 36 individuals in the 36-40 age demographic with 26 individuals in the 40 years+ demographic. This reveals that a vast majority of individuals in the educational system include individuals of a vast variety of ages. These demographic reveals individuals that are professionals seeking advancements in their path/career changes or individuals seeking a vast majority of enlightenment for the rest of their life.

Indicator Loadings for Deficiencies in existing under-graduate curriculum models

Presenting standardized loadings of each indicator on its respective construct offers transparency and

clarity regarding the strength and direction of the relationships between individual items and their underlying constructs. The results for the indicator loadings are indicated in Table 2.

Table 2: Indicator Loadings for Deficiencies in existing under-graduate curriculum models.

Construct	Loadings
<i>Deficiencies (Cronbach's alpha = 0.963, CR (rho_a) = 0.963, AVE = 0.729)</i>	
LFS1	0.889
LFS3	0.877
LFS2	0.875
IFE2	0.873
IFE3	0.861
OC3	0.857
OC4	0.853
LPS3	0.847
LFS4	0.831
LPS1	0.818
LPS2	0.807
<i>Entrepreneurial Intentions (EI: Cronbach's alpha = 0.915, CR (rho_a) = 0.916, AVE = 0.746)</i>	
EI5	0.827
EI6	0.884
EI7	0.893
EI8	0.869
EI9	0.845
<i>Risk Tolerance (RT: Cronbach's alpha = 0.882, CR (rho_a) = 0.927, AVE = 0.743)</i>	
RT1	0.897
RT2	0.898
RT3	0.922
RT4	0.713
<i>Intrinsic Motivation (IM: Cronbach's alpha = 0.917, CR (rho_a) = 0.908, AVE = 0.802)</i>	
IM1	0.931
IM2	0.826
IM3	0.906
IM4	0.915

Source: Field Survey (2024)

Key: EI = Entrepreneurial Intention, IFE = Insufficient Focus on Entrepreneurship, LPS = Lack of Practical Skills, LFS = Limited Focus on soft Skills, OC = Outdated Content.

The indicator loadings in table 2 suggests a robust and stable loadings for all constructs. This suggests that these chosen indicators are able to well measure their respective constructions. High indicator loadings indicate that these chosen indicators are able to well measure the underlying construction in the given model, making it efficient in assessing validity in the measurement model. For example, the indicators EI5 to EI9 indicated significant loading values for the latent construction "Entrepreneurial Intentions," varying from 0.794 to 0.872. The remaining did not fulfil the 0.7 requirement for indicator loading values and therefore weren't considered. These values indicate that these did well in portraying distinct aspects related to entrepreneurial intentions, indicating a significant correlation with the entire construct. Moreover, the

signs indicating curriculum deficits also appeared high, varying from 0.807 to 0.889 for the entire latent construct. These values indicate that these are well associated with their respective construct. This suggests that each item used for validating hypotheses indicated significant impacts.

The values of Average Variance Extracted (AVE) remains between 0 and 1. A high AVE indicates greater convergent validity (Fornell & Larcker, 1981). The individual AVEs for the unique constructs lie between 0.729 and 0.802. These values suggest that on average, each set of items shares a strong part of their variability with the construct. Thus, from the table above, it is clear that the convergent validity in the given model is very high. This is because the values demonstrate that all the variables

in each construct are interrelated. This provides us with greater confidence in the findings of the model because it gives us greater assurance in the findings regarding the constructs under study.

Structural Model Fit for Deficiencies in existing under-graduate curriculum models

The F-square is a measure used to assess the effect size or the proportion of variance explained by a

particular exogenous construct on an endogenous construct in the structural model. Typically, F-square values above 0.02 are considered small, values above 0.15 are considered medium, and values above 0.35 are considered large effect sizes. The F-square value is indicated in Table 3.

Table 3: F-square

	Original sample (0)	T statistics	P values
Deficiencies -> EI	3.690	7.054	0.000
Deficiencies -> RT	0.747	4.199	0.000
Deficiencies -> IM	0.858	3.960	0.000
RT -> EI	0.080	2.413	0.016
IM -> EI	0.045	1.959	0.050

Source: Field Survey (2024)

One of the key findings is that most of the factors were highly influential in entrepreneurial inclination, as was evidenced by their high F-square values and low p-values. For instance, the deficits had a high F-square value of 3.690 in regard to the students' entrepreneurial inclinations. Moreover, its significant P-value (<0.05) and t-statistic (>1) further highlight the significance of deficits in relation to shaping individuals' desire to engage in entrepreneurial activities.

