DEVELOPMENT OF TRAINING CURRICULUM FOR ENHANCE UNDERGRADUATE STUDENTS' INNOVATIVE ENTREPRENEURSHIP SKILLS

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การพัฒนาหลักสูตรฝึกอบรมที่เสริมสร้างทักษะการเป็นผู้ประกอบการเชิงสร้างสรรค์ของนักศึกษาระดับปริญญาตรี

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DEVELOPMENT OF TRAINING CURRICULUM FOR ENHANCE UNDERGRADUATE STUDENTS' INNOVATIVE ENTREPRENEURSHIP SKILLS

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DEVELOPMENT OF TRAINING CURRICULUM FOR ENHANCE UNDERGRADUATE STUDENTS' INNOVATIVE ENTREPRENEURSHIP SKILLS

BY

CHUANLEI LIU

HAS BEEN APPROVED BY THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY IN CURRICULUM RESEARCH AND DEVELOPMENT AT SRINAKHARINWIROT UNIVERSITY

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Title	DEVELOPMENT OF TRAINING CURRICULUM FOR ENHANCE UNDERGRADUATE STUDENTS' INNOVATIVE ENTREPRENEURSHIP SKILLS
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The objectives of this research are as follows: (1) to establish a curriculum that effectively enhances undergraduate students' innovative entrepreneurship skills; and (2) to study the effectiveness of a training curriculum to enhance innovative entrepreneurship skills among the undergraduates. The sample group of curriculum implementation were 20 undergraduates' students in Zhoukou Normal University. The research was divided into four phases: basic data study, curriculum design, curriculum implementation, and evaluating the effectiveness of the curriculum. The instrument composed of, curriculum for enhance innovative entrepreneurship skills, lesson plans, and scoring rubrics of innovative entrepreneurship skills. The results found that, the curriculum composed of 8 unit such as introduction to innovation and entrepreneurship, innovative thinking and innovative entrepreneurship methods, innovation practices and creative evaluation, innovation and entrepreneurship practice and case analysis, team building and leadership, market research and competition, business plans and road shows, financing and investment. In addition, the curriculum effectiveness met the criteria by the sample group have innovative entrepreneurship skills after implementation the curriculum higher than before at statistical significant .01 level.

Keyword : Training curriculum, Senior students, Innovation and Entrepreneurship Skills; Constructivism

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In the winter of 2020, the PHD journey began, unfolding through the next four years until the summer of 2024. These years flowed like fire, swiftly consuming each moment, and now, looking back, everything seems like a vibrant blur of memories. Every desire and dream of the heart belongs to the past, encapsulated in those fleeting, fiery years.

As I drink water, I think of its source, and as I learn, I think of my teacher. I extend my heartfelt gratitude to my supervisor, Professor Marut Patphol. His vast knowledge, engaging teaching methods, scientific mindset, and dynamic classroom atmosphere have greatly benefited me. He is rigorous, dedicated, approachable, and has a unique perspective on academic matters. From selecting paper topics to repeated revisions, from literature review to report writing, every step has been guided meticulously by Professor Marut Patphol. Each question he answered and each line he revised remains unforgettable. I am deeply impressed by his profound knowledge and moved by his unique charm. Here, I express my sincerest gratitude and highest respect to my teacher.

Mountains and rivers are not obstacles when friends meet. I also want to thank my classmates for their tolerance and care. Their support and encouragement have not only brought me friendship but also a sense of home. As flowers bloom and fall infinitely, I wish each of us a bright future.

The first acquaintance with my wife Tian Tian was a delightful surprise, and our long time together has been heartwarming. I am deeply grateful for her endless tolerance, consideration, warmth, and care. Thank you for your hard work for our family, allowing me to pursue my dreams with peace of mind. In the future, I hope we will continue to support each other through all of life's ups and downs, sharing joy and sorrows equally, and spending our days together.

Finally, I would like to express my heartfelt thanks to all the teachers who participated in the evaluation and defense of my thesis。

CHUANLEI LIU

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1
INTRODUCTION

1.1.Research background

Due to the 2008 financial crisis and the 2019 COVID-19 epidemic , increasing employment and solving unemployment have become urgent issues for all countries worldwide. Taking the outbreak of these two typical crisis events as an opportunity(Mo et al., 2020).In today's rapidly changing social and economic environment, innovative entrepreneurship skills have become an important quality for undergraduates to pursue success and adapt to realistic challenges, and how to cultivate undergraduates' innovative entrepreneurship skill to meet the social demand for talents has correspondingly become the focus of the education circle and the whole society.

Firstly, with the ongoing evolution and refinement of the economic landscape, traditional job prospects may not remain as plentiful or as stable as they once were. Consequently, undergraduates might encounter escalating challenges in their career pursuits(Wang,2018).Relying only on traditional vocational skills is no longer enough to meet real challenges. Through the development and actual implementation of corresponding training curriculums to cultivate innovative entrepreneurship skills, undergraduates can obtain more employment options and opportunities for self-employment, reduce employment pressure and increase the employment rate.

Secondly, innovation serves as the pivotal driving force behind societal advancement and economic growth. Amidst the swift progression of science and technology and escalating market rivalry, proficient individuals possessing inventive thought processes, creativity, and practical expertise are absolutely critical to catalyzing industrial enhancement and societal innovation(Lien et al., 2020).As the main force of the future society, undergraduates should have the consciousness and skill of innovative entrepreneurship to inject vitality into the innovation and development of society.

In addition, fostering the aptitude of your talent pool for innovative entrepreneurship is also in harmony with societal requirements for proficient individuals. In this era of the knowledge-based economy, corporations prioritize employees'

innovative prowess and collaborative ethos. Some innovative enterprises and scientific and technological fields have a great demand for high-quality undergraduates with innovative and entrepreneurial skills. Therefore, the institution of pertinent curriculums aimed at fostering innovative entrepreneurship competencies can enhance the employability quotient of undergraduate students while also meeting societal demands for talent.

In the process of implementing the innovation and entrepreneurship policy, zhoukou normal university has always adhered to the student-centered principle, closely focused on local economic and social development, and actively promoted innovation and entrepreneurship education. The college deepens the integration of production and education, cooperates with many enterprises, and builds a base for the integration of production and education, realizing industrial projects into the classroom and providing students with a real practical environment. At the same time, the college has also strengthened the construction of innovation and entrepreneurship education curriculum system, opened a series of industry-oriented innovation and entrepreneurship curriculums, embedded the innovation achievements of enterprises into the professional curriculum system, and improved the quality of personnel training. In addition, the college also encourages students to participate in various innovation and entrepreneurship competitions and provides all-round support and services to help students realize their dreams of innovation and entrepreneurship. However, in the process of promoting innovation and entrepreneurship education, zhoukou normal university also faces multiple challenges and problems. First, the uneven distribution of resources, especially the lack of high-quality training resources for students in remote areas or economic difficulties, has aggravated the educational inequality and affected the cultivation of their innovation and entrepreneurship. Second, the construction of teaching staff is insufficient, and teachers lack practical experience and teaching ability, which affects students' practical operation and problem-solving ability. Third, the curriculum is too theoretical, which fails to effectively combine the reality of innovation

and entrepreneurship activities, resulting in the lack of case analysis and practical opportunities for students.

In light of this, this paper explores the establishment and development of innovative undergraduate entrepreneurship curriculums in colleges and universities. It analyzes the existing problems in the curriculum system of innovative entrepreneurship education in local colleges and universities through literature retrieval and data collection. The paper then proposes corresponding effective and operational countermeasures to enhance the curriculum system of innovative entrepreneurship education in local colleges and universities. The aim is to provide a reference for the development of innovative entrepreneurship skills, innovative entrepreneurship effects, and innovative entrepreneurship choices of undergraduates in China.

1.2. Research Purposes

1.2.1. To establish a curriculum that effectively enhances undergraduate students' innovative entrepreneurship abilities.

1.2.2. To study the effectiveness of training curriculum to enhance undergraduates' innovative entrepreneurship skills.

1.3.Research scope

1.3.1 Population

In this study, 6,829 undergraduates graduated from Zhoukou Normal University in June 2023. The selection of interview teachers also comes from Zhoukou Normal University, specifically from the group of teachers who teach undergraduate innovation and entrepreneurship curriculums at this institution.

1.3.2 Sample

For the sample of students in the curriculum development stage, the author adopts the method of multi-stage sampling in the choice of schools and majors.

In the first stage, 38 undergraduate universities in Henan Province are divided into seven categories according to their school-running categories: comprehensive universities, normal universities, science and engineering universities,

medical universities, agriculture and forestry universities, financial universities and military and police universities. According to the number of seven categories of universities, 20 universities (10 universities +10 colleges) are selected in proportion.

In the second stage, according to the situation and outstanding problems of undergraduate innovation and entrepreneurship curriculums in each of the 20 selected universities, the most representative school is selected, and finally the target institution is zhoukou normal university;

The third stage: 400 senior students are randomly selected in zhoukou normal university to participate in the investigation of the current situation of curriculum development.

For the sample of students in the curriculum implementation stage, the author adopts the random sampling method, that is, among the 400 senior students who have participated in the research in the curriculum development stage before, 20 students are randomly selected as samples to carry out the experiment on the effect of curriculum implementation.

As for the selection of teachers' samples in the stage of curriculum development and expert evaluation, the author adopts the method of purpose sampling, that is, five teachers with rich teaching experience are selected as the teachers' samples in this study from the teachers who undertake undergraduate innovation and entrepreneurship curriculums in zhoukou normal university.

1.3.3 Variable

1.3.3.1 Independent variable

Innovative entrepreneurship curriculum of undergraduate students

1.3.2.2 Dependent variable

Entrepreneurial skills of undergraduate students

1.4 Research significance

Theoretical significance: This study aims to achieve a comprehensive collection and in-depth analysis of the relevant theoretical basis and constituent elements of innovative entrepreneurship education curriculums in colleges and universities. By

conducting this research, the role of continuous expansion of relevant theoretical research results can be better understood, research on innovative entrepreneurship education can be further improved, and the curriculum system of innovative entrepreneurship education in colleges and universities can be optimized and reformed. This study will further enrich and deepen the research of curriculum system construction, and provide certain references for future related research.

In an attempt to positively influence and shape our undergraduates' innovative entrepreneurship mindset and enrich their professional knowledge pertaining to entrepreneurial innovation, this study effectively intertwines the curriculum system of professional education with the unique characteristics of innovative entrepreneurship, laying a solid and orderly foundation for the training of future talents. Through a comprehensive analysis of the relevant curriculum system construction, the inherent components, and their interrelated relationships, this study aims to eliminate any gaps or shortcomings currently present in our university curriculum system's construction. This provides valuable insights and propositional suggestions, ultimately enabling significant improvements to the quality of innovative entrepreneurship education, and contributes significantly to our curriculum reform construction.

1.5 Research hypotheses

After the experiment, the innovation and entrepreneurship skills of students using the curriculum were improved compared to before the experiment.

1.6 Definition

1.6.1 Training curriculum

In the East, "curriculum" was first formed in the Tang and Song Dynasties, when it referred to "order" rather than education. After modern times, with the improvement of educational theory and the deepening of practice, curriculum has gradually become a concept with multiple connotations. In the west, "curriculum" comes from the Latin word "currere", which means "run". Spencer introduced "curriculum" during the closing stages of the 19th century, which refers to the systematic organization of

teaching content. Academic circles have a clear definition of curriculum, which broadly refers to the synthesis of all teaching subjects; In a narrow sense, it refers to a specific subject.

1.6.2 Innovative entrepreneurship skill

The ability of undergraduates graduated from Zhoukou Normal University to Explore opportunities, Organizational and management capabilities, Strategic decision-making ability, Resource integration capability, the ability to withstand setbacks .

1.6.3 Explore opportunities

Exploratory opportunity refers to the commercial opportunities that can be utilized under the specific time and space background due to the differences in people's perception of the external environment and the asymmetry of resources, and can obtain economic benefits through innovation and entrepreneurial behavior. In this paper, organizational management refers to the ability of undergraduates graduated from Zhoukou Normal University to Innovative thinking, Independent thinking ,Sharp observation.

1.6.4 Organization and management

Organizational management includes strategic planning, personnel management, production operation and marketing, aiming at improving organizational efficiency and achieving goals, which is an important guarantee for long-term development and business success of enterprises. In this paper, organizational management refers to the ability of undergraduates graduated from Zhoukou Normal University to Setting goals, Communication and cooperation, High level of execution.

1.6.5 Strategic decisions

An enterprise's strategic decision-making process requires its senior managers to analyze, evaluate, and predict the internal and external environment under uncertainty to choose the most effective action plan that aligns with long-term strategic goals and can adapt to possible changes in the competitive landscape in the future. In this paper, organizational management refers to the ability of undergraduates graduated

from Zhoukou Normal University to evaluate requirements， to measure advantages and to plan formulation.

1.6.6 Resource integration

Resource integration is a process of coordinating, integrating and optimizing resources in different fields within an organization to achieve the best effect and maximum value. This includes manpower, finances, materials, and other resources, all of which are effectively integrated and coordinated to achieve the organization's strategic goals. In this paper, organizational management refers to the ability of undergraduates graduated from Zhoukou Normal University to Data collection, Material collection, Experience sharing.

1.6.7 The skill to withstand setbacks

The ability to bear setbacks refers to the ability of individuals to actively cope with difficulties and misfortunes, adjust their emotions, and maintain optimism, confidence and mental stability. In this paper, organizational management refers to the ability of undergraduates graduated from Zhoukou Normal University to Purposely view failure， summarize successful experiences， conduct Purpose self-evaluation.

1.7 Conceptual framework

"Innovative entrepreneurship" is not merely a combination of "innovation" and "entrepreneurship." Scholar Wang Zhanren provided a profound explanation of the relationship between these concepts. He believed that innovative entrepreneurship is like "twins," where adding "entrepreneurship" to "innovation" defines the application of innovation. Innovation alone is a direction, but when combined with entrepreneurship, it becomes opportunistic and high-growth, enhancing both the level and scope of entrepreneurship (Wang, 2018). In the field of psychology, entrepreneurial self-efficacy and entrepreneurial skill are often linked. Self-efficacy refers to an individual's belief in their own abilities, particularly those related to performing various entrepreneurial roles and tasks (Chen et al., 1998).

It is the aim of this study to demonstrate that although the terms "innovation" and "entrepreneurship" may appear to be unrelated concepts from different fields, they

are, in reality, used synonymously in government policy documents issued by the State Council and the Ministry of Education, where they are both defined as compound nouns. These documents emphasize the importance of innovation in entrepreneurship and the practical orientation and trends of entrepreneurship in fostering innovation. "Innovation" and "entrepreneurship" are interrelated in essence. Innovation leads entrepreneurship and plays a decisive role in entrepreneurship. Innovation spurs entrepreneurship, yet entrepreneurship fuels the continuous development of innovation.

Innovative education is a method to nurture human quality through a particular educational approach, which aims to develop the individual's ability to innovate, thus adapting to the evolving demands of society and rendering the educated more capable of innovative thinking. From a broad sense, compared with traditional education, innovative education is a relatively novel innovative idea. The innovative talents trained have distinct innovative ideas, which is a kind of education that follows the development of The Times.While students undertake entrepreneurial ventures, their original ideas and concepts have been refined and adapted to a certain extent to further the Purpose of their education. From a narrow perspective, innovation education adheres to the principle of innovative development. It focuses on cultivating students by ensuring they master relevant basic knowledge and skills, develop a unique innovative consciousness and thinking, and shape their thoughts and awareness according to educational principles.

This research points out that the principal components of innovation education are outlined by the following four essential features:

Educational Perspective: Fostering an attitude and spirit of innovation in students. This involves raising awareness about innovative learning, stimulating enthusiasm for it, cultivating qualities and emotions that drive innovation, and encouraging a strong desire for knowledge among students.

Practical Skills: Enhancing students' practical skills for conducting innovative activities. Training in these activities should increase students' interest in innovation and help them establish correct ideas about it.

Hands-on Experience: Improving students' ability to act on their knowledge through a series of educational activities, thereby developing their hands-on creation habits. Practical activities should enhance their imagination, associative thinking, and flexibility.

Individual Development: Supporting the development of students' individual characteristics. This involves guiding them to divergent and critical thinking while respecting their personal interests and traits.

To construct successful training curriculums, increasing undergraduate innovative entrepreneurial skills necessitates an extended and intricate process. This process necessitates an in-depth exploration and implementation, blending the current needs and situations of students, and persistently enhancing the quality and impact of the curriculums. Based on a collection of relevant literature, this study defines the development of undergraduate innovative entrepreneurship curriculums. The main framework of the article includes the following components: theory, training curriculum principles, goals, learning units, learning management, and learning evaluation. On this basis, the effectiveness of the undergraduate innovative entrepreneurship curriculum is evaluated according to student feedback and evaluation results, which are used to improve and upgrade the curriculum and enhance its training effect. The main framework structure of this paper is shown in Figure 1-1 below:

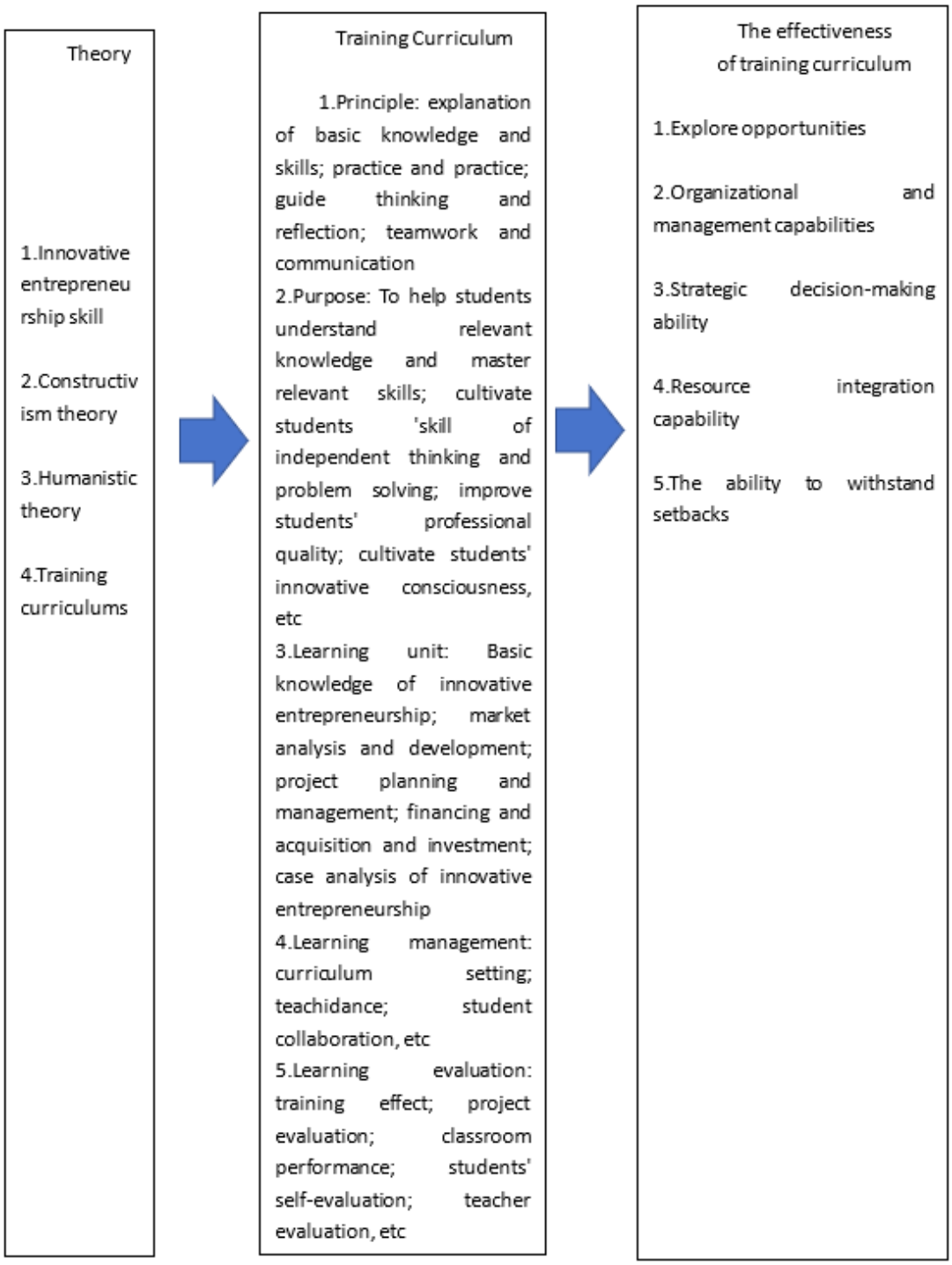

FIGURE 1 Conceptual framework

CHAPTER 2

LITERATURE REVIEW

1.Innovative entrepreneurship skills

1.1 Concept of innovative entrepreneurship

1.2 The importance of innovative entrepreneurship skill

1.3 Constructivism theory

1.4 Types of constructivism

1.5 Using constructivism theory to study the cultivation of innovative entrepreneurship skills

1.6 Components and behavioral indicators of innovative entrepreneurship skill

1.7 Related research on innovative entrepreneurship skill

2.Constructivism theory

2.1Definition of constructivism theory

2.2Principles of constructivism

2.3.Types of constructivism

2.4.Using constructivism theory to study the cultivation of innovative entrepreneurship skills

3.Humanistic theory

4.Training curriculum

4.1Definition of training curriculum

4.2Type of training curriculum

4.3Training curriculum development

4.4Relevant research of training curriculum development

2.1 Innovative entrepreneurship skill

2.1.1 Concept of innovation entrepreneurship

In the early 20th century, Joseph Schumpeter proposed his theory of economic development in his book The Theory of Economic Development, where he defined innovation as the incorporation of new elements and conditions into the production system through various situations. These situations involve the introduction of new products, the creation of new production processes, the availability of new materials, the organization of products in a different manner, and the reorganization of enterprises. He pointed out that the economy thrives on innovation. Schumpeter defined innovation as the innovation carried out in the process of business activities, which includes the innovation of activity expression technology, but also includes the innovation of non-technical means such as mode and organizational structure. Innovation involves breaking established norms and embracing new ways of doing things. In conclusion, this study holds the view that innovation refers to the deliberate effort to utilize existing resources to devise methods and elements for the manufacture of novel goods in diverse environments, with the ultimate aim of stimulating the production of new goods. This definition is more in line with our understanding of innovation today.

