

Research on Innovation and Entrepreneurship Education Model in Art Colleges: Constructing a One Body Three in One Model

Guangfeng HUANG ¹, Yaoping LIU ^{2*}, Clinton Chidiebere ¹, and Yudhi Arifani ¹

¹ Department of Education and Society, Institute of Science Innovation and Culture, Rajamangala University of Technology Krungthep, Bangkok 10120, Thailand;

² Department of Global Buddhism, Institute of Science Innovation and Culture, Rajamangala University of Technology Krungthep, Bangkok 10120, Thailand.

* Corresponding Author: yaoping.l@mail.rmuth.ac.th

ABSTRACT: Balancing artistic creativity with market demands presents unique challenges in fostering innovation and entrepreneurship within art institutions. This study evaluates the 'One Body Three in One' model's effectiveness in enhancing students' entrepreneurial competencies and examines its development over time. Within a cohesive institutional framework, this model integrates three primary dimensions: entrepreneurship incubation, industry collaboration, and creative practice. Using a grounded theory approach, this study conducts in-depth interviews with five senior lecturers and five successful entrepreneurs, followed by a survey of 3,214 art students. Drawing on the Triple Helix Model and Experiential Learning Theory, this study develops semi-structured interview instruments and questionnaires. The instrument was validated by five art education experts and subsequently tested on thirty art college students in China. Based on the qualitative analysis results. The model is applied through three core strategies: (1) integrating art and entrepreneurship curricula, (2) fostering industry-academic collaboration through projects, and (3) establishing university-based art business incubation programs. Quantitative analysis reveals that students demonstrate the highest proficiency in designing art business models. Meanwhile, from an educational perspective, students identify industry mentorship as the most essential component. Other findings also highlighted the need for a more adaptive curriculum, with a project-based learning approach. The proposed model provides a structured framework to bridge arts education with entrepreneurial success, equipping graduates for the dynamic creative economy.

Keywords: entrepreneurship education, one body three in one model, industry collaboration, curriculum reform, student competency development

I. INTRODUCTION

Innovation and entrepreneurship have become the main drivers of economic development and industrial transformation in the 21st century, and have formed a new trend in higher education reform. With the acceleration of technological progress and the restructuring of the global economy, the integration of entrepreneurship education and academic disciplines has become increasingly important, especially in the context of higher education. Studies show that entrepreneurship education plays an important role in enhancing creativity, problem-solving skills, and promoting sustainable economic development [1]. In China, the national strategy of "mass entrepreneurship and innovation" has accelerated the development of an innovation-based economy, emphasizing the strategic role of universities in producing entrepreneurial talents. However, the results of the China College Student Entrepreneurship Report show that just over 3% of college graduates are engaged in entrepreneurial activities, suggesting a quite low level of entrepreneurial success rate. Given postsecondary education, this figure highlights the disparity in the effectiveness of entrepreneurship education [2].

Several colleges have incorporated entrepreneurship courses into their curricula in response to the increasing emphasis on innovation and entrepreneurship in higher education [3]. Nevertheless, the current paradigm of entrepreneurship education is not entirely free due to a variety of obstacles. Since most universities still give general entrepreneurship courses and invention challenges top priority, theoretical frameworks usually come second after pragmatic implementations [4]. Furthermore, the present viewpoint on entrepreneurial education has been mostly shaped for the domains of science, technology, and business, so excluding the particular needs and features of arts institutions [5]. Focused on cultural production and artistic expression, the creative sector requires an entrepreneurial education model that is both flexible and adaptable [6]. This approach should teach not only commercial knowledge but also consider the creative process and the dynamics of the art market.

The development of innovation and entrepreneurship education in art colleges in China is still relatively underexplored. Despite the fact that certain institutions have implemented entrepreneurship courses for art students, the methodologies employed are conventional business practices that are not entirely consistent with the creative process and career aspirations of art graduates [7]. In addition, the interdisciplinary nature of art entrepreneurship requires an integrated educational framework that can foster creative innovation while equipping students with relevant business skills. The current entrepreneurship education model is still unable to bridge the gap between art training and success in creative entrepreneurship. As a result, many art college graduates struggle to develop sustainable careers in the creative industry. However, the current paradigm of entrepreneurship education has not been able to fully address the unique challenges faced by arts institutions, as it is still dominated by conventional business approaches that are not in line with the creative process and career aspirations of arts graduates [7]. In addition, the available entrepreneurship approaches are mostly designed for the fields of science and business, thus lacking consideration of the multidisciplinary nature and characteristics of the arts market [5-6]. This mismatch contributes to the low success rate of arts graduates in building sustainable entrepreneurial careers in the creative sector. Thus, this study aims to: 1) analyze the effectiveness of the One Body Three in One innovation and entrepreneurship education model in improving students' entrepreneurial competence in art colleges; 2) analyze the interaction between creative practices, industry collaboration, and entrepreneurship incubation in the One Body Three in One model affecting the readiness of art students in facing the creative industry, and 3) identify the main challenges in implementing the One Body Three in One model in art colleges.

II. RELATED WORK

1. THEORETICAL RIGOR: TRIPLE HELIX, EXPERIENTIAL LEARNING, ENTREPRENEURIAL ECOSYSTEM AND THEIR RELATIONSHIP

Experiential Learning Theory (ELT) posits that learning is a process whereby knowledge is created through the transformation of experience. It emphasizes a cyclical model of learning, consisting of four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation [8]. In the context of entrepreneurship education, ELT supports the idea that students learn best through direct involvement in entrepreneurial activities such as project-based learning, simulations, and internships allowing them to apply theoretical knowledge in real-world contexts. This approach is particularly relevant in art colleges, where hands-on creative practice and reflection are integral to both artistic and entrepreneurial development. The Triple Helix Model and the concept of the Entrepreneurship Ecosystem complement ELT by providing the structural and institutional context in which experiential learning can thrive. The Triple Helix Model highlights the collaborative dynamics among universities, industry, and government in fostering innovation and knowledge-based economies [9]. Meanwhile, the Entrepreneurship Ecosystem refers to the interconnected set of elements — such as culture, finance, human capital, support systems, and policy that influence entrepreneurial activity within a specific region or sector [10]. When integrated with ELT, the Triple Helix and Entrepreneurship Ecosystem frameworks emphasize the importance of institutional support and systemic interaction in creating rich environments for experiential entrepreneurial learning [8]. Together, these theories suggest that effective innovation and entrepreneurship education relies not only on individual learning experiences but also on a supportive ecosystem and multi-stakeholder collaboration, forming a comprehensive foundation for the One Body Three-in-One model in art colleges

2. ONE BODY THREE IN ONE: CREATIVE PRACTICES, INDUSTRY COLLABORATION AND ENTREPRENEURIAL INCUBATION AS A MODEL OF INNOVATION

Innovation in entrepreneurship education has evolved from an economics-based approach to integration with various disciplines, reflecting the needs of an increasingly dynamic industrial world [11]. Initially, entrepreneurship education aimed to equip individuals with the skills to establish small businesses [12]. However, with the development of an innovation-based economy, entrepreneurship education has evolved to implement learning methods that emphasize creative practice, collaboration with industry, and entrepreneurial incubation [13]. In recent decades, many countries have adopted new approaches to entrepreneurship education, especially by introducing ecosystem-based innovation models that connect universities with industry and business incubators [10]. Comparative studies between various models of entrepreneurship education show that the integration of theory and practice is the key to success in fostering students' entrepreneurial spirit [14-16]. The One Body Three in One model that combines creative practices, industry collaboration, and entrepreneurial incubation has been implemented in various educational institutions as an effort to address the gap between theory and practice [13].