Similarly, the deficiencies in existing curricula significantly affect risk tolerance and intrinsic

motivation since their F-square values are considerably high-0.747 and 0.858, respectively-with significant P-values-less than 0.05-and t-statistics greater than 1. On the contrary, the results indicate risk tolerance and intrinsic motivation have relatively minor effects on entrepreneurial ambitions. The respective p-values are a bit higher but below the critical level, and the t-statistics are a bit lower but still significant, which is above 1. These results indicate that our hypotheses testing by means of path analysis yielded very good statistical results.

Table 4: Total Effects

Hypothesis	Relationship Measured	coefficient	t- statistic	p-values	Remarks
H1	Deficiencies -> EI	-0.898	57.096	0.000	Supported
H2a	Deficiencies -> RT	0.654	15.443	0.000	Not Supported
H2b	Deficiencies -> IM	0.680	15.577	0.000	Not Supported
H3	RT -> EI	-0.275	5.629	0.000	Not Supported
H4	IM -> EI	0.212	4.337	0.000	Supported
H5a	Deficiencies -> IM -> EI	0.144	4.227	0.000	Supported
H5b	Deficiencies -> RT -> EI	-0.180	5.290	0.000	Supported

Source: Field Survey (2024)

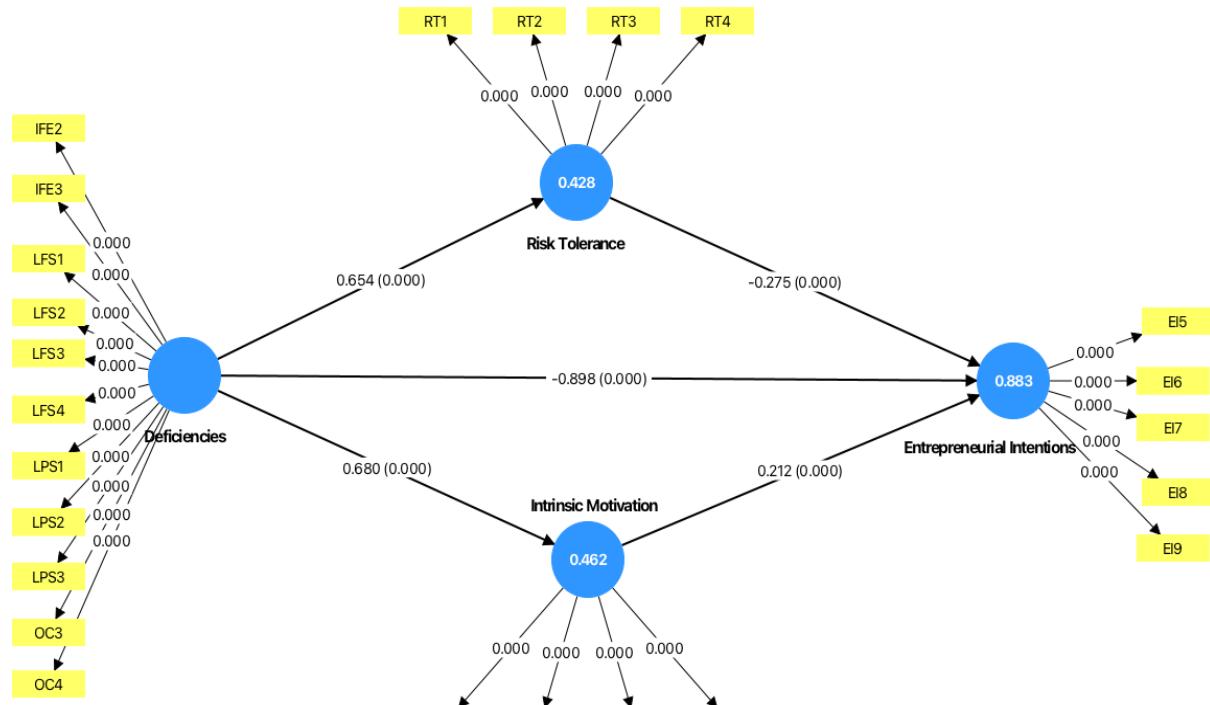


Figure 2: Structural Model of Deficiencies in existing under-graduate curriculum models.