Regarding "entrepreneurship", in the 1960s, Brown & Barnard believed entrepreneurship from the perspective of education in his book Entrepreneurship. He believed that entrepreneurship is not merely an act, but a way of thinking and reasoning, rooted in identifying and capitalizing on opportunities. It demands a holistic approach to the situation, where leaders must display harmonious qualities in their leadership(Brown & Barnard,2019).Dean & Meyer firmly believed that entrepreneurship does not simply end with launching products or services, but involves continuously identifying and seizing opportunities for growth. This involves recognizing and leveraging the potential inherent in these offerings to generate maximum value(Dean & Meyer,2005).Entrepreneurship is a process in which individuals integrate original materials (ideas, capital, skills, etc.) to explore and create opportunities for economic and social value, which is an expanded way of thinking and behavior(Li et al.,2005).

Scholars worldwide have discerned that the idea of "entrepreneurship" encompasses four essential elements: the ability to recognize and seize opportunities, effective cooperation and the integration of resources, the creation of economic value, and participation in dynamic and innovative activities. After critically examining these perspectives, the current study concludes that the concept of "entrepreneurship" should be perceived as a proactive and innovative activity, in essence, where entrepreneurs actively identify and seize opportunities, interlink and augment resources, and generate economic and societal value across all sectors of society. Defining entrepreneurship in this way highlights that, in its essence, entrepreneurship is the innovative behavior of entrepreneurs aimed at creating value. In a broader sense, entrepreneurship can permeate all facets of society, from the political realm to the economic and cultural domains. It is a behavior actively sought by entrepreneurs that is characteristically innovative rather than routine. This observation emphasizes that entrepreneurship is an explicit subset of innovation, thereby elucidating the intricate relationship between the two concepts.

The study established that "innovation" and "entrepreneurship", although often viewed as separate concepts, are essentially united as one in policy documents that address the conduct and protocols in the realm of entrepreneurship education curriculums issued by numerous government entities such as the State Council and the Ministry of Education. This compound term aims to underscore the significant role of innovation in entrepreneurship and the practical orientation and trends where entrepreneurship fosters innovation. Indeed, the concepts of "innovation" and "entrepreneurship" are inherently linked: innovation drives entrepreneurship and plays a decisive role in its development, while entrepreneurship, in turn, is influenced by innovation and continually promotes its advancement.

2.1.2 The importance of innovative entrepreneurship

In the early years of entrepreneurship policy, it was mostly proposed that the cultivation of innovative entrepreneurship skill was an important part of innovative entrepreneurship education. Until 2012, entrepreneurship education became a

compulsory content of undergraduate curriculums in universities, and the required curriculum of "entrepreneurship foundation" was added. The esteemed Ministry of Education's official document titled The Basic Requirements for Entrepreneurship Education and Teaching in Ordinary Undergraduate Schools (Trial) has delineated comprehensive guidelines on entrepreneurship education. The educational framework emphasizes imparting entrepreneurial knowledge, focusing on honing entrepreneurial skills, and nurturing an entrepreneurial mindset. Notably, in 2014, the General Office of the State Council incorporated entrepreneurship education curriculums in the realm of reliability management, underscoring the importance of fostering and enhancing college graduates' entrepreneurial acumen and practical abilities. Subsequently, in 2015, the State Council general office disseminated "on deepening the reform of undergraduate students' innovation entrepreneurship education implementation opinion", while the Ministry of Education also released(Wu et al.,2017).During the 2017 academic year, the Ministry of Education emphasized, in their formal guidance for graduate employment and entrepreneurship initiatives, the importance of fostering a robust entrepreneurial mindset among university graduates. They also sought to enhance these individuals' innovation capabilities, thus boosting the advancement of undergraduate innovation entrepreneurship education and bolstering talent development standards. In 2017, the State Council unveiled the 13th Five-Year Plan for National Education Development, incorporating the cultivation of students' innovative and entrepreneurial spirit and skills as an integral part of this strategic plan. This initiative encourages and supports proactive student engagement in innovative pursuits and entrepreneurial endeavors. In 2018, Premier Li Keqiang impressively imparted significant directions during the national teleconference on employment and entrepreneurship for graduates of higher learning, focusing on the significance of strengthening the employment and entrepreneurship abilities of college graduates (Li, 2016).

A good and effective business policy promotes smooth entrepreneurship for entrepreneurs and guarantees successful business operations. In the realm of national innovation and entrepreneurship policy formulation, the promotion of undergraduate

innovative entrepreneurship has been hailed as a pivotal strategic initiative to bolster national innovation, stimulate employment growth, and command significant attention and importance from the government, society, academia, and universities. This focus has catalyzed a thriving environment for the training of innovative personnel.

2.1.3 Structure of innovative entrepreneurship skill

While many domestic scholars have conducted significant research on the structure of innovative entrepreneurship skill, a theory or model that is nationally recognized in this regard has yet to be established. This kind of research mostly starts from the foreign classical entrepreneurship theory, extracts the components through literature, case analysis and other research methods, and on this basis, the quantitative research means are used for model construction. For example, Wang & Zhang believe that "the entrepreneurial skill of undergraduates is mainly composed of seven dimensions: opportunity grasp, entrepreneurial perseverance, relationship competence, entrepreneurial driving force, innovation and creativity, practical learning skill, and resource integration skill"(Wang & Zhang,2012) . Yang et al. divided undergraduates' entrepreneurial skill into "six dimensions: opportunity exploration skill (ODC), organization and management skill (OMC), strategic decision-making skill (SDC), resource integration skill (IRC), innovation and creation skill (ICC), and frustration tolerance skill (SBC)"(Yang et al.,2014) . Zhu et al. believe that entrepreneurial skill includes "five dimensions: independent skill, social skill, survival skill, management skill and entrepreneurial skills"(Zhu et al., 2015) . Zhao et al. believe that entrepreneurial skill includes "two aspects: entrepreneurial professional skills and essential qualities of entrepreneurship, which can be divided into five dimensions: entrepreneurial opportunity grasp skill, psychological coping skill, organizational and management skill, entrepreneurial learning skill and innovation and creation skill"(Zhao et al.,2016) . Ma et al. divided the entrepreneurial skill of undergraduates into "five dimensions: opportunity grasp, relationship competence, innovation and creation, organizational management and commitment learning"(Ma et al., 2016). Chen et al. put forward the elements of entrepreneurs 'skill from the perspective of the Purpose and psychological

characteristics of entrepreneurs, and put forward and verified the impact of entrepreneurs' entrepreneurial skill on enterprise performance through theoretical and empirical research. The entrepreneurial skill is divided into "two dimensions of professional quality and entrepreneurial quality"(Chen et al., 2016). Xue believes that "undergraduates should have seven skills to start a business successfully, including: opportunity identification skill, resource integration skill, financing skill, environmental policy utilization skill, marketing skill, management skill, organization and leadership skill"(Xue, 2016). Cheng proposed a six-dimensional model of undergraduates' entrepreneurial skill, which consists of 32 elements in six dimensions: "entrepreneurial leader skill, innovation and entrepreneurial skills, entrepreneurial personality traits, professional general skills, professional basic quality and essential skill of entrepreneurial team members"(Cheng, 2017) . Liu sets the core elements of undergraduates' entrepreneurial skill as "six dimensions: individual characteristics, knowledge, skills, opportunity development skill, management and operation skill, professional knowledge application skill, innovation skill and team cooperation management"(Liu, 2017) . Liu discusses the national network of the mechanism of minority undergraduates entrepreneurial skill, the undergraduates' entrepreneurial skill is divided into "opportunity identification skill, interpersonal skill, strategic management skill, innovation skill, learning skill, resource integration skill, frustrated skill and cross-cultural skill eight dimensions"(Liu, 2017). Scholars on the structural research of innovative entrepreneurship skill. See Table 1 for a summary of the achievements of scholars related to innovation and entrepreneurship capacity structure:

TABLE 1 Summary table of the structural research of innovative entrepreneurial ability

Sources 1 Wang et al. (2012)	Sources 2 Yang et al. (2014)	Sources 3 Zhu et al. (2015)	Sources 4 Ma et al. (2016)	Sources 5 Xue (2016)	Synthesized by the researcher
1.Opportunity grasp 2.Entrepreneurial Perseverance 3.Relationship Competence 4.Entrepreneurial motivation 5.Innovation and creativity 6.Practical Learning 7.Resource Integration	1.skill to explore opportunities 2.Organizational management skills 3.Strategic decision making 4.Resource integration 5.Innovation and creativity 6. skill to withstand setbacks	1.Autonomous skills 2.Social skills 3.Survival skills 4.Management skills 5.Entrepreneurial skills	1.Opportunity Seizing 2.Relationship Competence 3.Innovation creation 4.Organizational management 5.Commitment to learning	1.To identify opportunities capacity 2.Developing resources capacity 3.Financing capacity 4.Environmental policy capskill 5.Marketing capskill 6.Management skills 7.Organizational leadership	After a comparative analysis, I agree with Wang Yang Daojian and other competency structures: the skill to explore opportunities, organizational management, strategic decision-making, resource integration, and the skill to withstand setbacks.

After comparative analysis, the author agrees with the structure division of Yang Daojian (2014) and identifies other skills: opportunity exploration skill, organization and management skill, strategic decision-making skill, resource integration skill, innovation and creation skill, and frustration tolerance skill. Opportunity exploration skill refers to the ability of entrepreneurs to achieve economic benefits and social development by identifying, defining, utilizing, and creating new resources, markets, or product value under certain market and technical conditions. Organization and management skill refers to a series of management activities for the coordination, integration, optimization, and control of resources within the organization, aiming to improve organizational efficiency and achieve organizational goals. This skill includes various levels of content such as strategic planning, personnel management, and marketing. The act of strategically making decisions involves a deep understanding of both internal and external environments, in order to generate and implement plans of action that align with long-term Purposes and can adapt to the ever-changing competitive landscape. Resource integration skill is a process of comprehensively integrating resources across different fields within the organization through optimization, allocation, and coordination. Its aim is to improve organizational efficiency and synergy, ensuring the maximum use and value of resources to support the realization of strategic goals. Frustration tolerance skill refers to the ability to actively respond to and adjust emotions, maintain optimism, and manage mental resilience in the face of difficulties, setbacks, and misfortunes. This skill is not only a psychological trait but also an effective skill for dealing with various changes and challenges in life.

2.1.4 Research on the cultivation of innovative entrepreneurship skill

Currently, there is significant research on cultivating innovative entrepreneurship skills in academia. This research is categorized into two levels: one focuses on the current status and challenges of cultivating these skills, while the other examines the concepts and models for their cultivation. The former provides a clear understanding, while the latter involves more in-depth analysis and proposes innovative ideas, concepts, and models.

During the initial stage of this study, numerous empirical studies were conducted, which unofficially scrutinized the current state of innovation entrepreneurship education and skills within undergraduate institutions. It was discovered that the overall trend of innovation and entrepreneurship education was positive, with students generally demonstrating higher levels of innovative entrepreneurship skills. However, several persistent issues were identified, including areas where education systems could be improved, the need to strengthen teaching staff, and the necessity for innovation in educational methods. For instance, a study involving 1,637 students across eight schools in Wuhan revealed that "while universities emphasize training innovative entrepreneurs, outdated training methods persist; undergraduates show strong interest but lack adequate understanding; and different schools emphasize different aspects of innovative entrepreneurship education and practice" (Yang & Li, 2017). Additionally, Li's survey of 4,935 college student entrepreneurs in 16 cities found that "although undergraduate entrepreneurs generally possess skills above average, most lack systematic entrepreneurship education" (Li, 2017). Huang (2017) argued that problems in undergraduate innovative entrepreneurship education include "disconnection from professional education, limited benefits, insufficient full-time management, inadequate guidance and support, and weak effectiveness." Wang Wen-ju pointed out that "current models of innovative entrepreneurship education lack guidance mechanisms, are disjointed in curriculum integration with students, struggle to instill innovative thinking through theoretical teaching, and suffer from outdated teaching methods with low appeal" (Wang et al., 2017). Han (2017) highlighted five key challenges for cultivating innovative entrepreneurship skills among Chinese undergraduates, which include: enhancing the environment for innovative entrepreneurship, boosting the enthusiasm for innovative entrepreneurship among undergraduates, refining the undergraduate innovation entrepreneurship education system, fortifying the construction of teachers in innovative entrepreneurship education, and augmenting practical training for undergraduates.

At the second level, research focuses on training innovative entrepreneurship skills among undergraduates, a critical aspect of innovative entrepreneurship education. Scholars begin by exploring and analyzing the current state of innovation and entrepreneurship education. This analysis often incorporates various theories relevant to specific groups within innovative entrepreneurship education, exploring their training methods, ideas, modes, and proposing corresponding measures. It is noted that there is no unified national paradigm for the cultivation of innovative entrepreneurship skills; rather, most efforts target specific groups such as business and engineering students. Wang (2015) proposed an influential "broad-spectrum" concept and mode of innovative entrepreneurship education emphasizing "inclusive," "hierarchical," and "differentiated" education goals across four levels: general, embedded, professional, and specialized. Other scholars also offer distinctive perspectives: Ai et al. (2014) propose a method that merges ideological and political education with innovative entrepreneurship education in a more organic way, to enhance both strands of education; Ren (2016) suggests building a systematic cultivation system for innovative entrepreneurship skills through hierarchical improvement methods and a coordinated mechanism; Huang (2017) emphasizes integrating innovative entrepreneurship education with professional education to shift focus from self-employment to entrepreneurial training. Yan (2014) developed a training mode for business undergraduates based on the VPTP (Virtual Practice Teaching Platform); Wu et al. (2017) propose adopting CBE (Competency-Based Education) teaching concepts for cultivating innovative entrepreneurial skills; Mei & Xia (2016) introduced a new model combining theoretical education with practical projects, competitions, and park incubation, focusing on public entrepreneurship perspectives. Wang et al. (2017) presented an education and training plan integrating guidance mechanisms, support services, curriculum restructuring, competitive participation, and incubation for outstanding engineers; Zhang & Shi (2018) advocate for an integrated development approach combining on-campus and external training, engineering-

business integration, and theory-practice balance in their innovative entrepreneurship talent training system.

A summary of the main viewpoints from relevant scholars on the development of innovative entrepreneurship is presented in Table 2:

TABLE 2 Summary table of the development of innovative entrepreneurship

Sources 1	Sources 2	Sources 3	Sources 4	Sources 5	Synthesized by the researcher
Yang (2017)	Huang (2017)	Han(2017)	Wang (2017)	Mei (2016)	
1.Talent	1.Educational	1.Optimising the environment	1.Resource	1.Theoretical	After a comparative analysis, I agree
2.Interests	2.Manageme	2.Strengthen students'	2.Mechanisms	education	with Han Li's division of views,
3.Practice	nt	enthusiasm for innovative	3.Teaching	2.Project	namely, optimizing the environment,
	3.Instruction	entrepreneurship	methods	operation	Strengthen students' enthusiasm for
		3.Improving the education		3.Competitions	innovative entrepreneurship
		system		4.Incubation in	improving the education system,
		4.Strengthen team building		the park	strengthening team building, and
		5.Reinforcing practical training			enhancing practical training.

After comparative analysis, the author agrees more with Ma & Yang's division of views. They emphasize optimizing the environment, enhancing students' enthusiasm for innovative entrepreneurship, perfecting the education system, strengthening team construction, and enhancing practical training skills. Therefore, in curriculum design, it is essential not only to consider the content of the curriculum itself but also to focus on the external environment, students' internal motivation, and the comprehensive support provided by the school system (Ma & Yang, 2019).

2.1.5 Measurement standard of innovative entrepreneurship skill

Most scholars are dedicated to proposing structured models of innovative entrepreneurship skills to evaluate them more scientifically and reasonably. From the perspectives of resources, entrepreneurs, processes, and opportunities, scholars often employ hierarchical analysis methods to establish evaluation index systems tailored to specific research objects and purposes, often relying on self-evaluation.

For example, Han et al. focus their entrepreneurial skill research within the entrepreneurial process framework and propose a four-dimensional entrepreneurial skill evaluation structure: "opportunity-resource-team-operation" (Han et al., 2015). Lu et al. identify "interpersonal communication skills, opportunity identification skills, innovation and creativity, resource integration skills, entrepreneurial drive, entrepreneurial willpower, and entrepreneurial learning skills" as primary factors influencing undergraduate entrepreneurial skills, constituting a seven-dimensional evaluation system (Lu, 2015).

Wang summarizes research findings on innovation and entrepreneurial skills, categorizing entrepreneurial skills into four aspects: "innovation skills, opportunity skills, leadership skills, and risk tolerance." Through Pearson's product-moment correlation analysis, Wang concludes a direct proportional relationship, indicating that proficiency in these four areas correlates with overall innovative entrepreneurship skills (Wang, 2016). Jin constructs an index system for undergraduate entrepreneurial skills with four dimensions: "entrepreneurial character, essential entrepreneurial

competencies, critical entrepreneurial abilities, and societal adaptability skills." (Jin, 2016).

The esteemed organization of Qi & Fang have adeptly utilizes the analytical hierarchy process (AHP) to construct an elaborate indexing framework for the assessment of engineering students' inventive entrepreneurial abilities. This includes four fundamental parameters (innovative prowess, entrepreneurial awareness, entrepreneurial acumen, and entrepreneurial governance capabilities), nine subsidiary parameters, and an impressive total of thirty-five tertiary indicators. (Qi & Fang, 2017). Zhang constructs an evaluation index system for master's entrepreneurial skills based on extensive foreign theories, including three primary indicators (entrepreneurial characteristics, entrepreneurial skills, entrepreneurial knowledge), nine secondary indicators, and twenty-five tertiary indicators (Zhang, 2017).

The main viewpoints of relevant scholars on measurement scales for innovative entrepreneurship skills are summarized in Table 3:

TABLE 3 Summary form of innovation and entrepreneurship skills measurement

Sources 1 Han et al. (2015)	Sources 2 Lu (2015)	Sources 3 Wang (2016)	Sources 4 Jin (2016)	Sources 5 Qi & Fang (2017)	Synthesized by the researcher
1.Opportunities 2.Resources 3.Team 4.Running	1.Interpersonal strength 2.Opportunity recognition 3.Innovation creativity 4.Resource integration 5.Entrepreneurial motivation 6.Entrepreneurial Willpower 7.Entrepreneurial Learning Power	1.Innovation skill 2.Opportunity skill 3.Leadership 4.Risk tolerance	1.Enterprise Personality 2.Fundamental Entrepreneurial Competencies 3.Core Entrepreneurial Competencies 4.Social Responsibility	1.Innovation skills 2.Entrepreneurial Awareness 3.Entrepreneurial competencies 4.Entrepreneurial management competencies	After a comparative analysis, I agree with the division of Wang Liuying's dimensions, namely innovation, opportunity, leadership, and risk tolerance.