Creative practices in entrepreneurship emphasize the importance of exploration and experimentation in creating innovative solutions [17]. Several studies have shown that students involved in creativity-based projects have higher levels of entrepreneurial readiness compared to those who only receive theory-based learning [18]. Charrón-Vías & Rivera-Cruz [19] emphasized that practice-based learning methods, such as project-based learning and design thinking, contribute significantly to improving entrepreneurial competencies. Industry collaboration is an important element in modern entrepreneurship education. Matlay [20] and Duval-Couetil [21] identified that industry involvement in entrepreneurship education programs can increase the relevance of the curriculum and enrich students' learning experiences. Other studies have shown that partnerships with industry enable students to understand real-world challenges and develop more complex problem-solving skills [22, 23]. The Triple Helix model developed by [24] is the basis for the concept of integration between universities, industry, and government in building an innovation ecosystem.

Entrepreneurship incubation in education has undergone a transformation from the provision of physical facilities to the implementation of more comprehensive programs that encompass mentoring, access to industry networks, and funding opportunities [13]. Research has demonstrated that students who participate in business incubators have a higher success rate in establishing a business than those who do not receive such assistance [25, 13]. In China, entrepreneurship incubation programs have grown rapidly in supporting students to develop sustainable business ideas [26]. Several studies have highlighted how a more holistic approach to entrepreneurship education can provide better results in creating entrepreneurs who are ready to face the challenges of industry 4.0 [27]. This model encourages students to develop multidisciplinary skills that include creativity, technical skills, and a strong understanding of business.

3. RESEARCH QUESTION

- How does the construction and effectiveness of the One Body Three in One innovation and entrepreneurship education model in improving students' entrepreneurial competencies in art colleges?
- How does the interaction between creative practices, industry collaboration, and entrepreneurship incubation in the One Body Three in One model affect the readiness of art students in facing the creative industry?
- What are the main challenges in implementing the One Body Three in One model in art colleges, and what are effective strategies to overcome these obstacles?

III. MATERIAL AND METHOD

1. RESEARCH DESIGN

The grounded theory approach combined with a survey was used as the main method in this study. Grounded theory is a qualitative research method developed by Anselm Strauss and Barney Glaser at Columbia University, United States. This method builds theory inductively through the process of collecting and analyzing data simultaneously to produce a theory based on empirical data [28]. This method allows exploration of core concepts from field data without binding initial hypotheses, making it suitable for use in research that aims to develop new conceptual models.

This study combines grounded theory with a survey to strengthen qualitative findings with quantitative data. This approach is used because the innovation and entrepreneurship education system in art colleges does not stand in isolation, but interacts with the dynamics of the creative industry and the needs of professionals in the arts. In this context, the development of innovation and entrepreneurship skills requires a method that is not only oriented towards general business theory, but also considers aspects of creative expression, industry collaboration, and adaptation to the art market [29].

The first stage of this research was conducted using a grounded theory approach. The results of this stage were then used to build the initial concept of the One Body Three in One model. The second stage used a quantitative survey to measure the effectiveness of the model in improving the entrepreneurial competence of art students. Data were collected from a number of respondents consisting of students, lecturers, and creative industry practitioners. Quantitative data processing was carried out using statistical analysis to test the relationship between variables that had been identified in the previous stage.

2. RESEARCH SUBJECT

There are two types of subjects in this study, namely in-depth interview subjects to build the initial concept of the One Body Three in One model. The selection of research subjects is based on the following principles: first, the purposeful sampling method is used in accordance with the characteristics of the grounded theory approach which aims to explore a deep understanding of the phenomenon being studied; second, qualitative research requires the selection of samples that can provide rich insights related to the research problem.

In selecting the interviewed participants, two categories of participants were selected using purposive sampling procedures. To represent the innovation dimension, this study involved five senior lecturers who are academic leaders in the fields of art and design in art colleges. The academics have a substantial amount of experience in the development of curricula that are innovation-driven and in the instruction of creative skills that are relevant to the industrial sector. For the entrepreneurship dimension, this study involved five successful entrepreneurs who are graduates of art colleges and have had careers in the creative industry for more than three years. These entrepreneurs have achieved significant success in the fields of art, design, and digital media industries. Additionally, the quantitative participants involved 3,214 students from arts colleges that are included in the category of "double-first-class" universities, namely universities that are recognized as one of the best in their disciplines both nationally and internationally. Although the sample size is large, a stratified sampling method was employed to ensure diversity and representativeness. Specifically, students were selected based on the following stratification criteria: 1) Discipline (fine art, visual design, performing art, music); 2) Prior entrepreneurial exposure, such as participation in entrepreneurship-related courses. The survey was conducted anonymously to maintain the objectivity of the responses, and all data collected was kept confidential and used only for academic research purposes.

3. DATA COLLECTION

This study used a semi-structured interview method to obtain initial data in constructing the One Body Three in One model, as well as a survey method to obtain data on the effectiveness of the model. Since the interview respondents came from various art and creative industry colleges, this study was conducted through in-depth one-on-one interviews, both directly (face-to-face) and through online platforms. Focusing on the theme of innovation and entrepreneurship in art education, interviews were conducted following interview guidelines that had been designed according to the role of each respondent. For academics, interviews focused on innovative learning strategies, experiences in developing entrepreneurship-based curricula, and challenges in implementing innovation and entrepreneurship education in art colleges. Concurrently, interviews with business owners emphasizing the difficulties they faced, the critical competencies graduates need to be successful in the workforce, and their experiences starting companies in the creative sector. Interviews with the respondents were videotaped under their permission in order to ensure the correctness and comprehensiveness of the material.