Based on the findings of the partial least square structural equation modelling analysis, there are significant relations that exist between curriculum gaps, intrinsic motivation, risk tolerance, and entrepreneurial intentions. The gaps in the curriculum had a large and negative statistically significant effect on entrepreneurial intention: $\beta = -0.898$, $t = 57.096$, $p < 0.001$. This is indicative that when a student becomes highly aware of defects in the academic program for entrepreneurship, his or her tendency toward entrepreneurship decreases significantly.

Contrary to hypothesis 2, curricular deficiencies significantly positively influenced both risk tolerance and intrinsic drive. Deficiencies were positively related to risk tolerance ($\beta = 0.654$, $t = 15.443$, $p < 0.001$), suggesting that students experiencing curricular deficiencies may exhibit a stronger tendency towards taking risks. Deficiencies were positively related to intrinsic motivation ($\beta = 0.680$, $t = 15.577$, $p < 0.001$), indicating that academic deficiencies may boost students' inner desire to achieve or win a challenge.

Thus, the investigation brings to light the fact that risk tolerance and intrinsic motivation had significant influences on entrepreneurial aspiration, but in different ways: risk tolerance negatively influenced entrepreneurial goals ($\beta = -0.275$, $t = 5.629$, $p < 0.001$), meaning that increased risk tolerance is somehow negatively related to entrepreneurial intentions. The above-mentioned result seems a bit paradoxical; in certain contexts, high-risk tolerance may not always imply entrepreneurial activities. By contrast, intrinsic

motivation positively and strongly influenced entrepreneurial goals ($\beta = 0.212$, $t = 4.337$, $p < 0.001$), as various studies also show how much self-driven motivational drive is important for entrepreneurial activity.

Two particularly important indirect pathways for mediation effects were observed. First, the indirect positive impact of curriculum deficiencies on entrepreneurial intentions was significant via intrinsic motivation: $\beta = 0.144$, $t = 4.227$, $p < 0.001$. This would mean that while deficiencies may reduce entrepreneurial intentions directly, they at the same time develop intrinsic motivation, which increases these intentions. Second, an indirect negative effect through risk tolerance- $\beta = -0.180$, $t = 5.290$, $p < 0.001$ -reveals that through increased risk tolerance, deficiencies hamper entrepreneurial ambitions.

In summary, the shortfalls in the curriculum influence people's entrepreneurial intentions both directly and indirectly. The direct path is strongly negatively related, while the indirect paths work through intrinsic drive-positively-and risk tolerance-negatively. This suggests that the negative effect of deficiencies within the curriculum on entrepreneurial intentions is at least partially explained by these deficiencies diminishing students' intrinsic drive and their tolerance for risks, which is inherent in entrepreneurship and leads to lower entrepreneurial desire. All the links that emerged within the model were statistically significant, underlining the complex and multi-dimensional influence of perceived educational disparities on the entrepreneurial desires of students attending university.

CONCLUSION AND IMPLICATION

The present study investigated, from an intrinsic drive-risk tolerance perspective, the effects of curriculum deficiencies on the entrepreneurial intentions of students in Ghanaian universities. Students' entrepreneurial tendencies are significantly and negatively influenced by perceived defects in undergraduate education models. On the other hand, two of these deficiencies have an indirect and positive effect on entrepreneurial intention but in opposing ways: intrinsic desire increases it, while risk tolerance decreases it. These results show a complex interaction in which curriculum deficiencies reduce students' entrepreneurial desire and elicit psychosocial responses that could dampen or heighten this impact. This current research adds complexity to the debate about entrepreneurial education in higher education institutions in Ghana. Results have implications for policy as well as practice. The strong negative impact of curriculum gaps in entrepreneurial intention brings to the fore the need for immediate reforms in higher education curricula, aligning academic contents with practical needs for entrepreneurship, while embedding soft skills, technological know-how, and interdisciplinary learning. Intrinsic motivation in conjunction with risk tolerance implies that educational interventions must be more than the transmission of content. School systems must nurture the desire of youngsters and monitor the level of risk they can take. Finally, national programs for entrepreneurship education should nurture experiential learning, mentorship, and psychological empowerment to complement shortcomings in curriculum design and foster entrepreneurial mindset. Based on this study and other studies, we recommend that the use of universities should use business incubators, startup labs, and field projects to connect theory and practice, like what we have learned from Nigeria (Oluwase et al., 2023). Tests should also be revised to address creativity, ingenuity, and problem-solving rather than memorization. The utilization of teaching strategies that foster independence, competence, and connection-three things which might enhance motivation-is encouraged herein. Provide students with means of evaluating and dealing with risk in a positive manner and make entrepreneurial mentorship and collaboration between schools and enterprises a permanent feature of the school system in order to assist students in all phases of entrepreneurship. Due to the singular nature of the findings and limitations of the current study, several other avenues of research are possible. Future research should also investigate longitudinal effects of curriculum enhancements and entrepreneurial experiences on intentions and venture creation using longitudinal approaches. The psychosocial factors of self-efficacy, entrepreneurial attitude, and perceived behavioral control need to be explored in