Through a literature review, each scholar defines their own components of entrepreneurial skills. Similarly, the author advocates for a four-dimensional construction of an entrepreneurial skill evaluation system, aligning with Wang Liuying's dimensions. These dimensions will serve as the foundation for the evaluation index system of innovative entrepreneurship skills, structured into two levels of indicators. Zhang's research supports the use of four dimensions—innovation skill, opportunity skill, leadership skill, and risk tolerance—as primary indicators for the evaluation system (Zhang, 2018).

The secondary indicators encompass 15 aspects. For this study, innovation skill, opportunity skill, leadership skill, and risk tolerance were assessed using a randomized questionnaire method. The average score for each specific indicator was calculated to assess the entrepreneurial skills of undergraduates. The questionnaires were given to and returned from a total of 400 individuals, who were sorted into four distinct groups: low (1-1.99), low middle (2-2.99), upper middle (3-3.99), and high (4-4.99). Specific indicators are detailed in Table 4.:

TABLE 4 Summary table of undergraduate entrepreneurial ability index system

Purpose level	Primary index	Sequence Number	Secondary index
		1	Be good at breaking through the conventional, bold implementation of their own ideas.
	Innovation	2	A strong desire to acquire new knowledge and skills.
	Capacity	3	Able to question existing technologies and solutions, and put forward their own ideas.
		4	Have a wide range of entrepreneurial knowledge.
		5	Be sensitive to external changes.
	Opportunity	6	Have strong forward-looking judgment.
	Capacity	7	Pay attention to social and economic developments at home and abroad.
		8	Hungry for information and willing to spend a lot of time searching for information.
		9	Can judge and evaluate a person more accurately.
		10	It has a strong appeal.
	Leadership	11	Having the skill to overcome difficulties and infect others.
	Capacity	12	There is an element of irrationality in making decisions.
		13	Be positive when things get tough.
		14	Is a person who is decisive and can make decisions quickly.
	Risk Capacity	15	Will be willing to accept uncertainty and the resulting risks.

In light of the evaluation of our questionnaire survey findings, we've meticulously scrutinized and investigated the four dimensions and 15 indicators outlined earlier. In the curriculum design process, enhancing proficiency in these four dimensions serves as the fundamental Purpose. Table 2-4, outlining the index system of undergraduates' entrepreneurial skills, is used as the foundational framework for designing both theoretical and practical curriculums.

2.1.6 Components and behavioral indicators of innovative entrepreneurship skill

Innovative entrepreneurship comprises two distinct yet interconnected concepts often confused because of their interdependency. Innovation focuses on developing new ideas, technologies, or methods, while entrepreneurship involves turning these ideas or methods into business opportunities and creating value. The following is a literature review on components of innovation and entrepreneurial capacity. In their book "Innovative Entrepreneurship Education: Challenges and Opportunities for College Education," authors Hu & Chen suggest that the components of innovative entrepreneurship include exploring opportunities, organizational management, strategic decision-making, resource integration, and enduring setbacks (Hu & Chen, 2008).

Many scholars in academia have found that these components of innovative entrepreneurship can be improved through training and education. Such as: Zhang & Hao in the research of innovative entrepreneurial skills component of "exploration opportunities" in the corresponding interpretation, shows that exploration opportunities refer to the specific situation for certain market and technical conditions, entrepreneurs by identifying, definition, use and create new resources, market or product value, gain economic benefits and social development opportunities (Zhang & Hao,2020). It also shows that students' "exploration opportunity" skills will be accompanied by innovative thinking, independent thinking, and keen observation of these behavioral indicators.

Yin, in her study of the "organization management" component of innovative entrepreneurial skills, explains that organization management involves coordinating, integrating, optimizing, and controlling internal resources within an organization through

various management activities. Its aim is to enhance organizational efficiency and achieve organizational goals (Yin, 2022). This encompasses strategic planning, personnel management, marketing, among other levels of content. Additionally, the acquisition of organizational management skills is associated with behavioral indicators such as goal setting, effective communication, collaboration, and high execution.

Meng, in his exploration of the "strategic decision" component of innovative entrepreneurial skills, illustrates that strategic decision-making is rooted in a comprehensive understanding of both internal and external environments. It involves analyzing and selecting the most advantageous curriculum of action to achieve long-term goals and adapt to changes in the competitive environment (Meng et al., 2020). Moreover, developing "strategic decision-making" skills is accompanied by behavioral indicators such as assessing needs, leveraging advantages, and strategic planning.

Tong & Zhou (2020) explained "resource integration" as a component of innovative entrepreneurship skills in their research. They described it as the process of comprehensively integrating resources from various organizational fields through optimization, allocation, and coordination. This process aims to enhance organizational efficiency and synergy, ensuring the optimal utilization and value of resources to support the achievement of strategic goals. They also noted that acquiring "resource integration" skills involves activities such as data collection and experience sharing.

Yang in the research of innovative entrepreneurial skills component of "setbacks" in the corresponding interpretation, shows that setbacks refers to a person in difficulties, frustration and misfortune, to actively deal with and adjust mood, keep optimistic confidence and mental skill(Yang et al.,2020). This skill is not only a psychological trait, but also an effective skill to deal with various changes and challenges in life. It also shows that the acquisition of students' "bear setbacks" skills will be accompanied by a correct view of failure, a summary of successful experience, and an Purpose self-evaluation.

Exploring opportunities, organizational management, strategic decision-making, resource integration, and bearing setbacks, which are the basic elements of

students 'innovative and entrepreneurial skill. Teachers can evaluate the level of students' acquiring these skills through corresponding behavioral indicators during curriculum implementation. Specific behavioral indicators include:

For the purpose of fostering "exploration opportunities", in an effort to cultivate their unique exploration opportunity competencies and establish a robust platform for future progression, it is advisable that students should maintain the commendable practice of autonomous thought processes when confronted with challenges, demonstrating proficiency in problem resolution through astute observation and inventive contemplation.

(2) For "organizational management", in order to exercise their good organizational and management skill, students usually show high execution in the practice of innovative entrepreneurship, and students usually actively communicate and cooperate with each other, and have a high willingness to make goals.

(3) For "strategic decision-making", in order to improve their strategic decision-making skill, students usually take the initiative to correct their own advantages, reasonably evaluate their real needs, actively make project plans and accumulate valuable experience from them.

(4) For "resource integration", in order to improve their resource integration skill, students often actively collect data and data, and will take the initiative to share experience with each other, so as to grow faster.

(5) For "suffering setbacks", in order to improve their skill to withstand setbacks, students will usually humbly accept others' suggestions from others, actively summarize successful experience, will correctly view failure, and Purposely evaluate themselves. The analysis and summary of behavioral indicators of innovation and entrepreneurship skills are shown in the following table 5:

TABLE 5 Summary table of innovation and entrepreneurial skills behavior indicators

Authors	Components of innovative entrepreneurship skill	Definition	behavioral indicators
1. Zhang,2022 2. Hao,2022	1. Explore opportunities	It refers to the opportunity for entrepreneurs to obtain economic benefits and social development by identifying, defining, utilizing and creating new resources, markets or product values in specific situations under a certain market and technical conditions.	1. Innovative thinking 2. Think independently 3. Sharp observation
Ying,2022	2. Organatizion and management	It refers to a series of management activities for the coordination, integration, optimization and control of internal resources of the organization, aiming at improving organizational efficiency and achieving organizational goals. It includes multiple levels of content, such as strategic planning, personnel management, marketing, etc.	1. Set goals 2. Communication and collaboration 3. High executive force
1. Meng,2020 2. Wang,2020 3. Ma,2020 4. Zhang,2020 5.Xie,2020	3.Strategic decisions	This strategy denotes an approach grounded in a thorough comprehension of the entity's internal and external landscape, by scrutinizing and selecting the strategic plan most suitable for accomplishing long-term Purposes and to adapt to the evolving competitive scenario.	1. Assess demand 2. Measure advantages 3. Program formulation
1. Tong,2020 2. Zhou,2020	4.Resource integration	It is a process of comprehensively integrating the resources of different fields within the organization through optimization, allocation and coordination.The Purpose is to enhance the organization's operating efficacy and synergistic potential, secure the optimal utilization and worth of assets, and bolster the actualization of the institution's strategic Purposes.	1. Data collection 2. Material collection 3. Experience sharing
1. Yang,2020 2. Li,2020 3. Zhao, 2020	5.The skill to withstand setbacks	It refers to a person's skill to actively respond to and adjust emotions, maintain optimistic confidence and mental stskill during difficulties, setbacks and misfortunes. This skill is not only a psychological trait, but also an effective skill to deal with various changes and challenges in life.	1. Look at failure in perspective 2. Summarize the successful experience 3. Make an Purpose self-evaluation

Based on Table 5, which entails a thorough analysis of behavior indicators for innovation and entrepreneurship skills by academic scholars, and considering the practical requirements of curriculum development, the author designed the Curricula Consistency Assessment Form and curriculum Suitability Assessment Form. These forms aim to assist experts in evaluating the specific circumstances of curriculum development, thereby ensuring the effectiveness of the final curriculum.

2.1.7 Related research on innovative entrepreneurship skill

Currently, there is a significant body of individual studies on "innovation skill" and "entrepreneurial skill," yet comprehensive studies on "innovation and entrepreneurial skill" are limited. The distinction between "innovation and entrepreneurial skill" and "entrepreneurial skill" is not clearly defined, prompting this research to initially focus on "entrepreneurial skill" to clarify its concept, connotation, and extension. Scholars have conducted some exploration into the concept of "innovative entrepreneurship skill";

however, a widely accepted conceptual framework has not yet emerged in academic circles.

The research of the concept focuses on the following four perspectives: Firstly, from a comprehensive viewpoint pertaining to resources, we acknowledge that entrepreneurial acumen signifies entrepreneurs executing entrepreneurial undertakings by virtue of a comprehensive command over resources (encompassing tangible and intangible assets, e.g., capital, apparatus, technology, amongst others). For example, Song et al. believe that "entrepreneurial skill pays attention to the full use of resources(Song et al.,2011). Through cultivating robust relationships with industry, governmental entities and various institutions, entrepreneurs persistently broaden their funding avenues, culminating in achieving the Purpose of contributing significantly to economic advancement and societal progression." The subsequent viewpoint pertains to entrepreneurs, emphasizing a heightened focus on the individual's proficiency and caliber, among other personal attributes. Gao & Su defined entrepreneurial skill as "the combination of skills and skills that the entrepreneurial subject has and are conducive to entrepreneurial success and the growth of entrepreneurial enterprises"(Gao & Su,2013).Liu maintains that " innovative entrepreneurial prowess should encapsulate the entrepreneurial ethos and caliber of entrepreneurs, demonstrating business acumen in pioneering new technologies, novel products, emerging markets, unique business models, or innovative services."(Liu,2013).Wang & Xu believe that "entrepreneurial skill is a kind of highly comprehensive skill with intelligence as the core, with strong creative characteristics, and is the embodiment of a person's comprehensive skill"(Wang & Xu,2015) . The third is the perspective of process. It is often believed that entrepreneurial skill is reflected in entrepreneurial activities, which is a practical process for entrepreneurs to integrate various resources to implement entrepreneurial behavior. Tang & Jiang believe that "in the process of entrepreneurship, entrepreneurs need to complete two major tasks, opportunity identification and development skill and operation management skill"(Tang & Jiang,2008) . Chen & Shi believe that "the entrepreneurial skill of undergraduates is the sum total of the various skills that they must have to carry out

entrepreneurial activities"(Chen & Shi,2013). Kong & Zang believe that "the entrepreneurial skill of undergraduates refers to the sum total of the subjective conditions that undergraduates must have in the process of gathering resources, identifying opportunities, implementing entrepreneurship, entrepreneurship management and risk control"(Kong & Zang,2015). Fourth, from the perspective of opportunity, it is widely believed that the cornerstone of entrepreneurship lies in identifying and seizing opportunities, with opportunity perception being a prerequisite for entrepreneurship. Li et al. (2017) defined the entrepreneurial skill of science and engineering students as "a comprehensive skill to identify potential market opportunities, match and respond to these opportunities using creative resources, and transform innovative technological achievements into social and economic value."

In addition, scholar Yin & Cai constructed a conceptual system framework of entrepreneurial skill, as shown in Figure 3(Yin & Cai, 2012) . The system framework includes three stages and two levels, believing that "entrepreneurial skill is mainly reflected in the two levels of individual entrepreneurs and new enterprises or start-up enterprises organization, which is a complex conceptual system". Wang studied from the perspective of case teaching and concluded that "the core connotation of entrepreneurial skill is the skill to identify and develop opportunities; the skill to acquire resources and coordinate organization; professional technical skill; interpersonal relationship skill"(Wang,2018). There are few studies on innovative entrepreneurship skill and its connotation. Most scholars study innovative entrepreneurship activities from the perspective of education. Wang et al. propose that "innovative entrepreneurship activities represent a perpetual interactive learning process in social institutions, increasingly reliant upon the circulation of specialized environmental knowledge among economic entities" (Wang et al., 2017). Zhang & Bai meticulously examined the notion of innovative entrepreneurship education for undergraduates and concluded that "the fundamental tenets of innovative entrepreneurship education revolve around fostering students' innovative spirit and entrepreneurial acumen" (Zhang & Bai, 2014). Their interpretation of innovative entrepreneurship skills encompasses a more intricate array

of concept clusters. Qi & Fang believes that "innovative entrepreneurship skill is a complex system interacting by multiple elements and nested at multiple levels. It is a collection of various characteristic elements involving innovation skill, entrepreneurial awareness, entrepreneurial skill and entrepreneurial management skill"(Qi & Fang,2017).

In short, the author contends that scholars' current understanding of innovative entrepreneurship skill is primarily analyzed through the lens of concept aggregation, which represents a broad conceptual framework. This aggregation does not simply combine innovation skill and entrepreneurial skill, nor does it focus on a single aspect. Instead, it represents a new conceptual system developed in response to specific needs. It encompasses both the broad and narrow senses, synthesizing everyday social practices with individual entrepreneurial activities, and involves a reconstruction of social thought and philosophical insights.

2.2 Constructivism theory

2.2.1Definition of constructivism theory

The origins of constructivism can be traced back to the 18th century Napoleonic philosopher G. Vico (1668-1744) of Italy, who asserted: "All knowledge is constructed by learners. People can only clearly understand everything they have constructed." Constructivism, also known as structuralism, defines "construction" as establishment and "structure" as organization (Kuznik, 2009). It posits that learning is not simply the accumulation of disorderly information; instead, acquiring new knowledge depends on existing knowledge, with both influencing each other.

The emergence of constructivism represents a revolution in contemporary educational psychology, advancing learning theory beyond behaviorism and cognitivism. Unlike its predecessors, constructivism emphasizes how learners construct their own unique understanding based on personal experiences, psychological structures, and beliefs. Within constructivism, various schools exist, such as radical constructivism, social constructivism, and information processing constructivism. Although these schools differ in their perspectives on learning and knowledge, they share certain commonalities.

The gradual popularity of constructivism theory (Constructivism) is a new revolution in education, and its influence is highly profound. This theory not only discusses the problems of cognition and how individuals understand but also transfers the focus to "people" and pays more attention to the central role of learners(Zhong,2008).The constructivist school has always believed that it is necessary to subvert and innovate the traditional curriculum design in the past and pay more deliberate importance to the connection with life and special situations in the curriculum of mass innovation in the design process. After the 1990s, the significant change in the learning theory research orientation caused by the constructivist school profoundly influenced the theoretical and practical research of the curriculum.

2.2.2 Principles of constructivism

2.2.2.1 Knowledge view

(1) Knowledge is not a verdict

It should be noted that knowledge is not solely an impartial depiction of our physical environment, nor is it a definitive representation capable of universally and accurately summarizing the laws of the world or providing practical solutions to every problem. Scientific knowledge, at any given stage of social development, contains elements of truth, but it does not claim to be the final answer. As society progresses, there will inevitably be more Purpose and precise explanations. Knowledge serves as an explanation or hypothesis about the Purpose world rather than an ultimate solution. It evolves, evolves, and improves as our understanding deepens, giving rise to new explanations and hypotheses that are refined and reproduced to address specific issues.

Austrian-born philosopher of science, Sir Karl Raimund Popper (1902-1994), remarked, "Although in science we strive to discover the truth, we understand that we can never be certain that we have grasped it." Some conclusions from the past are refuted in contemporary times, while others are validated by today's society instead of by history (Jin, 2005). Theories from any era undergo gradual

refinement, rigor, and occasionally elimination in the curriculum of history's development. There is no guarantee that knowledge will remain eternally correct.

(2) Understanding of knowledge requires the experience of the learner himself

Knowledge is endowed with certain external forms, such as language, words, pictures, etc., and will be generally recognized in a particular historical period. Additionally, though all learners undoubtedly assimilate knowledge, they may not all construct it in the same manner or comprehend it consistently. If the teacher instills the knowledge to the students in a "cramming" way, emphasizes the absolute correctness of the knowledge, and uses the teacher's authority to subdue the students and force them to accept it. In this so-called learning, students do not use the brain, understanding, and analysis, but rote memorization is the students to the teacher copy type of learning.

From the perspective of constructivism, textbook knowledge represents a more dependable assumption about specific phenomena rather than a definitive blueprint for explaining reality or an "absolute reference" to knowledge. Understanding is an ongoing process. For students, knowledge must be actively constructed, analyzed, and comprehended through their own efforts. Throughout the learning journey, they emphasize independence, using their personal experiences as a foundation to assess the validity of knowledge, construct new insights, and critically evaluate what they have learned. This interactive process ensures that old and new knowledge continually inform and enrich each other.

2.2.2.2 Study view

Constructivism holds that the learning process is self-directed and learner-driven, where learners actively construct the meaning of new information within their unique social and cultural contexts.

(1) Learning is constructive

First, individual learning requires the support of prior knowledge. The absorption and establishment of new knowledge are based on previously formed

knowledge structures. For example, Piaget advocates that new knowledge is constructed through the transformation, organization, and reorganization of old knowledge. Knowledge is not a simple reflection of reality, but rather an abstract representation of the ongoing growth and development of cognitive activities. Knowledge is not valid or false but becomes more internally consistent and organized with the product. Therefore, teachers must understand and be familiar with the current state of knowledge, the path of previous knowledge, and the understanding of new information. The construction contains two meanings: to use the experience to transcend the existing expertise to construct the knowledge of further information. Secondly, the building is two-way. While extracting the background and creating the new venture, the new construction of the experience is according to the specific situation. Therefore, on the one hand, the unique experience comes from the own experience. On the other hand, the new venture will be prosperous, adjust or transform the existing expertise. In learning, learners must process the further information and associate it with other information to keep mastering the simple information while understanding the complex information.

Secondly, partial understanding contributes to grasping the overall meaning of knowledge. While comprehending each part individually, it's important not to isolate them but rather to enhance their interconnectedness. This approach ensures that understanding partial meanings enhances comprehension of the broader relationships within the knowledge framework.

(2) Learning is active

Learners should actively demonstrate their subjective initiative in acquiring knowledge through learning. There are different levels of knowledge acquisition. Learners may only remember the superficial meaning of some knowledge under the stimulation of the outside world, but they do not play their own initiative and really understand its meaning. In this way, the "cornerstone" of learners for future learning is not firm.

Constructive learning necessitates participants to utilize their unique experiential framework to formulate novel knowledge, intertwine acquired knowledge with fresh concepts, bridge newfound knowledge with original wisdom and experiences, interlink formal knowledge with their personal life experiences, and engage in dynamic interactions between past and present, enabling participants to fortify and augment prior knowledge while constructing innovative insights simultaneously.

The purpose of learning is to actively construct knowledge and skills. Learners should first recognize that learning enriches their own knowledge and skills, fostering their subjective initiative throughout the learning process. Secondly, teachers should avoid solely imparting knowledge in a unidirectional manner, both in teaching methods and content. It is crucial to prioritize the internal motivations of students, encouraging their initiative and enthusiasm while respecting their individual perspectives. This approach ensures the optimal internalization of knowledge.