4. RESEARCH INSTRUMENTS

4.1 Semi-Structure Interview

Semi-structured interviews were designed to explore respondents' views and experiences regarding the innovation and entrepreneurship education model in art colleges. The development of this instrument is based on several main theories, namely the EntreComp Framework [30] to understand entrepreneurial competencies,

the Theory of Planned Behavior [31] which explains the influence of attitudes and subjective norms on entrepreneurial intentions, Experiential Learning Theory [8] in understanding experiential learning, and the Triple Helix Model [9] which highlights the interaction between academics, industry, and government in encouraging innovation and entrepreneurship, and adapting instruments from previous studies, such as [32] study on the integration of entrepreneurship in the art curriculum. To ensure its validity, the instrument was reviewed by 5 academics in the field of innovation and entrepreneurship, then tested on 10 respondents before final revisions were made based on the input obtained. Based on the results of the validation test, the interview instrument that was declared valid was 20 out of 22 questions, which were divided into three main components, namely curriculum and learning models, student capacity development, and institutional support and industry collaboration. The first component, curriculum and learning models, consists of six questions. The second component, student capacity development, includes seven questions. Meanwhile, the third component, institutional support and industry collaboration, includes seven questions.

4.2 Questionnaire

The purpose of the questionnaire in this study was to evaluate the efficacy of the One Body Three in One model in enhancing the entrepreneurial skills of art college students. This instrument encompasses three primary dimensions: (1) entrepreneurial competence, (2) entrepreneurship education, and (3) entrepreneurship policy. Overall, there are 13 indicator variables selected based on scales that have similar patterns and focus on certain characteristics in measuring entrepreneurial competence.

The entrepreneurial competence dimension is measured based on the model developed by [33], which shows a strong relationship between perceived competence and actual competence, as well as research by [33], which explores entrepreneurial performance based on business founders' self-assessments of their competence. Referring to the [34], this questionnaire covers aspects of students' self-assessments of their entrepreneurial competence, which include entrepreneurial knowledge, entrepreneurial skills, and innovative spirit. The entrepreneurial education dimension is measured based on students' involvement in entrepreneurship courses and academic support provided by lecturers and institutions. This measurement refers to various previous studies, including [35], which emphasizes the importance of practice-based learning experiences in developing entrepreneurial competence.

The dimensions of entrepreneurship policy are designed by considering that policies aimed at building entrepreneurial competency must be hierarchical, starting from the national level to educational institutions, as stated in the research of [36, 37]. Therefore, in this study, entrepreneurship policies are categorized into four levels: national policy, community policy, local government policy, and campus policy. Furthermore, to ensure the validity and reliability of the instrument, this questionnaire was subjected to content validation tests by 5 experts in the fields of art education, innovation, and entrepreneurship. The questionnaire was distributed among thirty students at an art college in China to examine its reliability and validity. Confirmatory Factor Analysis (CFA) was utilized to assess the construct validity of the indicators within the questionnaire, meticulously crafted to accurately gauge the dimensions of entrepreneurial competency. The internal consistency of the instrument was evaluated through Cronbach's Alpha, where a value greater than 0.7 signifies an acceptable level of reliability.

5. DATA ANALYSIS

5.1 Analysis Of Interview Data

This research follows the grounded theory -based analysis process to coded and analyze systematic interview data. The analysis was carried out through the stages of open coding, axial coding, and selective coding to build theoretical models that explain the structure of innovation and entrepreneurship education in art universities. This model aims to conceptualize more comprehensive innovation and entrepreneurial education systems in the context of art. Using grounded theory analysis, initial open coding of the interview quotes identified key themes such as innovative instructional pedagogy, curriculum development, industry expectations, and entrepreneurial competencies. Axial coding then revealed relationships between these codes, highlighting how academic efforts to implement entrepreneurship-based curricula often face institutional and resource-related constraints, while business owners stress a gap between graduate skills and real-world demands. The triangulation was conducted through comparing data across academics (art teachers), business owners, and the videotaped interviews the analysis confirmed that both groups valued innovation but approach it from different perspectives: academics emphasized structured learning strategies, while entrepreneurs focus on adaptability and market-driven skills.

This convergence and divergence of perspectives provide a more comprehensive understanding of how art colleges can better align educational outcomes with industry needs, forming the basis for a theory on bridging the gap between academic innovation and entrepreneurial practice in creative art education.

5.2 Open Coding

The open coding stage aims to extract the main concepts of raw data through the process of 'original data → labelling → conceptualization → categorization'. Interview data is divided into smaller meaning units, which are then classified into categories that are relevant to the focus of the research. From the results of the analysis, found initial concepts related to innovation and entrepreneurship education in art colleges. These concepts are subsequently grouped into main categories, which include aspects such as the integration of the art curriculum with entrepreneurship, the role of lecturers as innovation mentors, to challenges in the application of entrepreneurship education in the academic environment of art.

5.3 Axial Coding

In the axial coding stage, the categories that have been formed are further analyzed to find inter-concept relationships and organize them into broader structures. From the results of the analysis, the main categories that appear can be grouped into five main dimensions in the innovation and entrepreneurial education model in art colleges, namely:

- Integration of Innovation and Entrepreneurship Curriculum - emphasizes the importance of combining arts and entrepreneurship in the learning process.
- Student capacity development - includes aspects of creativity, independence, and readiness of entrepreneurship in the context of art.
- Institutional support and resources - including campus policies, funding, and facilities to support innovation and entrepreneurship.
- The Role of Lecturers and Industrial Supervisors - Involving collaboration between academics and industrial professionals in guiding students.
- Industrial Partnership and External Connection - Connecting students with the business world and creative industry through an internship program, project cooperation, and entrepreneurial assistance.

5.4 Selective Coding

The selective coding stage is used to connect various categories in a wider conceptual model. From the results of the analysis, it was found that the core concept in the innovation and entrepreneurial education system in art universities is a One Body Three in One model, which integrates academic education as a core, with three main elements (three in one): project-based education, industrial -based entrepreneur training, and mentor guidance from academics and practitioners.

5.5 Model Interpretation

The theoretical model developed shows that the success of innovation and entrepreneurship education in art colleges depends on the integration of various components. Art Academic Education acts as the main core, while three supporting elements (project -based education, industrial training, and mentor guidance) work synergistically to build learning ecosystems based on innovation and entrepreneurship. By using the grounded theory approach, this research succeeded in building an innovation and entrepreneurial education model that is relevant to the context of art colleges. This model provides guidance for institutions in designing curriculum and policies that are more effective in supporting art students to develop in the world of creative and entrepreneurial industries.

5.6 Survey Data Analysis

Data analysis of the survey results was conducted to test the effectiveness of the One Body Three in One model in increasing the entrepreneurial competence of art students. The data obtained from the questionnaire were analyzed through two stages. The first stage is a descriptive analysis, which aims to provide a general picture of the characteristics of respondents, such as educational background, entrepreneurial experience, and the level of participation in innovation and entrepreneurship programs. This analysis includes the calculation of the average value, the standard deviation, the frequency distribution, and the percentage of each main variable measured in the questionnaire. The second stage to test the effectiveness of the model in improving student entrepreneurship competence, a path analysis is carried out using Lisrel 32.0

IV.RESULT AND ANALYSIS

RQ1: How does the construction and effectiveness of the One Body Three in One innovation and entrepreneurship education model in improving students' entrepreneurial competencies in art colleges?