more detail. Research in other regions or countries would determine if the relationships found herein are culturally or institutionally specific to Ghana or apply to other emerging country contexts. Qualitative approaches may provide more detail regarding why entrepreneurial intentions are lower in this context.

REFERENCES

1. Adewumi, S., & Cele, S. C. (2023). Curriculum Design and Entrepreneurial Intention: Bridging Graduates' Unemployment Gap in Nigeria. *International Journal of Social Sciences & Educational Studies*, 10(3), 161–178. <https://doi.org/10.23918/ijsses.v10i3p161>
2. Adu, I. N., Boakye, K. O., Suleman, A.-R., & Bingab, B. B. B. (2020a). Exploring the factors that mediate the relationship between entrepreneurial education and entrepreneurial intentions among undergraduate students in Ghana. *Asia Pacific Journal of Innovation and Entrepreneurship*, 14(2), 215–228. <https://doi.org/10.1108/apjje-07-2019-0052>
3. Apuke, O. D. (2017). Quantitative Research Methods: A Synopsis Approach. *Journal of Business and Management Review*, 6(11), 40–47.
4. Asitik, A. J., & Nunfam, V. (2019). Quality and relevance of entrepreneurial education in Ghana: Perspectives of undergraduate students. *UDS International Journal of Development*, 6(3), 41–56. <https://doi.org/http://www.udsjd.org/index.php/udsjd/article/view/406/188>
5. Brobbey, E., Appiah, M. O., Mensah, T. O., & Adjei, E. A. (2022). Entrepreneurial Intentions among University Students: Insights from the University of Cape Coast. *International Journal of Management, Accounting & Economics*, 9(12), 782–805. <https://doi.org/10.5281/zenodo.7557412>
6. Citta, A. B., Ridha, A., Dekrita, Y. A., & Yunus, R. (2019). The influence of financial literacy on entrepreneurial intention. *Advances in Economics, Business and Management Research*, 92(2018), 119–126.
7. Cobbold, C. (2017). Moving from Page to Playground: The Challenges and Constraints of Implementing Curriculum in Ghana. *Journal of Research on Humanities and Social Sciences*, 7(4), 1–11.
8. Costa, T. G. da, & Mares, P. (2016). Factors affecting students' entrepreneurial intentions of Polytechnic Institute of Setubal: a cognitive

approach. *Revista de Administração, Contabilidade e Economia Da Fundace*, 7(1), 103-117. <https://doi.org/10.13059/racef.v7i1.175>

9. Esfandiar, K., Sharifi-Tehrani, M., Pratt, S., & Altinay, L. (2019). Understanding entrepreneurial intentions: A developed integrated structural model approach. *Journal of Business Research*, 94(10), 172-182. <https://doi.org/10.1016/j.jbusres.2017.10.045>

10. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.

11. Karabulut, A. T. (2016). Personality traits on entrepreneurial intention. *Procedia - Social and Behavioral Sciences*, 229, 12-21. <https://doi.org/10.1016/j.sbspro.2016.07.109>

12. Machali, I., Wibowo, A., Murfi, A., & Narmaditya, B. S. (2021). From teachers to students creativity? the mediating role of entrepreneurial education. *Cogent Education*, 8(1). <https://doi.org/10.1080/2331186X.2021.1943151>

13. Maheshwari, G., Kha, K. L., & Arokiasamy, A. R. A. (2023). Factors affecting students' entrepreneurial intentions: a systematic review (2005-2022) for future directions in theory and practice. In *Management Review Quarterly* (Vol. 73). Springer International Publishing. <https://doi.org/10.1007/s11301-022-00289-2>