When guiding learners to participate in constructing their understanding and implementation, educators should encourage continuous reflection and the systematic processing of diverse information. This iterative process enables learners to progressively master knowledge and skills, and even achieve breakthroughs.

(3) Learning in society and in context

Learning transpires within a specific context. It's impossible for us to exist devoid of abstract, vacant, solitary facts and theories in our intellects. The knowledge we assimilate is the correlation between recognized entities and well-established convictions and inferences of humanity. If the learning process unfolds within a particular scenario, comprehension and acquisition become effortless. Hence, the constructivist learning paradigm posits that "scenario", "collaboration", "dialogue" and "meaning construction" constitute the four facets or attributes of the learning milieu.

1. "Context": 1. Context: It is imperative that the context within the learning setting fosters an atmosphere conducive to students' meaningful interpretation of acquired knowledge. This places novel demands on instructional design, suggesting that, in a constructivist learning scenario, effective design should not solely focus on the

scrutiny of teaching Purposes, but rather encompass the establishment of scenarios supportive of students' construction of significance, positioning the generation of context as a pivotal component of instructional design.

2. "Collaboration": Throughout the learning journey, collaborative efforts are consistently employed. This process takes on significance in acquiring and evaluating educational materials, formulating and verifying conjectures, assessing learning outcomes, and ultimately constructing comprehension.

3. "Dialogue": Dialogue serves as an integral component within the collaborative framework. Participants in the study group should engage in discussions on the execution of their designated study assignments. Moreover, the collaborative learning process can be viewed as a dialogue-based endeavor where individual learners' insights (wisdom) are disseminated among the collective learning community, thereby making dialogue a crucial tool for achieving comprehension construction.

4. "Comprehension Construction": This represents the ultimate Purpose of the comprehensive learning process. Comprehension construction pertains on the essence and principles of phenomena and the intrinsic relationships among them. Facilitating students in comprehending the essence and principles of the subject matter under study and the interconnections betweenen various elements is essential. The retention of this understanding in the mind's memory bank is known as the aforementioned "schema", or cognitive blueprint of acquired knowledge.

2.2.2.3 Teaching view

In accordance with the principles of constructivism as a learning theory, it propounds an encompassing pedagogical approach.

In student-centered top-down teaching constructivism, students are regarded as the central and active agents in processing information. They begin by tackling complex problems and then, with guidance from teachers, identify or discover the fundamental skills they need. Learners engage in learning that is active, conscious, and purposeful.

During teaching activities, teachers should foster an environment where students are encouraged to question, nurture curiosity, and respect the unique perspectives of each student's understanding. Teachers should also motivate students to persist in exploration until they find satisfactory answers. Students are encouraged to learn by discovering concepts and principles for themselves. Make students understand a learning process, not a result. To equip students with independent problem solving and critical thinking skills.

Pay attention to teaching in actual situations .

Emphasize the creation of scene, promote students to actively construct knowledge; Let students in the process of solving real problems, real problems to learn; Situational learning environment is an important part of the overall learning. It provides social communication for students and enables them to master knowledge from different situations and from multiple perspectives.

Focus on cooperative learning

Constructivist teaching typically incorporates extensive cooperative learning. The theory posits that students are more likely to comprehend and discover complex concepts through collaborative problem-solving. Furthermore, as previously mentioned, constructivism underscores the social dimension of learning, where group members model correct thinking processes, uncover and challenge each other's misconceptions..

2.2.3 Types of constructivism

Constructive learning theory propounds a learner-focused approach under teacher guidance, wherein the learning milieu encompasses four key components: "scenario", "cooperation", "discussion" and "meaning formation". Hence, the corresponding pedagogical method and learning ambience adapted to this theoretical framework may be summarized as follows: Centering around learners, educators act as orchestrators, directors, assistants, and facilitators throughout the educational journey, capitalizing on elements like scenario, cooperation, and discussion to stimulate students' proactivity, enthusiasm, and initiative, ultimately facilitating their effective

construction of the present knowledge's significance. In this model, students serve as proactive creators of knowledge meaning. Educators function as coordinators, advisors, supporters, and catalysts of the instructional process. Educational resources serve as targets for students' dynamic meaning formation; media are employed to establish scenarios, facilitate cooperative learning, and encourage dialogic communication, serving as cognitive tools for students' active learning and collaborative exploration. In these instances, the roles and interactions between educators, learners, educational resources, and the media differ significantly from conventional teaching methods. This novel relationship and interplay constitutes an additional robust structure of teaching activities, i.e. pedagogical methodology in the constructivist learning environment.

2.2.3.1 Bracket teaching(Scaffolding Instruction)

As per the European Community's Distance Education and Training Programme (DGXIII), bracket teaching is defined as: "Bracket teaching should furnish a conceptual framework for learners to construct comprehension of knowledge." These concepts are instrumental in fostering a profound understanding of a problem, and to accomplish this, intricate learning tasks are pre-dissected to progressively deepen comprehension." It draws inspiration from the theory of "the nearest development zone" proposed by Vygotsky, a revered psychologist hailing from the erstwhile Soviet Union. Vygotsky posits that in children's cognitive endeavors, there might exist a disparity between the problem at hand and the initial proficiency. Through instruction, children, aided by educators, can bridge this gap, referred to as the "zone of proximal development". Consequently, teaching should not merely conform to the existing level of children's intellectual growth, but should progress beyond it, guiding children's intellect from one stage to another uninterruptedly. Constructivists adopt the notion of "Scaffolding" from Vygotsky's theory, initially utilized in the construction sector, as a metaphorical framework. Its crux lies in leveraging this framework to bolster learners during the learning trajectory.

2.2.3.2 Anchor teaching (Anchored Instruction)

The necessity for this pedagogical approach stems from genuine circumstances or profound concerns. This identification of such realities is metaphorically likened to "anchoring", signifying that once these circumstances or dilemmas have been identified, the entire scope and procedure of teaching is predetermined (akin to a vessel securing its anchor). Constructivism posits that for learners to thoroughly internalize the comprehension of their acquired knowledge, generating an in-depth understanding of the characteristics and principles of the entities mirrored through knowledge, and the correlation between these entities and others, the optimal method is to permit learners to perceive and encounter (i.e., learn through firsthand experience) within the authentic milieu of the actual world, rather than merely hearing about the elucidation of this experience from others (such as educators). Given that anchoring is predicated on tangible instances or challenges (serving as "anchors"), it is occasionally referred to as "instructional exemplification" or "issue-oriented instruction." Anchored teaching encompasses five stages: scenario creation, issue identification, independent study, collaborative learning, and outcome assessment.

2.2.3.3 Random entry-type teaching(Random Access Instruction)

The foundational principle behind the random teaching method originates from constructivist learning theory, an emerging strand in cognitive theory that incorporates the concept of 'elasticity' (or cognitive flexibility theory). This theory's Purpose is to enhance learners' comprehension proficiency and their capability for knowledge transfer; essentially, the ability to apply their acquired knowledge with versatility.

Within conventional pedagogy, educators instill knowledge where all learners are compelled to adopt an identical viewpoint about matters, and the acquisition of abilities is executed unchallengingly and repeatedly, which is not beneficial to fostering learners' learning aptitude and cognitive prowess. The random entry teaching approach accentuates unpredictability. Given the intricacy of phenomena and the multifaceted nature of issues, it's exceedingly challenging to attain a thorough comprehension and mastery of the inherent nature of matters and the interconnections

among them, that is, to genuinely accomplish a comprehensive and deep understanding construction of acquired knowledge. Often, disparate perspectives can foster variegated understandings. To alleviate this predicament, it's imperative to present the same instructional content in varying instances, in diverse scenarios, for distinctive teaching Purposes, and through assorted methodologies. Evidently, learners can attain a more comprehensive and profound understanding of the knowledge content by "entering" the same teaching content numerous times. Such repeated exposure is not merely a simplistic reiteration to fortify fundamental knowledge and skills as in conventional teaching. Each insertion here harbours a different learning Purpose, and each addresses a distinct issue focus. Therefore, the outcome of multiple entries is not simply a reiterative consolidation of the same knowledge content, but a progression in learners' comprehension and cognition of the entire panorama of matters. Educators should nonchalantly guide learners to comprehend the same content from diverse perspectives and modes of learning according to the construction of information meaning by learners within the learning trajectory or the study traits of different learners at any point, enabling different learners to acquire multifaceted cognition and comprehension of the same entity or the same issue. It can adeptly address the issue of individual disparities in students' learning, and stimulate students' inventive cognitive proficiency.

2.2.4.Using constructivism theory to study the cultivation of innovative entrepreneurship skills

The enlightenment of constructivism theory in this research is: The innovative entrepreneurship education program established in the curricular framework at Eastern universities is the basic curriculumwork aimed at promoting entrepreneurial skills among their students, Provide a learning environment and guidance for undergraduates of different majors in innovative entrepreneurship, Master the essential thinking and methods of innovative entrepreneurship, Have a preliminary understanding and interest in innovative entrepreneurship; Combining the ner's original major, students under the guidance of the teacher to keep the cloud open to see the moon Ming to

obtain the knowledge that should be learned, Actively cultivate understanding in innovation, entrepreneurship, and professional education. Emphasize practical training and hands-on experience in the curriculum, aiming to create an environment conducive to fostering innovative entrepreneurship. Continuously enhance students' skills and quality in innovative entrepreneurship.

2.3. Humanistic theory

In the 1950s and 1960s, a trend of human-centered psychology emerged in the United States. This trend of thought is different from behaviorism and cognitivism. It emphasizes human value and dignity, attaches importance to human potential and nature, and studies human as a complete personality. The humanistic pedagogical model, rooted in humanistic psychology, emphasizes the importance of establishing an optimal milieu for learners to comprehend, investigate and interpret the universe through personal lenses, thereby facilitating self-fulfilment. The humanistic theory is mainly represented by Rogers. Humanistic thinkers believe that man is not a social entity but a natural entity; Natural human nature is equivalent to human nature, and human nature comes from nature. In the study of psychology, first of all, humanism advocates the exploration of the complex experience and contradictions that really belong to all categories of human nature, and turns the study of human psychology to human nature, potential, value, creation and self-realization. Secondly, humanism believes that people can prove the value of their own existence according to their own will, achieve infinite self-potential by virtue of individual subjective initiative and free choice ability, and construct a matching self-realization life. Finally, humanism holds that the inquiry of man is different from the inquiry of animals.

Humanistic learning theory is based on the theory derived from humanistic psychology, which points out that learners should be the center of learning. Build a good environment for learners to explore the world through their own perspective. A behaviorist who refuses to compare people to animals or machines, ignoring human characteristics. On the other hand, cognitive psychology also criticizes the importance of people's emotions, values and attitudes in learning although it attaches importance to

people's cognitive structure (Dai & Liu,2004). In the process of learning, differences in cognition, emotion and intention lead to differences between people. Therefore, we should pay attention to learners' emotions and cognition to carry out all activities. It is crucial that we view education as a holistic process aimed at nurturing students not merely in acquiring knowledge, but also in enriching their moral ethos and fostering their psychological maturity. Moreover, teachers should change from leaders to assistants, facilitators and helpers of students' learning, promote equality between teachers and students, pay attention to teacher-student friendship, and reflect the student-oriented classroom everywhere.

Simultaneously, humanistic psychologists emphasize that humans inherently possess the potential and motivation to acquire knowledge, which can be unleashed under specific conditions. When students perceive that learning content meets their personal needs, their enthusiasm is sparked, significantly enhancing learning efficiency and facilitating educational progress. Therefore, in the process of imparting knowledge, teachers' focus should not solely be on dictating what knowledge students must learn or how they should learn it. Ultimately, educators ought to proffer an array of instructional resources and prospects, empowering learners to select education avenues that resonate with their personal preferences and requirements.

2.4 Training curriculum

2.4.1Type of training curriculum

2.4.4.1 Overview of research on innovative entrepreneurship education for foreign undergraduates

The focus on entrepreneurship education by global counterparts notably in progressed countries, which recognize the beneficial interplay between advancing knowledge and technological progress in fostering innovative talent, is increasing. In the 1970s, the United States had long proposed the educational goal of cultivating innovative talents. Among them, Jeffrey Timmons, a distinguished professor of Best Business School, believes that the integration of entrepreneurial awareness, entrepreneurial spirit and entrepreneurial skill required for entrepreneurship with other

professional knowledge is more conducive for students to learn and analyze practical problems in an entrepreneurial social environment (Timmons,2009).

Throughout decade of the 1860's, substantial advancements were observed in the theory and application of entrepreneurship education overseas. As we enter the adorned era of the 20th century, an increasing number of academics began contributing to the investigation and exploration of entrepreneurship education. Foreign scholars have relatively little direct research on innovative entrepreneurship education, and most of them start with entrepreneurship education and integrate into innovation education research in the later period. In particular, some European and American countries have launched related research on entrepreneurship education activities earlier. Foreign scholars have found that students who participate in a complete innovative entrepreneurship education system can become innovative talents with various professional knowledge and entrepreneurial skill after entering various industries, and become the backbone of the industry. Simultaneously, this initiative positively influences economic progress and fosters effective growth among undergraduates in both academic and societal domains. It has been established in many existing literature that entrepreneurial activities have a positive effect on socioeconomic growth. According to the intention survey of the Economic and Development Organization, among the eight sample countries surveyed, the contribution rate of start-ups to the economy is 20% - 40% to the economy, indicating that entrepreneurship can effectively promote economic development. Hence, viewed through the lens of societal evolution over time, entrepreneurship education serves as an instrumental catalyst for the swift progression and transformation of our knowledge-based economy and society.

As of now, the theoretical examination and practical implementation of entrepreneurship education globally has a rich legacy spanning six decades, primarily focusing on four aspects: the role of entrepreneurship in economic development, educational concepts, curriculum systems, and teaching staff and educational methods.

(1) Curriculum concept

Kruja believes that entrepreneurship education represents a novel method of boosting productivity. Through entrepreneurship education, a large number of people with innovative consciousness and innovative thinking can be cultivated, and through their knowledge and skills, the rapid development of high-tech industry can be promoted(Kruja,2013).Harvey believes that entrepreneurship education is mainly about cultivating people's innovative consciousness, entrepreneurship and entrepreneurial skill, and the intended Purpose is to develop individuals with inventive and entrepreneurial competence(Harvey,1994) .

(2) Curriculum system

At the turn of the 20th century, the United States was among the first country to offer entrepreneurship curriculums. In 1947, Harvard Business School took the lead in offering a curriculum related to entrepreneurship, and the later curriculum "New Enterprise Management" was regarded by scholars as a symbol of the first appearance of entrepreneurship education in universities. Currently, undergraduate students in all countries popularize entrepreneurship curriculums, and constantly explore the content and structure of the curriculums, gradually forming a perfect curriculum system.

Rhoades believes that entrepreneurship curriculums can inspire students' awareness of innovative entrepreneurship(Rhoades,2002). Solomon believes that entrepreneurship curriculums should include the relevant knowledge of entrepreneurship management, entrepreneurship finance, marketing and law, so that students can independently establish enterprises and realize the diversification of innovative entrepreneurship curriculums, which should include many fields such as business, finance and law(Solomon et al.,2002). Henry et al. believes that innovative entrepreneurship is a creative act, roughly turning colleges into science, liberal arts and business schools(Henry et al.,2004). Among them, science colleges and liberal arts colleges have less development space than business schools, so we need to fill some gaps in the curriculum. It would be beneficial to integrate the liberal arts with fundamental scientific disciplines; similarly, it might be prudent for scientific subjects to

incorporate the foundational components of the liberal arts, aiming at attaining superior academic outcomes.

(3) Teaching staff

Inclusive opinion among U.S. researchers suggests the implementation of teaching evaluations through the process and outcomes of entrepreneurial teaching initiatives, aimed at enhancing teachers' pedagogical proficiency and enthusiasm. Specifically, Bloom asserts that the cultivation of teachers skilled in innovative entrepreneurship education represents the paramount consideration in this educational progression(Bloom, 2003). At present, a group of high-quality teachers with both scientific research skill and practical skill are needed to teach students theoretical and practical curriculums of innovative entrepreneurship education.

(4) Teaching mode

After years of exploration, foreign entrepreneurship education primarily emphasizes cultivating students' entrepreneurial skills through practical activities. Bechard & Gregoire argue that the education model should effectively blend theory with practice, enhancing students' practical entrepreneurial experience and refining their innovative entrepreneurship skills through diverse activities (Bechard & Gregoire, 2002). Moses et al. suggest that the entrepreneurship education model should encompass both macro and micro aspects, providing students with comprehensive knowledge and skills in entrepreneurship to facilitate rapid acquisition (Moses et al., 2009)..

2.4.1.2 Research summary on innovative entrepreneurship education for Domestic undergraduates

(1) The Utilization of Advanced Entrepreneurial Education Theory

According to a comprehensive examination of CNKI literature, there appear to be scarce investigations pertaining to the principles of innovative entrepreneurship instruction in our country. The vast majority of these studies predominantly center around outlining the distinguishing attributes and practical applications of foreign entrepreneurship education, along with the systematic analysis of the prevailing conditions, challenges, and potential solutions for the implementation of

innovative entrepreneurship teaching in China's education system. Among them, several theories specifically related to innovative entrepreneurship education emerge, with key contributions from enterprise growth theory, entrepreneurial opportunity theory, human all-round development theory, self-efficacy theory, etc. Notably, within the realm of management theory, renowned Chinese scholars Ge and Ye propose their belief that harnessing enterprise growth theory in university entrepreneurship education can significantly boost undergraduate students' chances of successful entrepreneurship(Ge & Ye,2010). An innovative approach to entrepreneurship education informed by theoretical principles can significantly enhance its sustained progression and effectiveness. Zhang & Song believes that entrepreneurial opportunity theory is to guide universities to classify and guide people who receive entrepreneurial education(Zhang & Song,2012). Because each individual has unique assets and entrepreneurial prospects, they ingeniously amalgamate these resources to cater to market requirements. In terms of pedagogy theory, Huang proposed that the theory of all-round human resources development guides undergraduates' innovative entrepreneurship (Huang,2013). The Purpose of pioneering entrepreneurship education is delineated as the comprehensive progression of undergraduate students, with its cardinal aim being the nurturing of students' innovative entrepreneurship ethos and comprehensive capacity. Chai proposes that self-efficacy assumes a constructive role within entrepreneurs, evident in their internalization of the Purposes of entrepreneurship education, widening the spectrum of entrepreneurship pedagogy, and propagating an entrepreneurial milieu(Chai, 2010).

Innovative entrepreneurship education curriculum system divides entrepreneurship education curriculums into two parts: theory and practice (Tao & Qihu,2017). Our comprehensive educational curriculum effectively guides scholars in acquiring proficient entrepreneurship expertise through practical application, thereby ensuring advanced progression in their entrepreneurial practice undertakings. Practical curriculum takes rich theoretical curriculum content as the core, promotes new entrepreneurial knowledge, and realizes the innovation of curriculum content.

Chinese scholars have different views, including Liu point of view is representative, think the current innovation entrepreneurship education curriculum is mainly divided into three modes: the first model is comprehensive curriculum mode, namely innovative entrepreneurship education is composed of various types of curriculum combination and build, including professional entrepreneurship education curriculum activities curriculums, through the environment of public opinion curriculums and practice curriculum in middle school(Liu,2006). The second approach is an integrated curriculum model, wherein entrepreneurship innovation education is imparted throughout the entire life cycle of entrepreneurship conception, strategizing, and execution. The third approach combines curriculum with scientific research activities, integrating subject-based curriculum, activity-based curriculum, practical training, and entrepreneurial environmental education to provide comprehensive innovative entrepreneurship education..

Under the three modes of curriculum, some scholars have studied deeply and designed the curriculum system. Ma & Bai took Tsinghua University as an example to point out that the current curriculum of innovative entrepreneurship education lacks systematic design, and the segregation of curriculum and practical instruction ought to establish a multi-tiered curriculum framework stemming from the encompassing ecosystem of "professional training and entrepreneurial knowledge installation" alongside "mandatory modules and electives"(Ma & Bai,2015) ."Hu & Jiang pointed out that an organic curriculum system of innovative entrepreneurship should be constructed from three aspects: curriculum system, teacher allocation and practical training system(Hu & Jiang,2016).Overall realization of professional and general knowledge, theory and practice. Lin draw lessons from the experience of foreign education, optimization of applied innovation entrepreneurship curriculum system of undergraduate students should form a concentrated basic education, incubation and elite training progressive, full coverage of innovative entrepreneurial talents training innovative entrepreneurship education is required curriculum for all students, innovative business incubation elective curriculums for the entrepreneurial potential and intention

of students, innovative entrepreneurial practice curriculums for students to entrepreneurial practice(Lin,2016).