Using the grounded theory research method, this research conducts a multilevel analysis of interview data from 10 participants consisting of five senior lecturers who are academic leaders in the arts and five successful entrepreneurs who are graduates of art colleges and have been a career in the creative industry for more than three years. The interview results show that the One Body Three in One model has the main construction which includes three components: project -based creative practices, industrial collaboration, and entrepreneurial incubation.

1. CURRICULUM AND LEARNING MODEL

Lecturers and entrepreneurs who were interviewed highlighted that the integration of entrepreneurship in the art curriculum still faces various challenges, especially in the application of project -based learning approaches. The lecturers recognize that the One Body Three in One model is effective in bridging academic theory with industrial practice, because students can directly apply the concept of art into real business scenarios. However, the main obstacle faced is the synchronization of academic schedule with the needs of industrial projects and the limited flexibility of institutional policies in supporting entrepreneurial experiments in the academic environment.

From the perspective of entrepreneurs, the involvement of industrial mentors is a key factor in the successful implementation of this model. They stressed that students who get guidance from industrial practitioners tend to be better prepared to face the challenges of the business world. However, they also observed that not all art universities have sufficient infrastructure to support the implementation of project -based learning optimally.

2. STUDENT CAPACITY BUILDING

Lecturers and entrepreneurs consider that the effectiveness of the One Body Three in One model in increasing the entrepreneurship competence of art students can be measured through three main aspects: 1) Increasing creativity in art products innovation; 2) Understanding the market and development of art -based business models, and 3) The ability to manage entrepreneurship projects independently.

The lecturers observe that students involved in industrial -based projects show significant developments in creative and innovative thinking, especially in designing art products that have selling points. Meanwhile, entrepreneurs highlighted that direct experience in managing art projects as part of entrepreneurship provides in -depth insight into the dynamics of creative industries, including marketing strategies and business financial management. Nevertheless, both lecturers and entrepreneurs agree that students' readiness in entering the world of entrepreneurship is still influenced by several external factors, such as the availability of internships, institutional support in building industrial networks, and access to initial funding sources. Therefore, it is necessary to collaborate more closely between universities and creative industries to strengthen the sustainable art entrepreneurship ecosystem.

Construction of the innovation and entrepreneurship education model one body three in one, One Body Three in One model is designed to integrate three main aspects - creative practices, industrial collaboration, and entrepreneurial incubation - in a holistic education system in art colleges. This model aims to equip students with applicative art -based entrepreneurial skills, through an approach that is not only based on theory, but also direct experience in the creative industry. The structure of this model includes project -based curriculum, direct involvement with industrial professionals, as well as art business incubation programs that allow students to develop creative products and services in real terms.

The results showed that in its implementation, the One Body Three in One model was applied through three main strategies: (1) Integration of Art and Entrepreneurship Curriculum, (2) Industrial Collaboration in Academic Projects, and (3) University -based Art Business Incubation Programs. As many as 84.7% of students involved in this program reported a significant increase in their understanding of art entrepreneurship, with 76.5% of them feeling better prepared to manage the art business independently. In addition, 68.3% of students stated that industry involvement in their learning provides a more concrete insight about business practices in the real world.

In depth, the findings of this study revealed that the success of the One Body Three in One model is very dependent on the integration of the three main components in one integrated system. Creative practices given through industrial -based projects encourage students to develop critical thinking and innovative solutions to problems in the art industry. Industrial collaboration plays a role in providing student access to professional

networks and direct practice opportunities in the world of work. Entrepreneurship incubation in the campus environment provides support in the form of business mentoring, access to initial capital, as well as opportunities to commercialize their artwork. Thus, this model not only improves students' technical and creative skills, but also forms strong entrepreneurship mindset, which is essential in dealing with the dynamics of creative industries in China. The effectiveness of the "one body three in on" model in increasing student entrepreneurship competence. To measure the effectiveness of the One Body Three in One model, this study involved 3,214 students from art universities in China who had implemented this model in full. Respondent distribution is presented in table 1.

Table 1. Sample distribution.

Category		N	Percentage
Gender	Male	1440	44.8 %
	Female	1774	55.2 %
Disciplines	Fine Art	1083	33.7%
	Visual design	807	25.1%
	Performing art	688	21.4%
	Music	636	19.8%
Demography	Guangdong	572	17.8 %
	Zhejiang	469	14.6 %
	Sichuan	395	12.3 %
	Jiangsu	305	9.5 %
	Shandong	280	8.7 %
	Beijing	231	7.2 %
	Fujian	206	6.4 %
	Henan	189	5.9 %
	Hubei	170	5.3 %
	Shanghai	154	4.8 %
	Guangxi	129	4 %
	Hunan	114	3.5 %

Furthermore, the results of descriptive analysis (Table 2) and Path Analysis (Figure 1) to measure the scale of the effectiveness of the innovation and entrepreneurial education model and their impact on student entrepreneurship competencies.

Table 2. Descriptive statistic of entrepreneurial competence, entrepreneurial education, and entrepreneurial policy.

Aspect	Indicator variable	Mean	SD
Entrepreneurial competence	Entrepreneurial knowledge	3.57	0.012
	the ability of students to design art business models	3.86	0.101
	readiness in managing art business	3.62	0.110
	understanding of the dynamics of the creative industry	3.51	0.011
	student readiness in facing market challenges	3.42	0.203
Entrepreneurial education	Integration of the Art and Entrepreneurship Curriculum	3.41	0.067
	mentoring program by industry	3.81	0.32
	student involvement in entrepreneurship courses	3.71	0.211
	academic support provided by the institution.	3.70	0.213
Entrepreneurial policy	national policy	3.72	0.081
	community policy	3.51	0.189
	local government policy	3.78	0.279
	campus policy	3.89	0.175

2.1 Entrepreneurial Competence

Student entrepreneurship competence measured through five indicator variables, namely entrepreneurial knowledge, the ability of students in designing arts business models, readiness in managing arts business, understanding of the dynamics of creative industries, as well as student readiness in facing market challenges.

The results of the analysis show that the average score of student entrepreneurship competencies is 3.86, with the dimensions of "the ability of students in designing art business models" to get the highest score, reflecting the effectiveness of project-based approaches in developing entrepreneurial skills. Conversely, the dimension of "student readiness in facing market challenges" get lower scores (3.42), showing that although students have strong business skills, they still face challenges in understanding dynamic industrial competition in China.

2.2 Entrepreneurship Education Consists of Four Measurement Variables, Namely the Integration of the Arts and Entrepreneurship Curriculum, the Mentoring Program by Industry, Student Involvement in Entrepreneurial Courses, and Academic Support Provided by the Institution.

The average value of entrepreneurship education ranges from 3.68, with the dimension of "integration of the arts and entrepreneurial curriculum" records the lowest score, shows that there is still space to improve in the aspect of integration of business material in the art curriculum. Meanwhile, the average value for the "Mentoring Program by Industry" is in a score of 3.81, which shows that students feel the great benefits of industrial professional involvement in their learning.