14. Nunfam, V. F., Asitik, A. J., & Afrifa-Yamoah, E. (2022). Personality, Entrepreneurship Education and Entrepreneurial Intention Among Ghanaian Students. *Entrepreneurship Education and Pedagogy*, 5(1), 65-88. <https://doi.org/10.1177/2515127420961040>

15. Odeyemi, O., Oyewole, A. T., Adeoye, O. B., Ofodile, O. C., Addy, W. A., Okoye, C. C., & Ololade, Y. J. (2024). Entrepreneurship in Africa: a review of growth and challenges. *International Journal of Management & Entrepreneurship Research*, 6(3), 608-622.

16. Ojiaku, O. C., Nkamnebe, A. D., & Nwaizugbo, I. C. (2018). Determinants of entrepreneurial intentions among young graduates: perspectives of push-pull-mooring model. *Journal of Global Entrepreneurship Research*, 8(1). <https://doi.org/10.1186/s40497-018-0109-3>

17. Olutuase, S. O., Brijlal, P., & Yan, B. (2023). Model for stimulating entrepreneurial skills through entrepreneurship education in an African context. *Journal of Small Business and Entrepreneurship*, 35(2), 263-283. <https://doi.org/10.1080/08276331.2020.1786645>

18. Paul, J., Hermel, P., & Srivatava, A. (2017). Entrepreneurial intentions—theory and evidence from Asia, America, and Europe. *Journal of International Entrepreneurship*, 15(3), 324-351. <https://doi.org/10.1007/s10843-017-0208-1>

19. Puni, A., Anlesinya, A., & Korsorku, P. D. A. (2018). Entrepreneurial education, self-efficacy and intentions in Sub-Saharan Africa. *African Journal of Economic and Management Studies*, 9(4), 492-511. <https://doi.org/10.1108/AJEMS-09-2017-0211>

20. Remeikiene, R., Startiene, G., & Dumciuviene, D. (2013). Explaining entrepreneurial intention of university students: The role of entrepreneurial education. *Management, Knowledge and Learning International Conference 2013*, 1(12), 299-307.

21. Rengiah, D. P., & Sentosa, P. D. I. (2014). A Conceptual Development of Entrepreneurship Education and Entrepreneurial Intentions among Malaysian University Students. *IOSR Journal of Business and Management*, 16(11), 68-74. <https://doi.org/10.9790/487x-161126874>

22. Shahruddin, S., Sonet, U. N., Azmi, A., & Zainordin, N. (2024). Traversing the complexity of digital construction and beyond through soft skills: experiences of Malaysian architects. *Engineering, Construction and Architectural Management*.

23. Usman, B., & Yennita. (2019). Understanding the entrepreneurial intention among international students in Turkey. *Journal of Global Entrepreneurship Research*, 9(1), 34-156.

24. Velásquez, J. A. T., Arias, A. V., Hernández, J. B., Díez-Echavarría, L. F., Marín, M. L. U., & Pérez, F. O. M. (2018). Characterization of entrepreneurial intention in university students as from Systemic Entrepreneurship Intention Model: A case study. *Cuadernos de Gestión*, 18(2), 95-114. <https://doi.org/10.5295/cdg.160670jt>

25. Yamane, T. (1967). *Statistics: An introductory analysis*. (2nd Editio, Vol. 60). New York: Harper and Row: Evanston & London and John Weatherhill, Inc. <https://doi.org/10.2307/2282703>

26. Zaman, S., Ahmed, H., Shakil, M. H., Rafiq, M., & Ali, F. (2024). Navigating ambitions: unveiling entrepreneurial intentions in family business through social cognitive theory. *Kybernetes*.

27. Voda, A. I., Covatariu, D., & Ghiuta, O. A. (2019). Student's entrepreneurial intentions: Role of

entrepreneurial education and risk taken ability. *Environmental Engineering and Management Journal*, 18(7), 1527-1534.