(2) The education mode of innovative entrepreneurship education

Between 2002 and 2008, the Ministry of Education selected 9 and 30 universities, respectively, to pilot innovative entrepreneurship education programs. This initiative led to the gradual emergence of various models of innovative entrepreneurship education. Vice Chairperson of Beijing University's Party Committee believes that diversified innovative entrepreneurship education models should be constructed according to the university situation, and comprehensive research universities should focus on cultivating students' innovative entrepreneurship and guide students to science and technology entrepreneurship; ordinary universities should focus on guiding students to service-oriented entrepreneurship; applied universities should focus on the training of entrepreneurship practice(Zhang,2016) .

Zhou et al. (2009) clearly proposed that undergraduate students' innovative entrepreneurship education is structured into three modes: "universal entrepreneurship education," "systematic entrepreneurship education," and "entrepreneurship practice activities." These components form three comprehensive parts. But Liu summarized the mode of innovative entrepreneurship education in the universities into three types: the "trinity" mode represented by Ningbo University; the "incubation" approach, coupled with the distinctive traits of students, presents as follows: the initiation phase in their freshman and final years, alongside the developmental period: the "3 classes" of innovative entrepreneurship theory, practice, activity practice, and the two-level promotion mode of "popularization layer and promotion layer"(Liu,2014). Wan articulated his "sustainable growth model" for pioneering entrepreneurship education within academic institutions. He held a conviction that academic institutions should align themselves with the inherent evolution of education and cater to the requirements intrinsic in its progression, delving into consideration and discurriculum across four domains of educational discipline, architecture, role, and framework (Wang,2010) .

In conclusion, the dynamic evolution of undergraduate student innovation entrepreneurship education has led to notable theoretical enhancements. Increasingly, this theoretical groundwork is being applied to reform and further develop innovation entrepreneurship education. These theoretical achievements provide crucial guidance for future practices. However, the quality and level of research still lag behind the speed of development in innovation entrepreneurship education practice.

2.4.2 Training curriculum development

2.4.2.1 curriculum design of innovative entrepreneurship for undergraduates

In the curriculum design section, the research work proposed by the researcher includes: analyzing the curriculum design requirements, determining the curriculum nature, curriculum orientation and curriculum design ideas; designing the overall curriculum Purposes and analyzing the unit teaching Purposes; selecting and organizing the curriculum content; devising an effective teaching implementation methodology, and arranging comprehensive teaching engagements, centred around enhancing our undergraduate students' innovative entrepreneurial aptitude; formulating teaching evaluation standards and specifications; determining the curriculum content order and class hour arrangement (Li,2010). Since there is no unified curriculum outline for innovative entrepreneurship curriculums for undergraduate students, researchers have developed a syllabus based on the specific circumstances of domestic undergraduate students. This syllabus was formulated through interviews, questionnaire surveys, and an understanding of the general Purposes outlined in the Basic Requirements for Entrepreneurship Education and Teaching in Ordinary Undergraduate Schools (Trial).The primary Purpose of the curriculum aligns with the teaching goals specified in the Basic Requirements, aiming to achieve several outcomes: equipping students with foundational knowledge and theories of entrepreneurship, familiarity with the basic entrepreneurial processes and methods, understanding of relevant laws, regulations, and policies, fostering entrepreneurial awareness, enhancing social responsibility, nurturing innovative spirit and entrepreneurial skills, and promoting

students' holistic development including entrepreneurship and employment. To achieve these Purposes, the curriculum construction draws on valuable theoretical research and teaching practices in innovative entrepreneurship. It incorporates insights from student surveys and adapts to the characteristics of both the curriculum and the learners, centering on the goal of fostering students' personal development and entrepreneurship education aligned with societal needs.

curriculum content emerges as the fundamental vehicle for meeting the Purposes of academic programs. To rectify the issue of divergence within the University's innovative entrepreneurship curriculum, thereby optimally accomplishing the Purpose of promoting innovative entrepreneurship education, we have strategically designed a comprehensive curriculum that emphasizes two major parallel curriculums for undergraduate students. This curriculum spans an exhaustive total content, with each segment divided into curriculum knowledge structure and unit knowledge structure. Furthermore, we conducted a meticulous analysis of the pedagogical content's knowledge attributes and identified potential challenges.

The teaching process serves as a concrete manifestation of the teaching Purposes and the detailed arrangement of the learning process. It integrates the curriculum Purposes and teaching content to guide both teachers' and students' activities, focusing on enhancing undergraduates' innovative entrepreneurship skills. Teachers' activities and students' activities are structured around the concept of skill improvement in innovative entrepreneurship.The process entails nurturing curiosity and enthusiasm, endorsing educational endeavors, fostering investigation into innovative concepts and methodologies, and orchestrating the dissemination of wisdom and experiences among learners. Throughout the teaching activities, the curriculum Purposes and teaching content are strategically arranged to foster an environment conducive to developing innovative entrepreneurship skills among undergraduate students.

Teaching evaluation design includes two parts: homework design and homework evaluation standard design. The assignment design includes the design of

classroom work, homework and final works; The evaluation gauge is designed according to the corresponding innovation level teaching Purposes, including knowledge card evaluation criteria, classroom homework evaluation criteria PPT, roadshow video evaluation criteria and business plan evaluation criteria.

2.4.2.2 Classroom teaching design of undergraduates' innovative entrepreneurship"

The critical phases in a comprehensive classroom instruction module for the subject 'Innovative Entrepreneurship for Undergraduates' encompasses six integral components: examination of pedagogical goals, dissection of instructional materials, scrutiny of student attributes, crafting of teaching methodology, and devising of the assessment strategy.

The writer has chosen to exemplify this by examining the content of the inaugural chapter, encompassing the analysis of pedagogical goals, instructional material design, student attribute analysis, teaching methodology design, and assessment strategy design.

Our approach to examining teaching Purposes extends across the three facets of knowledge and skills, process and methodology, as well as emotional attitudes and values. The evaluation of instructional content employs a progressive analytical methodology known as Hierarchical Analysis Method within the Teaching Content Analysis framework, thereby facilitating an orderly arrangement of its content structure. The design of the teaching process is based on the concept of improving the skill of undergraduates' innovative entrepreneurship skill, Organize teacher activities and student activities from the four elements of stimulation (Stimulate), support (Support), exploration (Search) and sharing (Share): Teaching evaluation design includes homework design and homework evaluation standard design (Li et al.,2013).

2.4.2.3 Resource Development of undergraduates' innovative entrepreneurship"

To address the issue of monotonous media resources in undergraduate curriculums on innovative entrepreneurship, and to better engage learners,

"undergraduates' innovative entrepreneurship" has designed and developed a more diverse range of curriculum learning resources. These resources include electronic teaching materials, conceptual drawings, learning curriculumware, micro-curriculum resources, and related video materials.

This study provides learners with a list of supporting (Support) resources, such as curriculum-related electronic textbooks for students 'reference; According to the concept map designed by the curriculum content, it provides students with a clearer curriculum structure: learning curriculumware can be used for classroom teaching and as a basis to support micro-curriculum resources for learners to preview or review. Additionally, video resources are selected based on the characteristics of innovative entrepreneurship curriculums. These include movies, speeches, and short videos related to innovative entrepreneurship, which aim to deepen learners' understanding and enhance their immersion in the subject matter.

2.4.2.4 Curriculum plan of innovative entrepreneurship for undergraduates

The current investigation primarily employs both the questionnaire survey methodology and the interview approach to scrutinize the anticipated impact of undergraduate students' innovative entrepreneurship curriculum design.

Before the curriculum commences, the curriculum construction involves several steps: conducting a needs analysis using questionnaire surveys to gauge the general status of undergraduates' innovative entrepreneurship; employing interviews to understand the expectations, needs, and challenges faced by students and teachers during curriculum development. Throughout the curriculum implementation phase, the classroom observation method is utilized to document sessions, complete observation forms, and monitor student-teacher interactions. Observations include assessing student engagement and noting any issues encountered during curriculum delivery.

Additionally, students are surveyed for feedback on various aspects such as class style preferences, desired learning content, and skills they wish to enhance. This feedback provides specific insights into curriculum design, classroom teaching methods, and media resource development. Based on these collected data,

researchers adjust and refine the curriculum plan for "undergraduates' innovative entrepreneurship," enhancing both curriculum structure and delivery strategies.

2.4.2.5 Summary of experience of innovative entrepreneurship curriculum design of undergraduate students

Through primary research data sorting and analysis, the study aims to explore the utilization and enhancement of undergraduates' innovative entrepreneurial skills and evaluate the effectiveness of integrating university innovation entrepreneurship curriculums. This includes refining curriculum design, classroom teaching strategies, media resources, and identifying effective learning resources to inform future university innovation entrepreneurship curriculum plans.

2.4.3 Related research on the training curriculums

In general, entrepreneurship education for undergraduates has achieved certain results in China, and introduced a series of innovative entrepreneurship policies, such as loan guarantee, discount interest and financial subsidy policies; some local governments have also set up entrepreneurship education funds: incubation bases for college student entrepreneurship education. Formed three representative models of innovative entrepreneurship education for undergraduates, The first category, such as the technology innovative entrepreneurship education model of Tsinghua University, relying on the good scientific research advantages of the university, on the basis of innovative entrepreneurship education for all the students, integrate the entrepreneurship curriculum system with technological innovation, technology commercialization and high-tech industrial situation deeply, focus on cultivating technical entrepreneurial talents who can enhance the independent innovation skill and international competitiveness of enterprises; The second category discusses Heilongjiang University's innovative entrepreneurship education mode, emphasizing the establishment of a conducive entrepreneurial practice site and environment for undergraduates. This includes physical entrepreneurship practice bases where theoretical education is integrated with practical application. Special attention is placed on cultivating students' practical entrepreneurial skills (Cao & Lei,

2010). The third category focuses on Renmin University of China's innovative entrepreneurship education mode, which combines classroom education with practical entrepreneurship education. This approach aims to enhance overall entrepreneurial skills and literacy. The university offers a series of curriculums under the "First Class" program, including "Entrepreneurship," "Venture Capital," and "Business Management." These are complemented by extracurricular activities in "Second Class," extending and applying classroom learning through social practices and welfare activities. Entrepreneurship education lectures and various competitions are utilized, with entrepreneurial practice groups organized around professions, projects, and community initiatives (Wen & Tian, 2018).

As the carrier of innovative entrepreneurship education of undergraduate students, Nearly a decade of domestic research on innovation entrepreneurship education curriculum design mainly focuses on the following aspects: On innovation entrepreneurship education curriculum value orientation and basic goal research (Zhu,2017 & Chen,2020): In a university, an example of innovation entrepreneurship education curriculum research(Lou,2021 & Jiang,2016) ;Other meticulous research on entrepreneurship and innovation education curriculums established on a network platform has been conducted. This exploration delves into the feasibility of implementing micro curriculums for entrepreneurship and employment education, encompassing the establishment of an informative platform, the creation of micro curriculum content, and team formation (Zhong,2019); Further exploration into the academic framework of entrepreneurship and innovation instruction for undergraduate students in a particular discipline(Xue,2018 & Fang,2020). This research indicates several challenges in innovative entrepreneurship curriculums in Chinese higher education institutions. As noted by Wu (2016), a prevailing concern is the inadequate representation of skilled faculty in this particular field. Despite the rising popularity of innovative entrepreneurship education in China, certain university educators may lack substantial progress in their pedagogical approach. This can be observed through an emphasis on theoretical knowledge rather than practical application, a deficiency in

fostering proactive innovation awareness, and a general weakness in practical skills development; Li noted that, The lack of venues and overall environment for innovative entrepreneurship in domestic universities, innovative entrepreneurship curriculums of undergraduate students still adopt the teaching method of "preaching, teaching knowledge and solving doubts"(Li et al.,2019). The examination is also mostly carried out in the form of a paper examination, Emphasis on examination rather than inspection, Despite some universities opting for university-enterprise cooperation in their innovative entrepreneurship education initiatives, students often encounter limited opportunities for practical application. Several internship opportunities provided by pertinent organizations often concentrate primarily on technical facets, inadvertently inhibiting the nurturing of students' inventive thought processes and entrepreneurial competencies. A comprehensive examination of the progression, obstacles, and system enhancement of entrepreneurship education in Chinese academic institutions over the last decade discloses a number of systemic issues. These include unreasonable curriculum designs for innovative entrepreneurship education, insufficient numbers of qualified teachers, inadequate support funds for entrepreneurship practices, scarcity of entrepreneurship incubation sites, and inadequate policy guarantees for entrepreneurship initiatives. Addressing these issues is crucial for enhancing the effectiveness and impact of entrepreneurship education among undergraduates in China.(Li et al.,2013); In view of the construction of innovative entrepreneurship curriculums in Chinese universities in China, " the total amount of class hours, content distribution and entrepreneurial experience should be defined when the curriculum 21 curriculum system is established, The reform of entrepreneurship education content should be specific and operable " (Qi & Han,2015) .

Based on interviews with over 20 universities regarding the current state of innovative entrepreneurship curriculums and analysis of relevant literature, it is evident that undergraduate education in innovative entrepreneurship is progressing in a positive direction. Several distinctive models have emerged. However, significant challenges persist in the construction of these curriculums. For instance, the theoretical

framework for undergraduate innovative entrepreneurship education remains incomplete, lacking a systematic educational structure. Furthermore, there are shortcomings in the training and development of teachers specializing in entrepreneurship education for undergraduates. And there are very few curriculum plans available for reference; The curriculum team has a single member structure, Lack of experienced entrepreneurial personnel in the industry: the target system and curriculum content system of innovative entrepreneurship education are biased, Swwing between innovation education and entrepreneurship education, Most schools focus on entrepreneurship over innovation: teaching methods focus on traditional teaching, Single teaching method, Lack of student subjectivity; And the media resources supporting the curriculum are relatively monotonous, Students' interest is relatively weak.

Currently, research on innovation, entrepreneurship, and entrepreneurship curriculums can be mainly categorized into the following four aspects:

First, basic theoretical research. This kind of research mainly discusses the value orientation and target orientation of innovative entrepreneurship curriculum construction from the theoretical level, and also discusses the ways to achieve its goals. For example, scholars Du & Du believe that the value orientation of innovative entrepreneurship curriculums of undergraduate students

should be diversified and integrated, and the goal of the curriculum should be the cultivation of upward quality, industry accomplishment and communication skill (Du & Du,2018). Referring to implementation strategies, the esteemed scholar Zhao Liang has meticulously scrutinized the trajectory of holistic progression of pioneering entrepreneurship education and vocational training from both theoretical and practical standpoints, delving into the rationale for inception, overarching policy aspirations, and modus operandi for curriculum amalgamation (Zhao,2020). Scholar Li Deli and others analyzed the goals and principles of integration and embedding from the perspective of "integration" and "embedding" (Li et al.,2019).

Second, combined with the actual case analysis and research. This kind of research is generally divided into two kinds, one is the empirical analysis of regional survey, mainly from a region or a university level, such as scholars Pang in Guangdong province, for example, analyzes the university innovation entrepreneurship curriculum regional practice (Pang et al.,2012), Ma & Bai to Tsinghua university entrepreneurship education case, explore the construction of curriculum ecosystem. The alternative approach involves deliberating on the integration of the "mass entrepreneurship and innovation" curriculum into specific academic disciplines at a microcosmic level(Ma & Bai,2015) . For example, scholar Zhang et al studied the teaching construction of innovative entrepreneurship curriculums of civil engineering + electric power(Zhang et al.,2012).Yang et al. explored the practice curriculum of innovative entrepreneurship of animal husbandry and veterinary medicine(Yang et al.,2018), and Ren & Chen carried out research on innovative entrepreneurship curriculums of medical majors(Ren & Chen,2020).

Third, the meticulous study pertaining to the formulation and structure of cutting-edge entrepreneurship curriculum systems can be classified into two primary categories. One type involves analyzing the current situation in universities, identifying issues within the curriculum system, and subsequently proposing targeted recommendations. For example, scholar Fan discussed how to realize the core quality of innovative entrepreneurship of undergraduates through the design of innovative entrepreneurship curriculums in Shanghai University of Finance and Economics (Fan,2016). In the choice of undergraduate students, it is mainly divided into national pilot universities, such as Tsinghua University, Beijing University of Aeronautics and Astronautics, and some universities that have formed some characteristics, such as Heilongjiang University, Wenzhou University, etc., and some universities that are undergoing comprehensive curriculum construction, such as some vocational colleges. The second aim involves elucidating the theoretical framework underpinning the curriculum system's formation. For example, the construction of an innovative entrepreneurship curriculum system can encompass several dimensions: general

education innovation curriculums, foundational innovation curriculums within specific subjects, compulsory innovation curriculums within majors, and intensive practical innovation curriculums.(Sun et al.,2020).Scholar Tang meticulously elucidated the establishment of the curricular structure for innovative entrepreneurship education at universities, focusing on three distinct components: goal system design, content system formulation, and assessment system development(Tang,2017) .

Fourth, a comparative study of curriculums between different countries and regions. This kind of research mainly from the United States and other entrepreneurship education more mature countries, introduced such as Massachusetts institute of technology, best business school, Drawing from the curriculum construction experiences of globally renowned entrepreneurial universities like Stanford University, comparisons can be made with the current status of "double gen" (generation of entrepreneurs and innovators) curriculum construction in China. Based on this comparison, suggestions and improvement strategies can be proposed.. Such as scholar Hu & Zhang of the We have succinctly reviewed the historical progression and attributes of the entrepreneurship education program at Massachusetts Institute of Technology, highlighting features such as robust curriculum development, student-centered entrepreneurial content, intensive leadership training, global economic outlook, web-based curriculum platforms, and the use of a dual-track faculty system (Hu & Zhang, 2019). Scholars worldwide have delved into entrepreneurship education curriculums across Europe, including the UK, Germany, and Finland. Influenced by the entrepreneurial education model prevalent in the US, these nations have evolved unique characteristics of their own.

Fifth, research on the implementation effects and influencing factors of innovative entrepreneurship curriculums typically adopts a narrow perspective, focusing on the curriculums themselves. This research approach involves conducting micro-level curriculum analyses through data collection and empirical analysis. For example, scholar Huang made an empirical analysis of 12,269 samples with the students of "double First-class" universities as research samples, and studied the entrepreneurial

awareness of different students and the influence of professional grades on the satisfaction of innovative entrepreneurship curriculums(Huang & Du, 2020) . In 2016 to 2018 innovation entrepreneurship typical experience of college data as the research object, from the number of college curriculums, whether set up special college, practice site area and full-time tutor for input factor, from the annual number of innovative entrepreneurial projects, benefit students, annual registered companies for output factor, through the weight calculation of related impact factor, to measure the input and output relations in the field of innovative entrepreneurship, and then put forward more targeted Suggestions (Hu & Yang,2020).

CHAPTER 3
RESEARCH METHODOLOGY

3.1. Basic information study

3.1.1 Purposes of the basic information research

(1) Acquire and refine the prevailing research principles along with the outcomes garnered from past studies, thereby establishing a robust theoretical framework conducive to a seamless progression of this investigation.

(2) Collect and efficiently organize the results of expert interviews to provide robust support for curriculum design. Enhance the practicality and feasibility of the curriculum by systematically sorting through interview findings related to curriculum naming, class hours, content, and teaching methods.

(3) Collect students' attitudes and interests in developing undergraduate innovation and entrepreneurship curriculums through questionnaire survey, so as to develop practical curriculums suitable for improving students' ability based on students' actual needs during curriculum development.

3.1.2 Methodology

(1) Questionnaire of Undergraduate Innovation and Entrepreneurship curriculum Design

Ensuring that our existing innovative and entrepreneurial curriculum effectively addresses present-day undergraduate students' genuine requirements, and to gain deeper insights into students' perspectives across different genders and majors regarding curriculum development, the author designed a student questionnaire with fundamental information items. These include gender and major. This structured approach aims to provide scientific support for subsequent research endeavors.. See Appendix B for details.

(2) Expert interview outline

With a view to comprehending expert perspectives on augmenting undergraduate innovation and entrepreneurship curriculums, matured through personal experience, the environment and other factors, the author’s gender and teaching age as

basic information items when designing the interview outline, so as to provide more accurate information for this study.