2.3 Entrepreneurship Policy Consists of Four Measurement Variables, Namely National Policies, Community Policies, Local Government Policies, and Campus Policies.

The analysis results show that the average value of entrepreneurial policy is at 3.74. The campus policy dimension obtained the highest score (3.89), showing that the policies implemented at the tertiary level have supported the development of student entrepreneurship, especially through business incubation programs, facility support, and collaboration opportunities with creative industries. Conversely, the dimension of community policy has a lower score (3.51), which indicates that although there is social support for entrepreneurship development in the arts, entrepreneurship ecosystems in the community are still not fully conducive for art graduates in building sustainable businesses. In addition, National Policy and Regional Government Policy each obtained a score of 3.72 and 3.78, showing that the regulations and policies implemented by the government have had a positive influence on the development of student entrepreneurship competencies. However, interviews with respondents revealed that the implementation of policies at the regional level still faces challenges, especially in harmony with the specific needs of the creative industry.

Overall, this research shows that the One Body Three in One model has had a positive impact on the development of art student entrepreneurship competencies in China, especially in aspects of business practice, managing industrial -based art projects, and student readiness in building creative businesses independently. Furthermore, the analysis of the effectiveness of the One Body Three in One innovation and Entrepreneurship Education Model on Increasing Entrepreneurial Competence, a test was carried out using SEM with Lisrel 32.0.

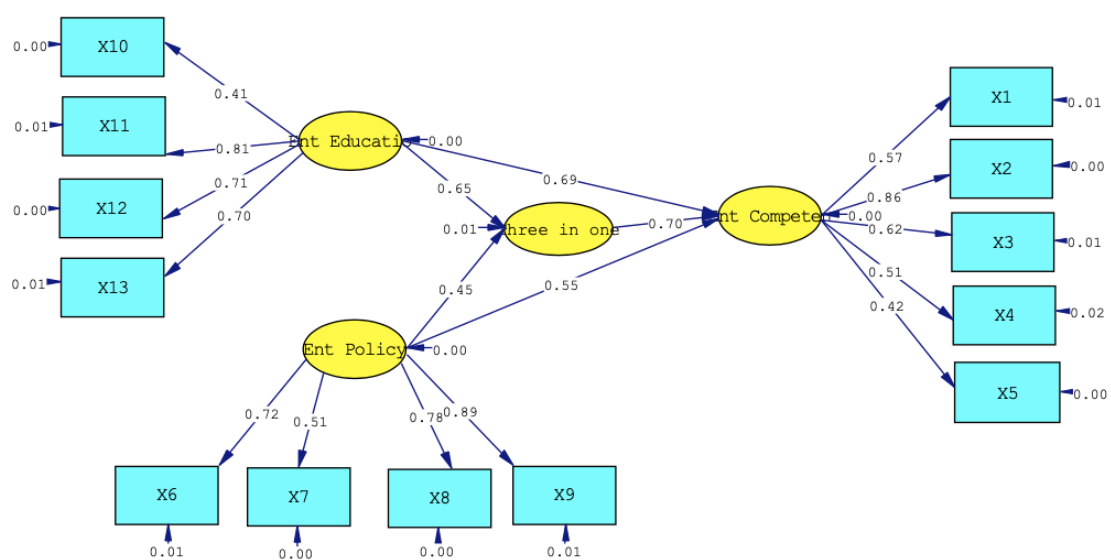


FIGURE 1. The effectiveness of the "One Body Three in One"

Based on the results of the path analysis in Figure 1, entrepreneurship education tends to have a higher influence (0.65) on entrepreneurial competence compared to entrepreneurial policies (0.45). Furthermore, entrepreneurship education is the core of the development of this model, because the One Body Three approach is to emphasize the integration between the theory, practice, and creative business ecosystem, and has a higher influence (0.70) because it plays a direct role in the formation of student entrepreneurship skills and mindset. Meanwhile, entrepreneurship policy has a more moderate influence (0.55) because its function is more as a supporter of the ecosystem that allows this model to run optimally.

RQ2: How does the interaction between creative practices, industry collaboration, and entrepreneurship incubation in the One Body Three in One model affect the readiness of art students in facing the creative industry?

Interaction between creative practices, industrial collaboration, and entrepreneurial incubation in the One Body Three in One model forms a more applicable and industrial-oriented learning ecosystem for art students. Project-based creative practice provides direct experience in producing artwork that has market value, allowing students to explore various innovative techniques and concepts. From the results of interviews, students involved in industrial-based projects report significant increases in their understanding of the production process, curation, and commercialization of art, which directly forms an entrepreneurial mindset from an early age. Previously I only thought of how to create a good work artistically, but after following an industrial project, I began to understand the importance of adjusting the work to the needs of the market and the right marketing strategy, (Student A, Fine Arts)

Industrial collaboration acts as a bridge between the academic world and the world of work, allows students to understand professional standards that apply in the creative industry. Industrial involvement in this program is not only in the form of collaborative projects, but also in the form of mentoring and evaluation of works, which helps students develop managerial skills and marketing strategies. Certain students indicate that engaging directly with industry professionals enhances their self-assurance in presenting their work and facilitates the expansion of their professional network. Nevertheless, the primary obstacle encountered lies in the disparity of expectations between students and industry partners, with students often emphasizing artistic elements, whereas the industry seeks distinct commercial value. When I first worked with the industry, I felt confused because they talked more about target markets and sales trends. I need to learn how to balance artistic expressions with market demand, (Student B, Visual design). Meeting professionals from the industry provides new insights on how to develop personal branding and establish business cooperation, (Student C, Performing Arts)

The entrepreneurial incubation in this model serves as a platform for students to test their business ideas in a more structured environment. Through incubation, students get access to business resources, initial funding, and guidance from academics and industry players. According to the interview data, students who are involved in the incubation program demonstrate a greater capacity to independently manage projects, particularly in the development of digital marketing strategies and business plans. Nevertheless, a few students expressed concerns regarding the sustainability of mentoring and the absence of access to a broader market following the incubation period, which could potentially impede the growth of their business. When I first worked with the industry, I felt confused because they talked more about target markets and sales trends. I need to learn how to balance artistic expressions with market demand, (Student C, Music). Meeting professionals from the industry provides new insights on how to develop personal branding and establish business cooperation. (Student D, Performing Arts)

The synergy between creative practices, industrial collaboration, and entrepreneurial incubation creates holistic learning experiences, where students not only develop technical skills in working, but also build in-depth understanding of the arts business ecosystem. This model helps students to adapt to the dynamics of the creative industry, both in terms of production, marketing, to business management. Data shows that students who get experience in these three aspects have higher resilience in facing industrial challenges, especially in dealing with market competition and trend changes. Thus, the interaction between the three elements in One Body Three in One contributes significantly to the readiness of students in dealing with the creative industry, although there are still challenges that need to be overcome, especially in aspects of sustainability of mentoring and market access. To increase the effectiveness of this model, a more comprehensive strategy is needed in increasing industrial involvement, expanding marketing networks, and extending the incubation period for students who are just starting their creative business. With the improvement in these aspects, this model has the potential to become a more effective approach in printing creative entrepreneurs in art colleges.