28. Paul, J., Hermel, P., & Srivatava, A. (2017). Entrepreneurial intentions—theory and evidence from Asia, America, and Europe. *Journal of International Entrepreneurship*, 15(3), 324-351. <https://doi.org/10.1007/s10843-017-0208-1>

29. Opuni, F. F., Snowden, M., Winful, E. C., Hyams-Ssekasi, D., Halsall, J. P., Quaye, J. N. A., ... Opoku-Asante, K. (2022). The Nexus between Entrepreneurial Education and Entrepreneurial Self-Competencies: A Social Enterprise Perspective. *Sustainability (Switzerland)*, 14(19). <https://doi.org/10.3390/su141912725>

30. Opuni, F. F., Snowden, M., Winful, E. C., Hyams-Ssekasi, D., Halsall, J. P., Quaye, J. N. A., ... Opoku-Asante, K. (2022). The Nexus between Entrepreneurial Education and Entrepreneurial Self-Competencies: A Social Enterprise Perspective. *Sustainability (Switzerland)*, 14(19). <https://doi.org/10.3390/su141912725>

31. Keshf, Z., & Khanum, S. (2022). "It is a very difficult process": career service providers' perspective on career counseling in Pakistani universities. *Heliyon*, 8(1).

32. Almeida, F., & Amaral, M. (2019). Conceptual Framework for Assessment Entrepreneurial Education. *International Journal of Knowledge, Innovation and Entrepreneurship*, 7(3), 5-25.

33. Seun, B. A., & Taiwo, A. G. (2017). Teachers, Curriculum Reform for Entrepreneurship Education in Nigeria: Issues and Consequences. *Current Studies in Comparative Education, Science and Technology*, 4(2), 10-21.

34. Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. (2021). Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *International Journal of Management Education*, 19(1), 0-1. <https://doi.org/10.1016/j.ijme.2019.03.007>

35. Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. (2021). Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *International Journal of Management Education*, 19(1), 0-1. <https://doi.org/10.1016/j.ijme.2019.03.007>

36. Okoye, C. C., Scott, T. O., Uchechukwu, E. S., Maryann, N., Okeke, C. N. O., Udukwu, S. T. C., &

Ewim, D. R. E. (2023). Integrating Business principles in STEM Education: fostering entrepreneurship in students and educators in the US and Nigeria.

37. Zaheer, H., Breyer, Y., & Dumay, J. (2019). Digital entrepreneurship: An interdisciplinary structured literature review and research agenda. *Technological Forecasting and Social Change*, 148(June 2018), 119735. <https://doi.org/10.1016/j.techfore.2019.119735>

38. Al-Gindy, A., Yasin, N., Aerabe, M., & Omar, A. A. C. (2022). Integrating digital technology in enterprise and entrepreneurship education. In *Technology and Entrepreneurship Education: Adopting Creative Digital Approaches to Learning and Teaching* (pp. 53-75). Cham: Springer International Publishing.

39. Audretsch, D. B., Cunningham, J. A., Kuratko, D. F., Lehmann, E. E., & Menter, M. (2019). Entrepreneurial ecosystems: economic, technological, and societal impacts. *Journal of Technology Transfer*, 44(2), 313-325. <https://doi.org/10.1007/s10961-018-9690-4>

40. Bosompem, M., Dadzie, S. K. N., & Tandoh, E. (2017). Undergraduate students' willingness to start own agribusiness venture after graduation: A Ghanaian case. *Contemporary Issues in Entrepreneurship Research*, 7(1), 75-105. <https://doi.org/10.1108/S2040-724620170000007009>

41. Bosompem, M., Dadzie, S. K. N., & Tandoh, E. (2017). Undergraduate students' willingness to start own agribusiness venture after graduation: A Ghanaian case. *Contemporary Issues in Entrepreneurship Research*, 7(1), 75-105. <https://doi.org/10.1108/S2040-724620170000007009>

42. Hsieh, Y. J., & Wu, Y. J. (2019). Entrepreneurship through the platform strategy in the digital era: Insights and research opportunities. *Computers in Human Behavior*, 95, 315-323. <https://doi.org/10.1016/j.chb.2018.03.033>

43. Jafari-Sadeghi, V., Garcia-Perez, A., Candeló, E., & Couturier, J. (2021). Exploring the impact of digital transformation on technology entrepreneurship and technological market expansion: The role of technology readiness, exploration and exploitation. *Journal of Business Research*, 124(November 2020), 100-111. <https://doi.org/10.1016/j.jbusres.2020.11.020>

44. Leonidou, E., Christofi, M., Vrontis, D., & Thrassou, E.

A. (2020). An integrative framework of stakeholder engagement for innovation management and entrepreneurship development. *Journal of Business Research*, 119(November), 245–258. <https://doi.org/10.1016/j.jbusres.2018.11.054>

45. Lüdeke-Freund, F. (2020). Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research. *Business Strategy and the Environment*, 29(2), 665–681. <https://doi.org/10.1002/bse.2396>

46. OLADELE, J. I., Daramola, D. S., Jimoh, M. I., OGUNJIMI, M. O., & Owolabi, H. O. (2025). Assessment of the Integrated Curriculum Model for fostering 21st Century Entrepreneurial Skills and its Implications for Graduate Employability. *Ilorin Journal of Education*, 45(2), 288-305.