3.1.3 Research Instruments

A questionnaire survey is employed to gather students' perspectives on various aspects such as attitudes, interests, teaching Purposes, and content settings within the innovative entrepreneurship curriculum. Through students' feedback on these issues, developers obtain a clear understanding of the curriculum's real impact and address students' needs effectively. This feedback guides developers in enhancing students' abilities to explore opportunities, organize and manage tasks, make strategic decisions, integrate resources, and navigate setbacks. In essence, this survey furnishes scholarly and practical backing for the evolution of pioneering and entrepreneurial curriculums.

Interview was used to collect teachers' opinions and suggestions on curriculum development. By interviewing experienced teachers who teach innovation and entrepreneurship, we can understand their real thoughts on the development and improvement of this curriculum and provide valuable suggestions for the development of this curriculum from the teaching point of view.

3.1.4 Reliability and validity analysis

3.1.4.1 Reliability

Reliability is a basic parameter reflecting the reliability and consistency of questionnaire results, which is generally expressed by Cronbach)α coefficient in statistics. Within the realm of statistics, the standard α coefficient ranging from 0.65 through 0.7 is generally regarded as an adequate threshold for reliability assessment. An α coefficient located within the range of 0.7 to 0.8 signifies that the questionnaire's reliability is commendable, while those situated between 0.8 and 0.9 indicate exceptional reliability levels. Adopting such criteria for our reliability examination, the findings are presented in Table 6. The calculated Overall α coefficient ascends to 0.973 with each dimension demonstrating scores notably higher than 0.774 and falling beneath 0.958. It can be seen that the reliability of the questionnaire designed in this

study is quite high, and its survey results have strong internal consistency and are stable and reliable.

TABLE 6 Confidence analysis of the survey questionnaire

	Cronbach α coefficient	Total number of questions
ensemble	0.973	20
Understanding and interest in innovation and entrepreneurship	0.774	5
Innovation and entrepreneurship curriculum Purposes	0.894	5
Innovation and entrepreneurship curriculum content	0.832	5
Implementation of innovation and entrepreneurship curriculums	0.907	5

Source: Calculated data comes from

3.1.4.2 Validity

Veracity denotes the degree to which the outcomes of an investigation precisely gauge their intended measurement. In the context of questionnaire research, testing the validity of questionnaire results involves assessing structural validity. Structural validity evaluates how well the conceptual characteristics being measured by the questionnaire align with theoretical assumptions. Factor analysis is a fundamental method used to assess structural validity. Its principle involves consolidating, extracting, and aggregating original overlapping information variables to reveal underlying factors, which are then represented and interpreted through factor load coefficients. This process helps to confirm the degree to which the questionnaire items correspond to the

theoretical constructs they aim to measure. KMO and Bartlett test results for the exploratory factor analysis shown in Table 7: KMO = 0.970> 0.9, the chi-square value of Bartlett sphere test was 40596.763, significance level sig.=0.000 <0.001, fulfilling the requirements of questionnaire factor analysis.

TABLE 7 KMO values and Bartlelett spherical test

Measure the sampling appropriateness		.970
The sphericity test of the Bartlett	Approx. Chi-Square	40596.763
	df	1485
	Sig.	.000

Source: Calculated data comes from

The verified KMO value amounted to 0.970, significantly exceeding the standard benchmark of 0.7. Furthermore, Bartlett's test statistic was found to be 40596.763, The significance is 0.000, and the variable correlation is high, so the factor analysis is appropriate.

TABLE 8 Variance contribution rate

	Initial eigenvalue			Extract the squared sum and load			Rotary square sum loading		
element	amount to	% Of the variance	accumulate%	amount to	% Of the variance	accumulate%	amount to	% Of the variance	accumulate%
1	9.018	60.122	60.122	9.018	60.122	60.122	4.291	28.606	28.606
2	1.204	8.024	68.146	1.204	8.024	68.146	3.639	24.259	52.865
3	1.035	6.900	75.046	1.035	6.900	75.046	3.327	3.327	75.046

Source: Calculated data comes from

According to the results in Table 3-3, we know that the factor with an eigenvalue greater than 1 is generally selected, and the total explained variance of this factor is 75.046%. Upon execution of optimal orthogonal rotation, we discerned that the loading factors for the three assessment items fall below 0.65; hence, they are deemed suitable for deletion. Finally, select professional, interactive and push nature for analysis.

3.1.5 Methods

In the early phase of devising innovative entrepreneurship training programs, two primary strategies are employed for scientifically and efficiently gathering pertinent data: questionnaire studies and personal interviews.

(1) Questionnaire survey method

The questionnaire survey methodology pertains to a meticulous methodology where researchers employ an instrumented evaluation technique to accurately document the issues under investigation, thereby ensuring reliable data acquisition. This approach is typically leveraged to delve into the prevailing status quo of a particular issue. Prior to commencing our curriculum, we executed a comprehensive questionnaire survey amongst 400 distinguished undergraduate seniors at Zhoukou Normal University to ascertain their perspectives, sentiments, viewpoints, and recommendations regarding the evolution of undergraduate innovation and entrepreneurship training programs. The Purpose was to furnish scientific evidence to inform curriculum enhancement.

The selection of Zhoukou Normal University is based on several reasons. It is a prominent public institution of higher education in Henan Province, renowned for its strong reputation and high popularity within the industry. This makes it highly representative and significant for the context being studied or discussed.

Reasons for selecting senior students: senior students have completed the basic study of professional curriculums, mastered professional skills, and have more time than students of other grades. Furthermore, in light of the impending graduation job search scenario faced by our seniors, it bears immense importance to delve into the exploration of their innovative spirit and entrepreneurial acumen.

(2) Interview method

In this study, five teachers with extensive experience in teaching innovation and entrepreneurship were interviewed before the curriculum commenced. All five faculty members demonstrate considerable depth of knowledge in this discipline, rendering their perspectives indispensable for refining undergraduate innovation and entrepreneurship curricula. Their valuable contributions help to establish an enduring structure, bolstering the pragmatic application and efficacy of the crafted innovation and entrepreneurship syllabus.

3.1.6 Data analysis

In this investigation, initially, the questionnaire data was obtained through a combination of "online+ offline" strategies. After sorting out and summarizing the student feedback data collected by questionnaire survey, it is imported into SPSS 26.0 statistical software for corresponding mathematical statistical analysis. By meticulously examining targeted data, we have elucidated the pertinent circumstances pertaining to our students' growth in innovative and entrepreneurial training programs, thereby furnishing a dependable scientific underpinning for the design of such curricula. On this basis, the interview results of teachers will be sorted out and summarized accordingly, which will complement the results of the questionnaire survey and jointly provide solid support for the development of this study.

3.2. Curriculum design

3.2.1 Purpose of the curriculum design

(1) Mastering the ideas and methods of innovation and entrepreneurship: The curriculum should help undergraduates grasp the fundamental concepts, processes, and elements of innovation and entrepreneurship. Additionally, it should enable them to understand the current hotspots and trends in this field.

(2) Improve practical ability: in the curriculum, need to increase innovative entrepreneurial case analysis and operation activities (such as business model design, market research analysis, competitive advantage analysis, etc.) to improve students'

operation ability, make students have independent thinking, combined with practice for their own business plan and enterprise development strategy ability.

(3) Enhancing teamwork experience: The process of innovation and entrepreneurship is inherently collective rather than individual. Therefore, the curriculum should not only focus on developing individual skills but also emphasize the acquisition of teamwork experience and interpersonal communication. This includes fostering abilities in team building, task delegation, collaboration, effective communication, conflict resolution, and management feedback.

(4) Strengthen marketing strategies: Marketing is one of the indispensable skills for entrepreneurs. As such, it would be beneficial to bolster our exploration of relevant marketing theories and methodologies within the curriculum, encompassing market demand examination, consumer segmental psychology amongst several others.

(5) Fostering venture capital thinking: The curriculum design should showcase venture capital resources, presenting a logical and clear analysis process. This approach aims to cultivate students' ability to perceive risks keenly and guide them in developing sound venture capital thinking.

3.2.2 Methodology

For optimal impact on Innovative and Entrepreneurial Education Curriculum Development strategies, careful consideration should be given to understanding market requirements, adhering to the precept of "teaching students based upon their proficiency", devising diverse curriculum content, prioritizing pragmatic application, and implementing an effective assessment system. The details are as follows:

(1) Researching market needs involves understanding the innovation and entrepreneurship market dynamics and industrial development trends. This includes analyzing audience needs, identifying target users, and determining the categories, content, methods, and forms of education and training curriculums.

(2) Adhere to the guiding principle of "tailoring instruction to student aptitude" by identifying varied attributes across varying grade levels, majors, and academic backgrounds and subsequently devising specialized education and training

initiatives. Teaching methods that adapt to students' level and expertise will greatly improve the effectiveness of innovation and entrepreneurship classes.

(3) Design diversified curriculum content: centering on professional knowledge, practical operation skills, team cooperation management and coordination, etc., design a systematic and perfect curriculum system to provide all-round support for students' innovation and entrepreneurship.

(4) Emphasizing practical application involves establishing project-based learning opportunities that guide students in translating theoretical knowledge into practical experience through hands-on activities. This approach deepens their understanding of innovation and entrepreneurship by simulating real-world implementation scenarios.

(5) Establish the evaluation mechanism: formulate a scientific and reasonable evaluation system, with clear scoring standards, and open and transparent assessment methods. Help students to fully master the curriculum knowledge, form a good self-planning learning, self-promotion and self-implementation ability.

3.2.3 Data collection

3.2.3.1 Design of the student questionnaire

(1) Questionnaire name: Questionnaire of undergraduate innovation and entrepreneurship curriculum design

(2) The study employs a questionnaire to design the undergraduate innovation and entrepreneurship curriculum, targeting full-time senior undergraduates enrolled in innovation and entrepreneurship curriculums at Zhoukou Normal University. It explores the requirements for curriculum design in higher education institutions across four dimensions: students' comprehension and interest in innovation, curriculum Purposes, curriculum content, and curriculum implementation. Specifically, items 1 to 5 categorize university students' understanding and enthusiasm for innovation and entrepreneurship, while subsequent queries (6-10) segment them according to curriculum targets. Question 11-15: Dividing the dimension of curriculum content; And questions 16-20 are decomposed into curriculum implementation dimensions.

Design the curriculum through the students' needs for the curriculum. After the completion of the curriculum design, five experts were invited to evaluate the curriculum, and the experiment was conducted after the completion of the curriculum revision.

3.2.3.2 Design of expert interviews

(1) Interview name: Outline of the expert interview on the development program of undergraduate innovation and entrepreneurship curriculums

(2) Design process: Prior to the curriculum commencement, to effectively gather insights from teachers regarding the Purposes, curriculum content, teaching methods, and construction of media resources for the Undergraduate Innovation and Entrepreneurship curriculum, the author devised an interview outline encompassing eight key aspects. Some of the questions are as follows:

Question 1: Please talk about your assessment of the innovation and entrepreneurship ability of contemporary undergraduates.

Question 2: Please briefly talk about your current knowledge of knowledge and information about undergraduate innovation and entrepreneurship ability curriculum.

Question 3: Given the dynamic state of today's rapidly evolving economy and society, could you shed some light on how we should strategically aim for innovation and entrepreneurship curriculum development within our universities?

Question 4: Could you elaborate on any potential challenges that exist within the content composition of these university innovation and entrepreneurship curriculums and potential solutions for improvement?

Question 5: In terms of the curriculum design of these programs, do you perceive any inherent strengths or weaknesses associated with the conventional teaching modalities employed?

Question 6: Could you elucidate the current resource compositions utilized in such innovation and entrepreneurship curriculums?

Question 7: Would you deem it plausible to implement specialized seminars tailored towards enhancing the innovation and entrepreneurship aptitude of our undergraduate students?

Question 8: Could you kindly share your insights on the prevalent issues within the current undergraduate innovation and entrepreneurship capacity curriculum?

3.2.3.3 Implementation method of teacher interview

Interview subjects: Five teachers from Zhoukou Normal University who have rich teaching experience in undergraduate innovation and entrepreneurship curriculums.

Interview format: This study conducted on-site interviews with five teachers. The interviews were structured to allow teachers to answer questions in a relaxed and truthful manner, encouraging active cooperation with the investigation. While the author provided specific questions, teachers were also encouraged to discuss topics beyond the questionnaire content. This approach aimed to elicit teachers' opinions and insights on the Undergraduate Innovation and Entrepreneurship curriculum, allowing them to freely express their views. Additionally, the author engaged in discussions with teachers on various related topics to stimulate critical thinking and ensure the collection of more effective information.

Record method: The record of this study is that the author recorded the teachers' answers after consulting the interviewed teachers' consent, and sorted, analyzed and summarized the contents of the interview records in time after the interview.

3.2.4 Data analysis

(1) Resource integration: Collect information about the current innovation and entrepreneurship environment, policies and regulations, and funding agencies, and use web tools to establish a database.

(2) Learning assessment involves quantifying students' ability to apply acquired skills and knowledge after training. This includes converting their desired

competencies into measurable indicators to accurately gauge student needs and optimize curriculum content accordingly.

(3) Cost analysis: Pursuant to the aforementioned analytical findings, we propose a precise assessment of the required resources and input expenditure for initiating curriculums across diverse facets. Subsequently, we aim to reflect thoughtfully deliberate upon the ensuing societal benefits generated by such endeavors.

3.3. Curriculum implementation

3.3.1 Purpose of the curriculum implementation

(1) Improve students 'ability to explore opportunities: by creating market situations, cultivate students' innovative thinking, independent thinking ability and the ability to explore opportunities, aimed at facilitating their understanding of the criticality of innovation and entrepreneurship.

(2) To enhance students' organizational and management abilities, the developed innovation and entrepreneurship training curriculums should prioritize cultivating teamwork skills. This approach involves diversifying methods to strengthen students' capacity in organization and management, enabling them to gain practical experience in managerial roles.

(3) Cultivate students 'ability of strategic decision-making: The developed innovation and entrepreneurship training curriculums should cultivate students' correct decision-making cognition and strong strategic decision-making ability through case discussion, practical project planning and business model planning.

(4) Help students to master the skills of resource integration: Our newly designed innovation and entrepreneurship training programs aim to impart students with invaluable knowledge of resource integration and hone their respective understanding and proficiency in this subject matter.

(5) In order to enhance students' capacity for managing adversities, innovative entrepreneurship training curriculums must educate them on adopting a constructive perspective on failure. This can be achieved through case analysis and discussions that help students develop resilient thinking patterns. By understanding that

setbacks are integral to the path to success, students can cultivate the perseverance and determination needed for entrepreneurial endeavors.

3.3.2 Experimental design

3.3.2.1 Implementation method of the student questionnaire

Conducted utilizing a well-defined randomised sampling methodology, this survey employs a conventional paper-based questionnaire. Specifically, a questionnaire focusing on enhancing student competence in the realm of innovation and entrepreneurship in the university curriculum was circulated among 20 individuals randomly selected from one classroom at Zhoukou Normal University. The study time is used to explain the reasons and give corresponding guidance, leaving about 20 minutes to answer, and then taking it back on the spot. The collected questionnaires underwent rigorous screening to ensure validity, resulting in the acquisition of valid questionnaires. All subsequent data analysis was based solely on these valid questionnaires.

3.3.2.2 Front and posterior measurement

The pre-post measurement method is an experimental design method used to evaluate the effect of an intervention. Our primary Purpose is to measure relevant factors within the identical group prior to and subsequent to your target demographic interaction, thus enabling us to discern the disparity in outcomes between both measurements. This allows for precise evaluation of the implemented intervention's effectiveness. This method is suitable for various types of studies and can be used to evaluate the effects of education. Detailed procedural steps have been delineated as follows:

(1) Select the target audience: determine the group of attention, sample size, etc.

(2) Design indicators: Make the index measurement questionnaire or test questions related to the experimental content.

(3) Pre-test: Before the implementation of the intervention, we should first conduct a questionnaire survey or test measurement for the target audience to obtain relevant data.

(4) In addition, targeted intervention measures should be implemented for the audience, utilizing various approaches such as education, publicity, demonstrations, and other suitable methods based on the specific circumstances. This approach aims to achieve the desired outcomes effectively.

(5) Post-test: After the completion of the intervention, the intervention will conduct a questionnaire survey or test measurement for the target audience again, so as to understand the effects and differences after the implementation of the intervention.

(6) Data analysis: compare the data of the two surveys before and after, analyze the data differences and draw conclusions.

3.3.3 Instruments

(1) Pre-test: During the questionnaire survey of students, use the students to enter the classroom to carry out research. Before the survey, explain the situation with the relevant person in charge of the school and obtain consent. In the actual investigation, first inform the students of the purpose of the investigation and filling requirements, on this basis, the students to leave 20 minutes for the students to answer the questionnaire on the spot.

When conducting interviews with teachers, it is advisable to visit the target college beforehand and consult with the academic affairs office staff. This step helps in identifying teachers who are involved in teaching undergraduate innovation and entrepreneurship curriculums. Subsequently, inform the identified teachers about the research Purposes, seek their consent for the interview, and maintain records of the interviews as they progress.

(2) Post-test: At the end of the curriculum, questionnaires were distributed to the students who participated in the experiment again to investigate the improvement of students' innovation and entrepreneurship ability in this curriculum. In the actual

investigation, students are informed of the purpose and filling requirements of this investigation, and on this basis, students are given 20 minutes to answer, and the questionnaire is collected on the spot after the answer is completed.

3.3.4 Data collection

This study adopts the method of random sampling, and collects questionnaire data through the way of "online + offline". Among them, online collection is based on the "questionnaire" platform. In the curriculum of this study, a total of 450 questionnaires were disseminated, from which we successfully retrieved an impressive 421 responses. After strict screening, 400 valid questionnaires were finally obtained. All data analysis results in this paper are from valid questionnaires. Logistic regression analysis was used in this questionnaire, and the options ABCD were designated as 12345 respectively. Finally, the modeling and analysis data of SPSS 26.0 software are effectively integrated. After rank analysis, the reliability and validity were calculated.

3.3.4.1 Reliability

When conducting a questionnaire, the process of data collection can be influenced by various subjective factors. For instance, investigators may input answers arbitrarily, and there is a risk of losing some inputted results during data collection. Consequently, a rigorous examination of the questionnaire information gathered so far has been undertaken to ascertain the validity of the post data questionnaire survey. The reliability analysis was performed using SPSS software, and post-survey data reliability was considered high when the results was> 0.7. According to the current empirical analysis, when the study coefficient is above 0.8, the data obtained by the questionnaire collection is highly reliable and near 0.9. Valuable data illustrating the test outcomes can be found in Table 9:

TABLE 9 Cronhach's Alpha

Variable	Cronhach's Alpha
Investigating the significance of undergraduate innovation and entrepreneurship curricula on opportunity exploration aptitude	.900
The impact of students' exposure to innovative and entrepreneurial curricula in tertiary education on their organizational and managerial competencies.	.897
Examination of the impact of university curriculums in innovation and entrepreneurship on strategic decision-making proficiency.	.907
Investigating the impact of an institution's innovative and entrepreneurial education program on its student's capacity for resource integration.	.904
Investigating the effect of undergraduate programs in innovation and entrepreneurship on resilience during adversity.	.902

Source: Calculated data comes from

3.3.4.2 Validity analysis

During the current questionnaire design, I have learned and analyzed the current validated mature questionnaire scale. Despite the potential uncertainties in implementing a questionnaire survey, it's crucial to acknowledge that inaccuracies or incomplete responses can significantly impact the subsequent verification of results. Therefore, ensuring the thoroughness and accuracy of survey responses is essential for reliable outcomes. Therefore, the validity analysis should be carried out at the present stage. When utilizing the renowned SPSS 26.0 software package for such assessments, it has been observed that the higher the scale score achieved, the more robust the

validity rating attributed to our questionnaire emerges. This study will be analyzed using construct validity. When implementing the structure validity analysis, the data should be spherical test. When the outcome of the KMO measure surpasses a value of 0.7, it signifies that the chosen index is appropriate for conducting a factor analysis. The factor analysis implemented in this study mainly selected orthogonal rotation and principal component analysis.

When implementing the validity test, the analysis was performed mainly out on five dependent variables, with a total of 16 question options. The details of test outcomes can be located in Table 10.

TABLE 10 KMO values and the Bartlelett spheroid test

Measure the sampling appropriateness		.940
Spherical determination	Approx. Chi-Square	3209.873
	df	105
	Sig	.000

Source: Calculated data comes from

After testing, the KMO was 0.940, which was well above the standard value. However, the test value of Bartlelett is 3209.873, and the significance result is 0.000. Therefore, it can be known that a variable has a high correlation, so the factor analysis is more appropriate.