RQ3: What are the main challenges in implementing the One Body Three in One model in art colleges, and what are effective strategies to overcome these obstacles?

Implementation of One Body Three in One Model in Art Universities faces the main challenges in the aspects of the curriculum, industrial collaboration, and student readiness. In terms of curriculum, the most dominant challenge is the integration of entrepreneurial education in art programs that are still oriented to aesthetic exploration, so that business learning and art management have not become a major part of the curriculum. Interviews with lecturers show that the lack of flexibility in the curriculum makes it difficult for students to balance the development of artistic and entrepreneurial skills. Our curriculum is still too focused on artistic exploration. Art students often do not get enough understanding of how to manage their work as a product that has economic value. If there is an art business course, it is still theoretical and not yet based on direct practice. To overcome this obstacle, more adaptable curriculum adjustments, such as the addition of business -based business -based arts courses, more intensive business mentoring, and increasing access to industrial case studies so that students can see the relationship between art and economic opportunities more concretely.

The second challenge is the lack of continuity in collaboration with the creative industry, which is caused by differences in interests between the academic world and the industrial world. Higher education is often oriented towards the development of creativity without market pressure, while industry emphasizes more on products that have high commercial value. Some industrial practitioners interviewed revealed that students often have a weak understanding of market dynamics and marketing strategies, which make them less ready to compete in the creative industry. Art students are very creative, but often do not understand how to sell their work. Many do not know how to determine appropriate prices or understand digital marketing strategies. Collaboration with industry should be more intensive, not only in the form of internships, but also real projects that involve students directly in industrial dynamics.

To bridge this gap, a more strategic partnership model is needed, such as the provision of project -based apprenticeship programs, the involvement of industrial professionals as permanent mentors, as well as the formation of communication forums between academics and industry players to ensure harmony between competencies taught and industrial needs. Student readiness in dealing with this model is also a challenge, especially related to the mentality of entrepreneurship and independence in managing art business projects. Interviews with students show that many of them are still accustomed to learning patterns that depend on lecturer instructions, so that they have difficulty when they have to take the initiative and make decisions in the real business context. We are accustomed to being given a clear assignment and direction from the lecturer. When asked to develop my own business project, I feel confused about where to start. There is no real experience in dealing with business risks, so often we hesitate to take big steps.

In addition, the lack of experience in managing risks and uncertainty in the business world is the main obstacle in the application of this model. Therefore, a more effective approach is the application of more intense experiential learning, such as the art business simulation, collaborative projects across study programs, as well as entrepreneurial competitions that provide real challenges so that students can develop courage in entrepreneurship. Another significant challenge is institutional support that is not optimal, especially in the aspect of funding and policies that support student entrepreneurship. Some lecturers revealed that the lack of allocation of funds for the art business incubation program and the limited access to students to the initial funding inhibits the sustainability of the entrepreneurship project developed in this model. Without adequate support of funding, it is difficult for students to develop their art business. Higher education needs to provide grants or access to investors who can help them realize business ideas to be real.

In addition, the absence of a clear incentive system for lecturers and industrial partners to be actively involved is also an obstacle in long -term implementation. The strategy that can be applied is to increase the allocation of entrepreneurial grant funds, cooperation with external funding institutions, as well as incentive policies for lecturers and industrial partners who actively contribute to the development of this model. Overall, the implementation of the One Body Three in One model in art colleges faces various structural and practical challenges, but the right strategy can significantly increase its effectiveness. A more adaptive curriculum renewal, strengthening collaboration with industry, development of student entrepreneurship mentality, and stronger policy support is a key step in overcoming this obstacle. With a more holistic approach and based on real needs, this model has the potential to be an effective solution in printing creative entrepreneurs who are ready to face the challenges of the arts and cultural industries in the digital age.

V. DISCUSSION

The One Body Three in One innovation and entrepreneurship education model which is constructed through a grounded theory approach shows that the integration between creative practices, industrial collaboration, and entrepreneurship incubation made a significant contribution in increasing student entrepreneurship competence

in art colleges. The results of this study are in line with the findings of [38] and [39], which emphasized that experience of entrepreneurship-based entrepreneurship has a positive impact on students' readiness in dealing with the industrial world. In addition, Martínez-Martínez & Ventura [40] and Faltermeier [41] highlighted the importance of project-based learning as an effective strategy in improving entrepreneurial skills. However, the results of this study are contrary to [42] and [43], which found that entrepreneurship education does not always have a significant effect on students' readiness in entrepreneurship. This difference is most likely due to differences in the context of the country and the method of implementing the learning model used.

The effectiveness of the One Body Three in One model in increasing student entrepreneurship competencies is also supported by survey results that show a significant increase in the aspect of business innovation, namely increasing the ability of students in designing arts business models, as well as market understanding. These results reinforce the findings of [44], which shows that entrepreneurial education combined with industrial practice can increase student readiness in facing real business challenges. On the other hand, [45] emphasizes that entrepreneurial policy has a more direct impact than education itself. This shows that in addition to the innovative education model, appropriate policy support is also a key factor in encouraging the success of entrepreneurship programs in art colleges.

The comparative analysis between art student responses and industry expectations reveals a significant gap in how innovation and entrepreneurship are perceived and approached within art colleges. While students often prioritize creative exploration, self-expression, and the development of technical skills, the industry increasingly demands a fusion of artistic talent with entrepreneurial acumen, market awareness, and adaptability ([42]. Many students express a lack of preparedness for the realities of commercial art and design fields, pointing to limited exposure to practical business training and interdisciplinary collaboration during their education. This disconnect underscores the need for a more integrated approach to preparing students not only as artists but also as innovative professionals who can navigate and thrive in dynamic creative industries ([43].

In response to this disparity, the research proposes the construction of a One Body Three in One education model tailored to art colleges. This model unifies artistic education (One Body) with three essential components: innovation, entrepreneurship, and industry collaboration (Three in One). By embedding entrepreneurial thinking and real-world problem-solving into the core curriculum, fostering partnerships with industry professionals, and encouraging cross-disciplinary projects, the model aims to bridge the existing divide. The goal is to cultivate well-rounded graduates who possess both the creative vision and the strategic insight needed to lead and innovate in the evolving landscape of the creative economy [39].

The interaction between creative practices, industrial collaboration, and entrepreneurial incubation in the One Body Three in One model is proven to play an important role in preparing art students to face the creative industry. The results of in-depth interviews show that students involved in this program are better able to develop innovative business ideas and have broader professional networks. These results are in line with the research of [46], which emphasizes that direct experience in the industry can increase students' readiness and students' skill for entrepreneurship. Nonetheless, [47] demonstrate that the post-entrepreneurial monitoring system remains suboptimal, leading many students to engage primarily for immediate gains rather than fostering genuine entrepreneurial skill development. This presents a challenge that should be foreseen in the execution of the One Body Three in One Model.