47. Steininger, D. M. (2019). Linking information systems and entrepreneurship: A review and agenda for IT-associated and digital entrepreneurship research. *Information Systems Journal*, 29(2), 363–407. <https://doi.org/10.1111/isj.12206>

48. Sieger, P., Fueglistaller, U., Zellweger, T., & Braun, I. (2018). Global student entrepreneurship 2018: Insights from 54 countries 2018 GUESSS Global Report. *Global University Entrepreneurial Spirit Students' Survey*, 2(2), 67–87. Retrieved from http://www.guesssurvey.org/resources/PDF_InterReports/GUESSS_Global_2018.pdf

49. Puceanu, A. M., Rabie, N., Moustafa, A., & Jiroveanu, D. C. (2021). Entrepreneurial leadership and sustainable development—a systematic literature review. *Sustainability*, 13(21), 11695.

50. Tondeur, J., Scherer, R., Baran, E., Siddiq, F., Valtonen, T., & Sointu, E. (2019). Teacher educators as gatekeepers: Preparing the next generation of teachers for technology integration in education. *British Journal of Educational Technology*, 50(3), 1189–1209. <https://doi.org/10.1111/bjet.12748>

51. Oliver, P. G., & Oliver, S. (2022). Innovative online learning in entrepreneurship education: The impact of embedding real-life industry practice in the virtual learning environment. *Industry and Higher Education*, 36(6), 756-767.

52. Mat, S. C., Maat, S. M., & Mohd, N. (2015). Identifying Factors that Affecting the Entrepreneurial Intention among Engineering Technology Students. *Procedia - Social and Behavioral Sciences*, 211(9), 1016–1022. <https://doi.org/10.1016/j.sbspro.2015.11.135>

53. Lynch, M., Kamovich, U., Longva, K. K., & Steinert, M. (2021). Combining technology and entrepreneurial education through design thinking: Students' reflections on the learning process. *Technological Forecasting and Social Change*, 164(January 2018), 119689. <https://doi.org/10.1016/j.techfore.2019.06.01>

54. Kummitha, R. K. R. (2019). Smart cities and entrepreneurship: An agenda for future research. *Technological Forecasting and Social Change*, 149(10), 119763. <https://doi.org/10.1016/j.techfore.2019.11.976>

55. Llorente, I., Odriozola, M. D., & Baraibar-Diez, E. (2023). Fostering communication skills in entrepreneurship education. *Journal of Management and Business Education*, 6(1), 58–77.

56. Israr, M., & Saleem, M. (2018). Entrepreneurial intentions among university students in Italy. *Journal of Global Entrepreneurship Research*, 8(1), 0–14. <https://doi.org/10.1186/s40497-018-0107-5>

57. Ementa, C. N., Onokpaunu, M. O., & Okonkwo, M. . (2017). Integration of Web-Based Instructional Technologies in Teaching Entrepreneurial Courses in Tertiary Institutions in Delta State. *Nigerian Journal of Business Education (NIGJED)*, 4(2), 248–259.

58. Drobyazko, S., Hryhoruk, I., Pavlova, H., Volchanska, L., & Sergiychuk, S. (2019). Entrepreneurship innovation model for telecommunications enterprises. *Journal of Entrepreneurship Education*, 22(2), 1–6.

59. Chen, Y. (2025). Examining the dynamics of entrepreneurial knowledge and firm performance: a longitudinal study of start-ups in emerging markets. *Journal of the Knowledge Economy*, 16(1), 2549–2581.

60. Chege, S. M., & Wang, D. (2020). Information technology innovation and its impact on job creation by SMEs in developing countries: an analysis of the literature review. *Technology Analysis and Strategic Management*, 32(3), 256–271. <https://doi.org/10.1080/09537325.2019.1651263>