TABLE 11 Variance contribution rate

	Initial eigenvalue			Extract the squared sum and load		
element	amount to	% Of the variance	accumulate%	amount to	% Of the variance	accumulate%
1	4.576	65.376	65.376	4.576	65.376	65.376

Source: Calculated data comes from

As shown in Table 3-6, there is only one eigenvalue greater than 1 factor, which explained 65.376% of the total variance. The isolated factor possesses an identical value to that of the predetermined outcome variables in our research, indicating a commendable structural stability for the questionnaire.

In conclusion, the designed questionnaire exhibits good reliability and validity, making it a robust scientific research tool. The high reliability coefficient obtained from this questionnaire survey ensures the integrity and trustworthiness of the research data, thereby providing a solid foundation for scientific inquiry.

3.3.5 Data analysis

To truly encapsulate the indispensable requirements of undergraduates, educators, and vocational sectors for innovative and entrepreneurial curricula, we meticulously selected the distinguished faculties and bright scholars from the esteemed Zhoukou Normal University as our study subjects, including 400 senior students and 5 teachers. Interviews are used to collect information for teachers and questionnaires are used to collect data for students.

3.4. Effectiveness evaluation

3.4.1 Effectiveness criteria

This appraisal shall be carried out according to the principles or standards in the following table 12.

TABLE 12 Evaluation criterion

	Criteria
1.Ability to explore opportunities	Posttest > Pretest
2.Organizational management ability	Posttest > Pretest
3.Strategic decision-making ability	Posttest > Pretest
4.Resource integration ability	Posttest > Pretest
5.The ability to withstand setbacks	Posttest > Pretest
Total	Posttest > Pretest

3.4.2 Curriculum improvement

(1) Development content: To enhance students' professional knowledge and practical abilities, and to elevate their understanding of market trends and industrial developments, it is essential to conduct thorough market research and compile innovative decision-making methodologies. By expanding and refining curriculum content accordingly, students can improve their conceptual understanding and product quality. This approach facilitates students in identifying innovation opportunities and points of growth within enterprises, thereby fostering their personal and professional development.

(2) Improve the quality of teachers: hire tutors with high practical experience in innovation and entrepreneurship to teach students and strengthen the summary of experience in the later period, which can provide students with practical guidance direction and teaching process worthy of reference.

(3) To foster an innovation and entrepreneurship culture, establish an education base dedicated to innovation and entrepreneurship. Engage management officers in organizing activities such as sharing sessions, exchanges, and initiatives like a one-yuan seed fund to directly engage with industry markets. This initiative aims to cultivate an atmosphere of "innovation culture," encouraging participants to challenge themselves and collaborate effectively.

(4) Concentrate on real-world scenarios: To enhance the impact of this curriculum, instruction should revolve around pragmatic applications and resolving particular challenges. Gather data from renowned directors, entrepreneurs in industry and commerce, along with related professionals, as invaluable assets for the teaching process. Invite staff members for one-on-one discussions and organize in-person symposiums dedicated to different marketing approaches. This will augment learners' understanding and appreciation of innovative entrepreneurship practices.

CHAPTER 4
RESULT

4.1 Study theory and the results of previous studies

4.1.1 Constructivism theory

As far back as the 2000s, western scholars commenced exploring "constructivist learning theory," notably preceding their Chinese counterparts. American psychologists Dangel & Guyton (2003) and Hong & Wu (2006) applied constructivist theory to the study of subject teaching. In "A Unifying Theme in Science Education" (1991), Horwood (1999) posits that constructivism "allows people to converge ideas and also allows people to generate new ideas." Constructivist learning theory conceives learning as an active construction of internal mental models via engagement with the environment. Knowledge is acquired by learners in a socio-cultural context with the help of necessary learning materials, learning resources, and other aids, through the construction of meaning (Bi & Ma, 2023).

Constructivist learning theory underscores the centrality of the learner, highlighting "context," "collaboration," "conversation," and "resources" as integral components or fundamental attributes that characterize constructivist learning environments. Constructivists emphasize how learners construct knowledge grounded in their prior experiences, mental frameworks, and beliefs, highlighting the subjective, social, and contextual aspects of learning (Jaleel et al., 2015). Consequently, unlike behavioral theories, the learning process is viewed as a qualitative transformation and an active construction, rather than the establishment of passive stimulus-response patterns.

This paper is grounded in the theory of constructivism, leveraging prior research findings to devise innovative entrepreneurship curricula that aim to enhance students' abilities in five crucial dimensions: opportunity exploration, organizational management, strategic decision-making, resource integration, and resilience in the face of adversity. In the curriculum design, we interlock and fully mobilize students' existing knowledge, fostering their construction of a comprehensive knowledge system through

the iterative integration of new and old knowledge. The students' homework scores can help teachers make an accurate analysis of their knowledge construction, thereby facilitating the enhancement of teaching practices and the development of a tailored teaching programme that centers around the students. Additionally, students have the opportunity to select business projects that align with their personal interests, which in turn elevates their practical abilities. In addition, the mode of group cooperation brings students an environment that cannot be provided in the traditional classroom, in which students can easily, pleasantly and efficiently complete their learning in practice, thus improving their innovation and entrepreneurship ability.

4.1.2 Humanistic Theory

Maslow, a humanistic psychologist, classified human needs into seven levels, the highest of which is the need for self-actualization. Humanistic psychologists believe that psychology should be discussed in terms of the complete person, including human behaviors, personality, and emotions (Martin, 2004). Based on this, the humanistic learning theory proposed by Rogers divides learners' learning into two categories, which are meaningful learning and meaningless learning. Meaningful learning means that the content of learning should be based on the learners' mastery of knowledge and experience, and have a certain impact on their affective attitudes as well as values. On the contrary, learners who adopt a meaningless learning approach merely acquire knowledge and accumulate experience, but this superficial accumulation lacks the profound and transformative impact necessary for holistic personal development. While knowledge and experience are undoubtedly valuable, their true significance lies in how they shape and transform the individual into a more rounded and complete human being. (Chen,2016). Therefore, if teachers want students to engage in meaningful learning, they should focus on the development of students' emotions and abilities, both in the teaching process and on, and help them establish correct values and outlook on life (Jones, 2009). Humanistic psychologists believe that human nature is supposed to be good, and every person has his or her own potential. The main theoretical concern of "humanistic theory" is how to explore students' potential through education, and with this

as a starting point, it emphasizes that learning should be student-driven, but it also pays attention to the role played by teachers in the teaching process (Zhang,1999). Therefore, when designing the curriculum, we consider the teacher's leading role as emphasized by the Humanistic Theory and the need to stimulate students' potential to the maximum extent through assessment, which requires teachers to design appropriate assessment schemes for different learning contents, and to achieve the goal of guiding and encouraging learning through assessment by means of hierarchical teaching. This study takes students' autonomy into full consideration, increases the proportion of practical curriculums, responds to students' interests, needs, experiences and personality differences, and achieves the development of students' potential and stimulates their cognitive and emotional interactions. In innovation and entrepreneurship teaching, after students complete the homework assigned by the teacher, the teacher will give the actual score according to the students' completion. By analyzing the scores, students can gain a clear understanding of their own "weaknesses" or areas for improvement, while teachers can gain insight into the learning progress of each student. This data-driven approach allows teachers to make timely adjustments to the teaching programme, ultimately fostering a "student-centred" classroom environment where the needs and abilities of each student are prioritized.

4.2 Phase Ⅰ : Pretest results of students' innovation and entrepreneurship ability improvement questionnaire

4.2.1 Pre-test research subjects

In order to test whether the designed questionnaire can effectively measure the improvement of students' innovation and entrepreneurship ability developed in this study, the author randomly selected 5 students from 400 senior students who participated in the curriculum development survey to participate in the prediction.

4.2.2 Credit and validity test results of the pretest

4.2.2.1.Pre-test reliability test results

Reliability detection is when the questionnaire is conducted, and the process of data collection may be influenced by various subjective factors. For example,

investigators answer randomly, lose some data, etc. Therefore, the collected data were screened and sorted out to analyze the process of measuring the reliability of the questionnaire. In this study, SPSS 26.0 statistical software was used to test the reliability of the filled data of 5 subjects, and the detailed results are shown in the following table13:

TABLE 13 Pre-test cronhach's Alpha

Variable	Cronhach's Alpha
Ability to explore opportunities	.836
Organizational management ability	.859
Strategic decision-making ability	.794
Resource integration capability	.827
The ability to withstand setbacks	.816
Innovation and entrepreneurship ability	0.832

Source: Calculate the income

According to the results in Table 13, the overall reliability of the designed students' innovation and entrepreneurship ability improvement questionnaire is good, with a reliability coefficient of 0.832. Moreover, the reliability coefficient of each dimension of this questionnaire is higher than 0.7, which is consistent with the statistical significance.

4.2.2.2 Pretest effectiveness test results

In order to ensure that the designed questionnaire can effectively measure the degree that the undergraduate innovation and entrepreneurship curriculums developed in this study can improve the corresponding ability of students,

on the basis of the questionnaire reliability test, the validity test is needed to further determine the applicability of the questionnaire. In this study, SPSS 26.0 statistical software is still used for validity detection. The detection standard is that when the result of KMO measurement exceeds 0.7, which indicates that the selected index is suitable for factor analysis. When implementing the validity tests, the five dependent variables were mainly analyzed, and the details of the test results are given in Table 14.

TABLE 14 Pre-test KMO values and the Bartlett spheroid test

Measure the sampling appropriateness		.861
Spherical determination	Approx. Chi-Square	216.352
	df	6
	Sig	.000

Source: Calculated data comes from

According to the results in Table 14, it can be seen that the questionnaire designed to improve students 'innovation and entrepreneurship ability is relatively effective, with the KMO value of 0.861, higher than 0.7, which is in line with the statistical significance. It shows that the items set in this questionnaire can accurately measure the improvement of students' innovation and entrepreneurship ability after the curriculum training.

4.3 Phase Ⅱ: Results of basic information study

4.3.1 Results of expert interviews

Prior to commencing the curriculum design, the researchers conducted interviews with five experienced teachers who possess vast expertise in instructing undergraduate curriculums on innovation and entrepreneurship. The content of the interview includes the nature of undergraduate innovation and entrepreneurship

curriculums, curriculum class time, curriculum setting, teaching methods, etc., and it is recorded and sorted out at the end of the interview.

In response to the question, "Could you please elaborate on your evaluation of contemporary undergraduate students' capabilities in innovation and entrepreneurship?" the interviewed participants offered the following remarks:

Teacher 3 replied, "Different teachers have different assessment criteria and methods, but they are generally the same. As far as I am concerned, the assessment of the curriculum is based on 40% of the usual grades (attendance, answering questions in class and assignments after class) and 60% of the exams (submission of proposals, PPTs, roadshows and competitions). The evaluation method adopted incorporates both process evaluation and summative evaluation, involving schools, experts, teachers, and students in the curriculum evaluation process. Specifically, for the assessment of innovation and entrepreneurship curricula, a standardized set of evaluation indices prescribed by the government is utilized across all curriculums, ensuring consistency and rigor in the evaluation process."

Teacher 1 replied "The main assessment method is to grade the project plan as the final exam. The assessment method of the curriculum is 50% of the usual grades (attendance + answering questions in class + homework after class) + 50% of the exam (handing in the plan, PPT, roadshow and participation). The evaluation method adopted is a comprehensive blend of process evaluation and summative evaluation. Emphasis is placed on stage assessments, stage reports, research reports, plan writing and PowerPoint presentations."

In the question "Please briefly discuss your current knowledge and information related to the undergraduate innovation and entrepreneurship programme." In this question, the interview responses were as follows:

Teacher 2 replied, " The Purpose of undergraduate innovation and entrepreneurship curricula is to cultivate students' innovative thinking, entrepreneurial awareness, and practical skills, ultimately enabling them to better align with societal demands and market competition in their future professional pursuits. These curriculums

usually cover the basics of entrepreneurship, business model design, marketing, team management, financing, laws and regulations, etc., and also focus on practical aspects, such as writing business plans and team project cooperation. Through these curriculums, students can enhance their innovation ability and entrepreneurial literacy, laying a solid foundation for future entrepreneurship or employment."

In response to the question, "What are your thoughts on how the Purposes of innovation and entrepreneurship curricula in colleges and universities should be framed in the midst of rapid economic and social development?" the interviewees offered the following perspectives:

Teacher 4 answered "I think that in the era of rapid economic and social development, the Purpose of innovation and entrepreneurship curricula in colleges and universities should be to foster students' practical proficiency and innovative mindset, thereby enhancing their competitiveness and adaptability in the future workforce."

Teacher 5 answered "I think the goal of innovation and entrepreneurship programmes in universities should be more practical and market-oriented, with a focus on fostering students' practical ability and business acumen in innovation and entrepreneurship."

In response to the question, "What problems do you perceive exist in the content of innovation and entrepreneurship programmes offered by colleges and universities, and how should they be improved?" the interview responses were as follows:

Teacher 3 answered, " The content of the innovation and entrepreneurship curriculums at our university is predominantly theoretical, lacking standardization in teaching materials and variety in its offerings. While the curriculum heavily relies on students' independent thinking and practice, the sole reliance on classroom teaching to cultivate students' innovation and entrepreneurship abilities is limited in its effectiveness."

In response to the query, "What are the perceived advantages and disadvantages of traditional teaching methods in the design of innovation and

entrepreneurship programmes in higher education?" the interviewee offered the following insights:

Teacher 5 answered " The traditional teaching method often revolves around imparting knowledge, lacking practical application. It fails to effectively exercise students' innovation and entrepreneurship abilities, as it tends to be disconnected from market demands and unable to promptly update its content and methods. Additionally, it struggles to cater to the individual learning needs of diverse students. However, traditional teaching methods are typically well-tested through long-term practice, offering stability and reliability, which allows teachers to more easily grasp the teaching rhythm."

As for the question, "What are the current forms of resources for innovation and entrepreneurship curriculums?" , the interviewee responses are as follows:

Teacher 4 answered " The on-campus curriculum resources encompass textbooks, libraries, multimedia classrooms, and the like, whereas off-campus resources comprise mentors, entrepreneurial practice opportunities, partner networks, and other external assets."

When asked, "Do you believe it is feasible to introduce a dedicated programme aimed at strengthening the innovation and entrepreneurship capabilities of undergraduate students within the university?" The interviewees provided the following responses:

Teacher 1 answered, "The curriculum is feasible; nowadays, innovation and entrepreneurship curriculums are very popular. However, many schools just blindly follow the trend, and most students are participating for the sake of appearances. The curriculum structure and content do not consider the actual needs of the students. There is a great need for a curriculum that genuinely enhances undergraduate innovation and entrepreneurship abilities."

Teacher 2 replied, "Currently, most schools support undergraduate innovation and entrepreneurship. National competitions like Internet Plus and Challenge Cup, held annually, provide excellent opportunities for students to gain practical

experience. With support from schools and teachers, students have ample time to attempt starting their own businesses while still in school. This period is ideal for trying entrepreneurship and allows students to connect with society in advance."

Regarding the query, "Please elaborate on the prevailing issues pertaining to undergraduate innovation and entrepreneurship competency programmes," the interviewees offered the following perspectives:

Teacher 3 answered, " Firstly, there exists a significant disparity in students' innovative consciousness, making it challenging for them to innovate promptly. However, by fostering innovative thinking and showcasing creative methods, we can expedite the process of assisting students in achieving rapid innovation. Secondly, there is less integration of specialisation and creativity, most of them are currently doing curriculum ideology, and it is difficult to have unified innovation and entrepreneurship teaching materials to match different specialisations. Third, students' enthusiasm is generally low. Some classes are highly active, while others are less engaged. For instance, finance students tend to be more active, whereas e-commerce students are less so, though this is not absolute. At this point, it's impossible to determine whether this is due to the students themselves or other factors.

Teacher 4 replied "Combining theory and practice is easier said than done. For students who have practical experience, they are more willing to practice and get in touch with the society. For students with no practical experience and those from poor families, their willingness to take the curriculum and combine theoretical knowledge with practice is not as strong. Some students are willing to try, but they tend to back off when they encounter difficulties. Finally, in terms of school-enterprise co-operation, the school has co-operation with a lot of companies, such as Anta and Cainiao Shaojiao and some others, but the correlation between school-enterprise co-operation and the innovation and entrepreneurship curriculum is not high."

Teacher 5 replied, "The school frequently schedules curriculums solely for administrative purposes, allocating innovation and entrepreneurship curriculums to grades with lighter workloads regardless of curriculum Purposes or students'

entrepreneurial development. Previously, the innovation and entrepreneurship curriculum spanned 20 hours per semester; however, this year it has been slashed to just 12 hours, significantly reducing class time and hindering students' ability to acquire systematic knowledge. It is imperative that the class hours be rationalised to ensure optimal learning outcomes."

According to the interview results, it was found that the surveyed colleges and universities have gradually introduced innovation and entrepreneurship curriculums in recent years. These curriculums fall under different departments, such as the Employment Guidance Office and the Academic Affairs Department, and are available to all undergraduates. The contents of these curriculums vary significantly, with most institutions focusing on cultivating students' entrepreneurial abilities. curriculums such as "Guidance on College Students' Entrepreneurship," "Career Planning," and "Employment and Entrepreneurial Guidance" are commonly offered. However, the curriculum content is often homogenized, predominantly theoretical, and lacks diversity, leading to low student interest and slow skill enhancement. Curriculum resources include online curriculums and teaching materials, with teaching methods mainly consisting of traditional teacher-led instruction and online curriculums. This traditional approach poses challenges in achieving the cultivation goals of innovation and entrepreneurship curricula.

4.3.2 Questionnaire results for students

In this paper, we have designed Appendix 2: the Undergraduate Innovation and Entrepreneurship Curriculum Design Questionnaire, taking into account an in-depth understanding of students' foundations in innovation and entrepreneurship as well as their specific needs.

4.3.2.1. Attitude and interest in innovation and entrepreneurship

(1) Students' understanding of entrepreneurship

To effectively carry out the curriculum design and research for College Students' Innovation and Entrepreneurship, it is crucial to first gain insight into

students' comprehension of entrepreneurship. Hence, the questionnaire poses the question, "What do you perceive as entrepreneurship?" As shown in the figure 2:

Items	subtotal	scale
A. Start a business (a company)	80	20%
B. Open a small shop, like a convenience store	12	3%
C. Starting a business can be called entrepreneurship	273	68.25%
D. Design a cutting-edge technology project	18	4.5%
E. Others	17	4.25%
The number of returned valid questionnaires	400	

FIGURE 2 Students' understanding of entrepreneurship

It can be seen that 68.25% of the students think that "only starting a business can be called entrepreneurship", 3% of them think that "starting a business is to open a small shop", and 20% of them think that "starting a business is to start a business(company)". It can be seen in this way that only a small number of students have a broader understanding of entrepreneurship, and most students have a more limited understanding of entrepreneurship, such as "opening a small shop", "starting a business", "designing a cutting-edge technology project" and so on.

The results reflect that students have a narrow understanding of entrepreneurship. Most students' understanding of entrepreneurship is only limited to opening companies, opening stores and developing new products, and they do not have an overall understanding of entrepreneurial activities. Curriculum design should popularize the basic knowledge of entrepreneurship.

(2) Students' understanding of innovation

To effectively execute the curriculum design and research pertaining to "College Students' Innovation and Entrepreneurship," and gain insight into students' comprehension of innovation, the questionnaire incorporates the question, "What do you think is innovation?

Items	sub total	scale
A. Do something different from others	38	9.5%
B. Invention and creation	59	14.75%
C. Solve the problem in different ways	131	32.75%
D. There is change is called innovation	156	39%
E. else	16	4%
The number of returned valid questionnaires	400	

FIGURE 3 Students' understanding of innovation

As shown in the figure 3, 26.72% of students think innovation is "invention", 32.75% of students think innovation is "different solutions", 9.5% of students think innovation is "doing something different from others", and 39% of students think that "change is called innovation". Overall, 14.75% of the students defined innovation as "making invention" in the narrow sense. This conclusion shows that the students do not have a comprehensive and systematic understanding of innovation, the definition of innovation is relatively limited, and they lack a certain understanding of innovative thinking and innovative methods.