In terms of implementing challenges, this study found that the main obstacles in the application of the One Body Three in One model in art universities include limited resources, lack of industrial involvement, and resistance to changes in traditional curriculum. This finding is in line with the research of [35], which highlights that entrepreneurship education often faces challenges in terms of curriculum adaptation and infrastructure limitations. In addition, [48] found that although entrepreneurial competition can be an effective strategy, without the support of strong ecosystems, the impact on student competencies can be limited. Therefore, the recommended strategies in this study include increasing collaboration with industry, development of supporting policies, and implementing a better monitoring system to ensure the sustainability of an entrepreneurial program for art students.

In terms of implementation challenges, this study found that the main barriers to implementing the One Body Three in One model in art universities include limited institutional funding, minimal ongoing industry involvement, and resistance to changes in traditional curricula. These findings are in line with research by [35] which shows that entrepreneurship education often faces challenges in terms of curriculum adaptation and limited supporting infrastructure. In addition, Dana et al., [48] emphasized that although entrepreneurship competitions can be an effective strategy, their impact on strengthening student competencies will be limited if they are not supported by a strong and sustainable entrepreneurship ecosystem. To overcome these obstacles,

this study recommends a number of solutions at the policy level. First, special funding support is needed from the government or private partners to encourage entrepreneurship programs in art universities which have so far received less priority than technology and business [34]. Second, universities need to develop performance incentives for lecturers and departments that are able to actively collaborate with the creative industry, such as applied research collaborations, business mentoring, or student project incubation [49]. Third, there is a need for curriculum and accreditation reforms that integrate entrepreneurial competencies as a core part of art and design learning, not just an add-on. In addition, the sustainability of university-based business incubation programs needs to be a major concern. Incubators should not only be positioned as temporary projects, but should be institutionalized as part of the university's strategic plan. To ensure long-term sustainability, hybrid funding models such as public-private partnerships, alumni investment networks, and support from local governments through local innovation area policies can be optimized [10]. In addition, the implementation of a monitoring and evaluation system based on performance indicators needs to be carried out periodically to assess the impact of incubators on student learning outcomes and their contribution to the creative industry ecosystem in real terms.

Overall, this research confirms that the One Body Three in One model is an effective innovative approach in increasing student entrepreneurship competence in art colleges. However, its success is very dependent on the synergy between education, policies and industrial support. By comparing the results of this study with previous studies, it can be concluded that the experience-based approach and industrial involvement have great potential in supporting the development of young entrepreneurs in the creative sector, although there are still challenges that need to be overcome through more structured and data-based implementation strategies.

VI. CONCLUSION

The results of this study indicate that the One Body Three in One Innovation and Entrepreneurship Education Model has strong construction in increasing student entrepreneurship competence in art colleges. This model integrates three main components: project-based creative practices, industrial collaboration, and entrepreneurial incubation, which together form holistic and applicative learning ecosystems. From the results of interviews with lecturers and entrepreneurs, it was found that this model bridges the gap between academic theory and industrial practice through a project-based approach that allows students to develop their entrepreneurial skills directly. However, the main challenge in the implementation of this model is the synchronization of academic schedule with industrial needs and limited infrastructure in several arts' education institutions. In the aspect of student capacity building, the One Body Three in One model has proven to be effective in increasing innovative creativity, understanding of the art market. In addition, aspects of entrepreneurship education show that the integration of the arts and entrepreneurship curriculum still needs to be improved. In the policy context, the policies implemented at the tertiary level have supported student entrepreneurship initiatives. However, aspects of community policies and local governments still have the potential to be strengthened to create more sustainable art entrepreneurship ecosystems. Therefore, subsequent research can further explore the strategy of optimizing the integration of art and entrepreneurship curriculum and explore the role of government policies in supporting entrepreneurial ecosystems in art colleges.

Funding Statement

This research received no external funding.

Author Contributions

Conceptualization, HUANG. and Liu.; methodology, Liu.; software, Chidiebere.; validation, Chidiebere and Arifani; formal analysis, Arifani; investigation, HUANG; resources, HUANG; data curation, Arifani; writing original draft preparation, HUANG.; writing review and editing, Liu; visualization, Arifani; funding acquisition, Chidiebere. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest

Data Availability Statement

Data are available from the authors upon request.

Acknowledgments

The authors would like to acknowledge the assistance of the Editor and Reviewers in the preparation of the article for publication.

REFERENCES

- San Tan, S., & Ng, C. K. F. (2006). A problem-based learning approach to entrepreneurship education. *Education+ Training*, 48(6), 416–428.
- Ghina, A. (2014). Effectiveness of entrepreneurship education in higher education institutions. *Procedia-Social and Behavioral Sciences*, 115, 332–345.
- McClure, K. R. (2015). Exploring curricular transformation to promote innovation and entrepreneurship: An institutional case study. *Innovative Higher Education*, 40(5), 429–442.
- O'Connor, A. (2013). A conceptual framework for entrepreneurship education policy: Meeting government and economic purposes. *Journal of Business Venturing*, 28(4), 546–563.
- Suliman, H. A. A. (2025). Reimagining Universities through Strategic Entrepreneurship and Blue Ocean Strategy: A Theoretical Exploration. *Qubahan Academic Journal*, 5(1), 264–277.
- Ellmeier, A. (2003). Cultural entrepreneurialism: On the changing relationship between the arts, culture and employment. *The International Journal of Cultural Policy*, 9(1), 3–16.
- Bridgstock, R., Goldsmith, B., Rodgers, J., & Hearn, G. (2015). Creative graduate pathways within and beyond the creative industries. In *Journal of Education and Work* (Vol. 28, Issue 4, pp. 333–345). Taylor & Francis.
- Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2014). Experiential learning theory: Previous research and new directions. In *Perspectives on thinking, learning, and cognitive styles* (pp. 227–247). Routledge.
- Leydesdorff, L., & Meyer, M. (2003). The Triple Helix of university-industry-government relations. *Scientometrics*, 58, 191–203.
- Schaeffer, P. R., Guerrero, M., & Fischer, B. B. (2021). Mutualism in ecosystems of innovation and entrepreneurship: A bidirectional perspective on universities' linkages. *Journal of Business Research*, 134, 184–197.
- Binks, M., Starkey, K., & Mahon, C. L. (2006). Entrepreneurship education and the business school. *Technology Analysis & Strategic Management*, 18(1), 1–18.
- Bauman, A., & Lucy, C. (2021). Enhancing entrepreneurial education: Developing competencies for success. *The International Journal of Management Education*, 19(1), 100293.
- Hassan, N. A. (2024). University business incubators as a tool for accelerating entrepreneurship: theoretical perspective. *Review of Economics and Political Science*, 9(5), 434–453.
- Packham, G., Jones, P., Miller, C., Pickernell, D., & Thomas, B. (2010). Attitudes towards entrepreneurship education: a comparative analysis. *Education+ Training*, 52(8/9), 568–586.
- Kazakeviciute, A., Urbone, R., & Petraite, M. (2016). Curriculum development for technology-based entrepreneurship education: A cross-disciplinary and cross-cultural approach. *Industry and Higher Education*, 30(3), 202–214.
- Tatpuje, D. U., Jadhav, V., & Ganbote, A. (2021). Comparative study on selected models of entrepreneurship education. *SEDME (Small Enterprises Development, Management & Extension Journal)*, 48(3), 272–284.
- Kuratko, D. F., & Audretsch, D. B. (2009). Strategic entrepreneurship: exploring different perspectives of an emerging concept. *Entrepreneurship Theory and Practice*, 33(1), 1–17.
- Mirhabibi, A., Shayan, A., & Sahraei, S. (2025). Improving digital entrepreneurship readiness of business students: The moderating roles of digital mindset and digital education. *The International Journal of Management Education*, 23(2), 101151.
- Charrón Vías, M., & Rivera-Cruz, B. (2020). Fostering innovation and entrepreneurial culture at the business school: A competency-based education framework. *Industry and Higher Education*, 34(3), 160–176.
- Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, 15(2), 382–396.
- Duval-Couetil, N. (2013). Assessing the impact of entrepreneurship education programs: Challenges and approaches. *Journal of Small Business Management*, 51(3), 394–409.
- Rawlinson, S., & Dewhurst, P. (2013). How can effective university-industry partnerships be developed? *Worldwide Hospitality and Tourism Themes*, 5(3), 255–267.
- Popli, N. K., & Singh, R. P. (2024). Enhancing academic outcomes through industry collaboration: our experience with integrating real-world projects into engineering courses. *Discover Education*, 3(1), 217.
- Leydesdorff, L. (2000). The triple helix: An evolutionary model of innovations. *Research Policy*, 29(2), 243–255.
- Jones, O., Meckel, P., & Taylor, D. (2021). Situated learning in a business incubator: Encouraging students to become real entrepreneurs. *Industry and Higher Education*, 35(4), 367–383.

26. Zhong, Z., Feng, F., Li, J., Liu, X., Cao, Y., & Liao, Y. (2022). Making university and curricular sustainable entrepreneurship: a case study of Tsinghua University. *Asia Pacific Education Review*, 23(4), 559–569.
27. Hecklau, F., Galeitzke, M., Flachs, S., & Kohl, H. (2016). Holistic approach for human resource management in Industry 4.0. *Procedia CIRP*, 54, 1–6.
28. Glaser, B. G., Strauss, A. L., & Strutzel, E. (1968). The discovery of grounded theory; strategies for qualitative research. *Nursing Research*, 17(4), 364.
29. Liang, S., & Wang, Q. (2020). Cultural and creative industries and urban (re) development in China. *Journal of Planning Literature*, 35(1), 54–70.
30. Bacigalupo, M., Kampylis, P., McCallum, E., & Punie, Y. (2016). Promoting the entrepreneurship competence of young adults in Europe: Towards a self-assessment tool. *ICER2016 Proceedings*, 611–621.
31. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
32. Rocha, R. G., do Paço, A., & Alves, H. (2024). Entrepreneurship education for non-business students: A social learning perspective. *The International Journal of Management Education*, 22(2), 100974.
33. Chandler, G. N., & Jansen, E. (1992). The founder's self-assessed competence and venture performance. *Journal of Business Venturing*, 7(3), 223–236.
34. Lackéus, M. (2015). *Entrepreneurship in education: What, why, when, how*. OECD Publishing Paris.
35. Hägg, G., & Schölin, T. (2018). The policy influence on the development of entrepreneurship in higher education: A Swedish perspective. *Education+ Training*, 60(7/8), 656–673.
36. Zerbinati, S., & Souitaris, V. (2005). Entrepreneurship in the public sector: a framework of analysis in European local governments. *Entrepreneurship & Regional Development*, 17(1), 43–64.
37. Douglas, E. J., & Shepherd, D. A. (2002). Self-employment as a career choice: Attitudes, entrepreneurial intentions, and utility maximization. *Entrepreneurship Theory and Practice*, 26(3), 81–90.
38. Moyle, C., Moyle, B., & Burgers, H. (2020). Entrepreneurial strategies and tourism industry growth. *Tourism Management Perspectives*, 35, 100708.
39. Grewe, U., & Brahm, T. (2020). Development of entrepreneurial competences in mini-companies at schools. *Education+ Training*, 62(7/8), 917–931.
40. Martínez-Martínez, S. L., & Ventura, R. (2020). Entrepreneurial profiles at the university: A competence approach. *Frontiers in Psychology*, 11, 612796.
41. Faltermeier, J. (2021). Measuring and promoting entrepreneurial intentions and entrepreneurial competence—implications for education. *SHS Web of Conferences*, 90, 2003.
42. Overwien, A., Jahnke, L., & Leker, J. (2024). Can entrepreneurship education activities promote students' entrepreneurial intention? *The International Journal of Management Education*, 22(1), 100928.
43. Hasan, M., Tiara Hutamy, E., Supatminingsih, T., Ahmad, M. I. S., Aeni, N., & Dzheleilov, A. A. (2024). The role of entrepreneurship education in the entrepreneurial readiness of generation Z students: why do digital business literacy and financial literacy matter? *Cogent Education*, 11(1), 2371178.
44. Othman, N., Hashim, N., & Ab Wahid, H. (2012). Readiness towards entrepreneurship education: Students and Malaysian universities. *Education+ Training*, 54(8/9), 697–708.
45. Aly, M., Audretsch, D. B., & Grimm, H. (2021). Emotional skills for entrepreneurial success: the promise of entrepreneurship education and policy. *The Journal of Technology Transfer*, 46(5), 1611–1629.
46. Ezeuduji, I. O., Nzama, A. T., Nkosi, G. S., Kheswa, T. P., & Shokane, A. L. (2023). Stakeholder perceptions of university-industry collaboration on tourism and business students' employability in two continents. *Journal of Teaching in Travel & Tourism*, 23(3), 330–353.
47. Cai, Y., & Ahmad, I. (2023). From an entrepreneurial university to a sustainable entrepreneurial university: Conceptualization and evidence in the contexts of European university reforms. *Higher Education Policy*, 36(1), 20–52.
48. Dana, L.-P., Crocco, E., Culasso, F., & Giacosa, E. (2023). Business plan competitions and nascent entrepreneurs: A systematic literature review and research agenda. *International Entrepreneurship and Management Journal*, 19(2), 863–895.
49. Etzkowitz, H. (2003). Innovation in innovation: The triple helix of university-industry-government relations. *Social Science Information*, 42(3), 293–337.