(3) Students' attitude towards innovation

To effectively execute the curriculum design and research for "College Students' Innovation and Entrepreneurship," and gain insight into students' perspectives and interests towards innovation and entrepreneurship, the questionnaire included the query, "What is your attitude towards innovation?"

Items	subtotal	scale
A. Very supportive	169	42.25%
B. support	197	49.25%
C. Not for or against it	31	7.75%
D.oppose	2	0.5%
E. Very opposed to	1	0.25%
The number of returned valid questionnaires	400	

FIGURE 4 Attitudes towards innovation

As can be seen from the figure 4, more than half of the students are "very supportive" or "supportive" of innovation, 7.75% of the students have "no support nor opposition" towards innovation, and only 0.5% of the students are opposed to innovation. The data shows that most students have a positive attitude towards innovation, indicating the high demand of curriculums.

(4) Students' attitude towards entrepreneurship

To optimize the curriculum design and research efforts for "College Students' Innovation and Entrepreneurship," and gain a deeper understanding of students' perspectives on both innovation and entrepreneurship, the questionnaire posed the question, "What is your attitude towards entrepreneurship?" This was done to assess students' interest in entrepreneurial pursuits.

Items	subtotal	scale
A. Very interested in	65	16.25%
B. More interested	153	38.25%
C.same as	138	34.5%
D. Not too interested	27	6.75%
E. without interest	17	4.25%
The number of returned valid questionnaires	400	

FIGURE 5 Students' Attitudes towards entrepreneurship

As can be seen from Figure 5, 54.5% of the students have a positive attitude towards entrepreneurship ("very interested" or "relatively interested"), 34.5% have a neutral attitude towards entrepreneurship, and 11% have a negative attitude towards entrepreneurship ("not too interested" or "not interested"). According to the data, there is a prevailing interest among students towards entrepreneurship, with a mere 15.27% of the surveyed individuals exhibiting a negative stance towards entrepreneurial pursuits.

(5) Investigation of students' entrepreneurial motivation

In order to better carry out the curriculum design and research work of "College Students 'Innovation and Entrepreneurship" and understand the students'

entrepreneurial motivation, the questionnaire set up the question " Do you have any plans to start a business?”

Items	subtotal	scale
A.not by a long chalk	113	28.25%
B. have considered	281	70.25%
C. Starting a business	6	1.5%
D. Has successfully started his own business	0	0%
The number of returned valid questionnaires	400	

FIGURE 6 Students' entrepreneurial motivation

As can be seen from the figure 6, 70.25% of the students have considered starting out entrepreneurial activities, 1.5% of the students are currently initiating their own business ventures, whereas none of them have successfully established a functioning business to date, and 28.25% have not considered starting a business at all. The results show that students have a strong motivation to start their own businesses. Most students have considered starting their own business, but fewer people may start their own businesses due to the environment, personal skills, capital and other problems.

(6) Interview results

In this study, a multi-stage sampling method was used to select samples, ultimately choosing Zhoukou Normal University as the target institution for the research population. To establish a scientific foundation for the development and execution of innovation and entrepreneurship curriculums, the author handpicked five veteran educators from Zhoukou Normal University who possess extensive experience in teaching undergraduate innovation and entrepreneurship. The interview results were recorded as research materials after mutual consent.

Based on the interview results, it was found that the surveyed universities have gradually introduced innovation and entrepreneurship curriculums in recent years. These curriculums belong to different departments, including the school employment guidance department and the educational administration department, and

are open to all undergraduates. The curriculum content varies significantly, with most colleges and universities focusing on cultivating students' entrepreneurial abilities. curriculums such as "College Students' Entrepreneurship Guidance," "Career Planning," and "Employment and Entrepreneurship Guidance" are commonly offered. However, only 6 out of 20 universities included the cultivation of innovative thinking in their curriculum content, offering curriculums related to innovation such as "Foundation of Innovation" and "College Students' Innovative Thinking Training." The content of innovation and entrepreneurship curricula in colleges and universities tends to prioritize entrepreneurship guidance as the primary focus.

Curriculum resources encompass a blend of online curriculums and teaching materials, while the primary teaching modalities rely heavily on traditional teacher-led instruction and online curriculums. However, this conventional approach poses challenges in attaining the Purposes of fostering innovation and entrepreneurship skills. Most students are interested in starting a business but do not know where to begin. They feel they lack the necessary abilities and believe that the current school curriculums do not meet their needs for entrepreneurial practice. Students expect an increased focus on improving their practical abilities.

4.3.2.2. Curriculum Purposes

(1) Basic knowledge

To effectively design the curriculum Purposes for "College Students' Innovation and Entrepreneurship" and gain insights into students' desires for foundational knowledge in this domain, the questionnaire posed the question, "What is the fundamental knowledge you consider most crucial to learn in the innovation and entrepreneurship curriculum?" The results are depicted in Figure 7.

Items	subtotal	scale
A. The concept and significance of innovation and entrepreneurship	113	28.25%
B. The historical development of innovation and entrepreneurship	30	7.5%
C. Classification of innovation and entrepreneurship	46	11.5%
D. The advantages of undergraduate innovation and entrepreneurship	211	52.75%
The number of returned valid questionnaires	400	

FIGURE 7 Students' demand for basic knowledge of innovation and entrepreneurship

As evident from the figure, students' needs at the fundamental level of innovation and entrepreneurship progress in the following order: understanding "the advantages of college students' entrepreneurship," grasping "the concept and significance of innovation and entrepreneurship," categorizing "the classification of innovation and entrepreneurship," and tracing "the history and development of innovation and entrepreneurship." In designing the curriculum, the focal points can be tailored to align with students' preferences and necessities. For instance, increasing the proportion of curriculums that enhance the advantages of college students' entrepreneurship can effectively pique students' interest.

(2) Basic skills

To enhance the effectiveness of the curriculum Purpose design for "College Students' Innovation and Entrepreneurship" and gain a deeper understanding of students' needs in regards to fundamental innovation and entrepreneurship skills, the questionnaire poses the question: "What competency do you believe the innovation and entrepreneurship curriculum requires improvement in?" The findings of this survey are presented in Figure 8.

Items	subtotal	scale
A. Discover opportunity abilities	290	72.5%
B. Resource integration capability	281	70.25%
C. Strategic decision-making ability	324	81%
D Organizational and management capabilities	249	62.25%
E. The ability to withstand setbacks	256	64%
The number of returned valid questionnaires	400	

FIGURE 8 Students' demand for basic knowledge of innovation and entrepreneurship

As can be seen from the figure 8, most students think of basic skills that these skills are very important. Students pay more attention to "the ability to find opportunities" and "strategic decision-making ability", followed by "organizational

management ability", "resource integration ability" and "the ability to withstand setbacks". This means that the proportion of students' ability improvement can increase in the curriculum arrangement.

(3) Practical ability

To optimize the curriculum Purpose design for "College Students' Innovation and Entrepreneurship" and gain insights into students' requirements for enhancing practical abilities in this field, a survey was conducted through a questionnaire asking the question: "How do you believe the innovation and entrepreneurship curricula can enhance your literacy?" The outcomes of this survey are depicted in Figure 9.

Items	subtotal	scale
A. The way of discovering opportunities	295	73.75%
B. Resource integration method	271	67.75%
C. Decision-making skills	314	78.5%
D. Organizational management skills	258	64.5%
E. The mentality of suffering setbacks	203	64.5%
The number of returned valid questionnaires	400	

FIGURE 9 What aspects do you think the innovation and entrepreneurship curriculums can improve your literacy

At the level of practical ability in innovation and entrepreneurship, students focus more on the learning of decision-making skills and ways of finding opportunities, followed by resource integration methods, organizational management skills, and the mentality of suffering setbacks. The survey results are shown in figure 10:

Items	subtotal	scale
A. Entrepreneurship can enable individuals to obtain continuous growth and development	152	38%
B. Success makes money free	171	42.75%
C. Have a strong entrepreneurial interest and desire	23	5.75%
D. Quickly improve their own social status through entrepreneurship	6	1.5%
E. Solve employment	38	9.5%
F. other	10	2.5%
The number of returned valid questionnaires	400	

FIGURE 10 The most attractive reasons for entrepreneurship

At the level of entrepreneurial practical ability, students are successively attracted by the practical goals of "entrepreneurship can make money freedom", "strong interest and desire for entrepreneurship", "enhancing social status", "continuous growth and development" and "solving employment solution". The survey results are shown in figure 11:

Items	subtotal	scale
A. pioneer thinking	83	20.75%
B. Make money by making inventions	128	32%
C. Have a strong interest in innovation	23	5.75%
D. Challenge their own ability, give full play to their own subjective initiative	113	28.25%
E. Maximize your self-worth	40	10%
F. other	13	3.25%
The number of returned valid questionnaires	400	

FIGURE 11 The most attractive reason for innovation

At the level of innovative practice ability, students are successively attracted by the practical goals of "making money by invention", "having a strong interest in innovation", "challenging themselves, giving play to their subjective initiative", "pioneering thinking" and "realizing self-value".

The survey results pertaining to entrepreneurial practice abilities indicate that students value, from a peripheral perspective, the augmentation of money freedom and entrepreneurial skills resulting from their innovative and entrepreneurial endeavors. Specifically, these enhancements manifest in aspects such as decision-making prowess, the acquisition of techniques for spotting opportunities, resource integration methods, organizational and managerial capabilities, and resilience in the face of adversity.

4.3.2.3. curriculum content

The investigation of curriculum content demand encompassed two primary aspects: the students' proficiency in innovation and entrepreneurship knowledge, as well as their preferences for specific knowledge content. Within the educational and instructional framework, the level of students' knowledge mastery serves as a pivotal factor. Comprehending their proficiency not only aids in precisely gauging the difficulty level of curriculum design but also ensures that the content aligns with their actual needs. By gaining insight into students' existing knowledge base, we can effectively integrate old and new concepts, spark their interest in learning, and ultimately enhance the overall teaching efficacy.

(1) Master the knowledge of innovation and entrepreneurship

To effectively implement the curriculum content design for innovative entrepreneurship among college students and gain insight into their knowledge of entrepreneurial endeavors, a questionnaire has been crafted to address the following inquiries: "What is your perception of the current social environment for innovative entrepreneurship among college students?"; "How do you believe college students' entrepreneurial efforts are advantageous compared to other social groups?"; and "What level of cognizance do you possess regarding the requirements for writing a business plan?" The survey results are shown figure 12.

Items	subtotal	scale
A. Better	59	14.75%
B. same as	178	44.5%
C.range	90	22.5%
D. NK	73	18.25%
The number of returned valid questionnaires	400	

FIGURE 12 Social environment of undergraduate entrepreneurship

Approximately 85% of students perceive the current innovation and entrepreneurship environment for college students as average, poor, or unclear, suggesting that a significant majority holds a negative view of the entrepreneurial environment. The data underscores a lack of comprehension among students regarding the overall environment for innovation and entrepreneurship, as well as a limited understanding of related policies. The findings of this survey are depicted in Figure 13

Items	subtotal	scale
A. Young and energetic, brave to struggle	342	85.5%
B. High professional quality	172	43%
C. Strong learning ability, have the innovative spirit	266	66.5%
D. With more information channels	127	31.75%
E. else	28	7%
The number of returned valid questionnaires	400	

FIGURE 13 Advantages of undergraduate entrepreneurship

Students possess a thorough understanding of the merits of innovation and entrepreneurship among college students, yet they tend to prioritize the distinctive attributes of youth, encompassing vitality, the courage to persevere, robust learning capabilities, and an innovative mindset.

(2) Selection of curriculum teaching content

To enhance the effectiveness of the curriculum content design for college students' innovative entrepreneurship, it is crucial to understand their preferences. To this end, a questionnaire was administered, posing two key questions:

"If there were an innovation and entrepreneurship curriculum, what content would you prioritize?" and "Do you believe that the integration of innovative and entrepreneurial content is preferable, or would you prefer them to be separate?" The outcomes of this survey are depicted in Figure 14.

Items	subtotal	scale
A. Innovative thinking cultivation	255	63.75%
B. Innovative methods of learning	192	48%
C. Entrepreneurial personalized counseling	164	41%
D. Entrepreneurial opportunities and environmental analysis	193	48.25%
E. Entrepreneurship case analysis	109	27.25%
F. Entrepreneurship personality cultivation	60	15%
G. other	11	2.75%
The number of returned valid questionnaires	400	

FIGURE 14 Design of curriculum content

As evident from the figure, when it comes to selecting content for innovation and entrepreneurship curricula, students exhibit a significant preference for four key categories: "innovative method learning," "entrepreneurial personalized guidance," "entrepreneurial opportunity and environment analysis," and "innovative thinking training." The survey results are shown in figure 15:

Items	subtotal	scale
A. It is better to separate	138	34.5%
B. It is better to teach together	262	65.5%
The number of returned valid questionnaires	400	

FIGURE 15 curriculum Content Settings

As illustrated by the data above, students perceive that the integration of innovation and entrepreneurship content in the 'College Students' Innovation and Entrepreneurship' curriculum better facilitates their learning. The research findings reveal that students expect this curriculum to cover aspects such as

'innovative thinking and methods' as well as 'entrepreneurial opportunity analysis and personalized guidance,' and they prefer a combined approach that integrates both innovation and entrepreneurship content for their educational benefit.

4.3.2.4. Expectation towards curriculum implementation

The investigation of the curriculum implementation stage is mainly from three aspects: curriculum opening, classroom activities and resource form.

(1) curriculum opening

To enhance the implementation of the "College Students' Innovation and Entrepreneurship" curriculum and gain insights into students' comprehension of these educational programs, it is advisable to include a question in the questionnaire inquiring about "What key aspects should be prioritized in the execution of entrepreneurship education curricula?" The findings of this survey are presented in Figure 16.

Items	subtotal	scale
A. Combine it with the specific majors	286	71.5%
B. Open it according to social needs	259	64.75%
C. Set it up according to the characteristics of local industries	195	48.75%
D. Increase the proportion of practical curriculums	194	48.5%
E. Expand the channels for school-enterprise cooperation	137	34.25%
The number of returned valid questionnaires	400	

FIGURE 16 Focus of the curriculum implementation process

According to the survey results, 71.5% of students believe that innovative entrepreneurship curriculums should be "combined with specific professions." Additionally, 64.75% of students believe that these curriculums should be designed "in accordance with social demand," while 48.75% suggest aligning them "with local industry characteristics." Furthermore, 48.5% of students emphasize the need to "increase the proportion of practical curriculums," and 34.25% advocate for "expanding channels of university-enterprise cooperation" during the curriculum development process. These findings indicate that most students prioritize the integration of

innovation and entrepreneurship education with practical elements and societal relevance.

(2) Teaching practice

To enhance the implementation of the college students' innovative entrepreneurship curriculum, we aimed to understand the students' suggestions for innovative entrepreneurial classroom activities. Consequently, the questionnaire posed two key questions: "Which of the following ways do you prefer for carrying out innovative entrepreneurship teaching practice?" and "Do you believe that group collaboration or individual work is more beneficial for completing a business plan?" The results of this survey are depicted in Figure 17.

Items	subtotal	scale
A. Teacher teaching	223	55.75%
B. The teacher guides the students to explore independently	237	59.25%
C. Play videos about entrepreneurs or entrepreneurs	174	43.5%
D. Case analysis of innovation and entrepreneurship	240	60%
The number of returned valid questionnaires	400	

FIGURE 17 Statistical chart of the survey results of "Teaching Practice"

Students believe that the ideal forms of teaching practice for innovation and entrepreneurship education are: "conducting case analyses," "teachers guiding students to explore independently," "direct instruction by teachers," and "playing videos related to entrepreneurs or entrepreneurship." The data reveals that students have a strong preference for "student-centered" teaching practice activities. These survey findings are presented in Figure 18.

Items	subtotal	scale
A. Group cooperation	300	75%
B. Complete alone	100	25%
The number of returned valid questionnaires	400	

FIGURE 18 Survey results of "Business Plan Completion Form"

According to the survey, the rate of students who complete a business plan in teaching practice is higher than those who tend to complete a business plan alone.

(3) Resource form

To optimize the resource design process for the implementation of the "College Students' Innovation and Entrepreneurship" curriculum, the questionnaire includes a question inquiring about the "most critical resources you believe are needed for the entrepreneurship curriculum." The outcomes of this survey are depicted in Figure 19.

Items	subtotal	scale
A. The draft or text of a speech	210	52.5%
B. Curriculumware	234	58.5%
C. Micro curriculum resources	232	58%
D. Curriculum-related videos and movies	243	60.75%
E. Curriculum-related e-book resources	198	49.5%
The number of returned valid questionnaires	400	

FIGURE 19 Curriculum resource requirements

Students believe that the most needed resources in the innovation and entrepreneurship curriculum are "curriculum-related e-book resources", followed by "curriculumware", "micro-curriculum resources", "lecture notes" and "curriculum-related movies and videos".

According to the demand analysis and investigation of the curriculum design, we can provide guidance for the curriculum design of College Students' Innovation and Entrepreneurship from the following aspects.

To effectively stimulate learners' interest in innovation, it is crucial to address their limited understanding of the innovation and entrepreneurship system. While learners exhibit a strong interest in entrepreneurship, their enthusiasm for innovation is relatively low. Therefore, efforts should focus on enhancing students'

interest in innovation while deepening their understanding of innovation and entrepreneurship.

Furthermore, attention should be directed towards cultivating innovative thinking, methods, and entrepreneurial skills. According to the curriculum target survey, there is a high demand among learners for developing these abilities. In curriculum design, it is essential to integrate content that fosters exploration of opportunities, organizational and management skills, strategic decision-making, resource integration, and resilience to setbacks—these are critical capabilities that students need to develop.

Effective teaching should integrate innovative content with entrepreneurship education and provide personalized guidance to students. The survey of curriculum content indicates that learners often struggle with basic knowledge in innovation and entrepreneurship. Therefore, curriculum design should prioritize integrated learning of these foundational concepts and provide personalized support to nurture students' creativity effectively.

curriculums should place students at the center, emphasizing a balance between theory and practical application. According to the curriculum implementation survey, students value integration of innovation and entrepreneurship with real-world practice and societal needs. Classroom organization should support teacher guidance while encouraging student-driven exploration, particularly in the development of business plans through cooperative efforts.

Ensuring a rich array of resources is crucial. The survey on resource construction highlights strong demand across various resource types, each expected to exceed 30%. Therefore, curriculum design should prioritize enriching and diversifying resources to cater to learners' individual needs effectively.

Through theoretical synthesis, student surveys, and teacher interviews, it is evident that current innovation and entrepreneurship curriculums in colleges and universities fall short of meeting the needs of contemporary undergraduates. Traditional theoretical approaches have proven insufficiently engaging,

failing to effectively enhance students' innovation and entrepreneurship capabilities. Consequently, there is an urgent need to design new curriculums that better align with students' expectations.

4.4 Phase III: Results of Training Curriculum Development

The undergraduate innovation and entrepreneurship curriculum underwent three thorough revisions to arrive at its final version. The precise content of the teaching plan implemented during the curriculum is outlined in Appendix G. For a comprehensive overview of each iteration throughout the curriculum development process, kindly refer to the subsequent sections.

4.4.1 Results of training curriculum development (Version 1)

4.4.1.1 Curriculum design scheme

(1) Curriculum principle

The curriculum titled "Innovation and Entrepreneurship for College Students" is a broadly applicable elective curriculum that caters to diverse majors. It comprehensively encapsulates the curriculum's essence, Purposes, and design philosophy. This curriculum serves as a pivotal bridge in translating innovative thinking and entrepreneurship education concepts into tangible teaching practices, fostering innovative and entrepreneurial talents. It functions as a fundamental curriculum that introduces students to the realm of innovation and entrepreneurship.

Given the varying nature of these curriculums across universities, they range from public compulsory curriculums to general electives. Notably, a few universities have even integrated innovation and entrepreneurship content into their "College Student Employment Guidance" curricula. In this study, the selected universities offer "College Students' Innovation and Entrepreneurship" as a general education elective for all undergraduate grades and majors. The primary focus of this research is to devise a curriculum plan tailored specifically for this elective curriculum.

"Innovation and Entrepreneurship for College Students" stands as a cornerstone curriculum in the realm of innovation and entrepreneurship education in colleges and universities. Its pedagogy revolves primarily around two key dimensions.

On the one hand, it aims to instill in students a profound understanding of the paramount importance of innovation, enabling them to grasp fundamental innovation techniques and actively engage in innovative activities. Moreover, it fosters the application of such innovation capabilities during the entrepreneurial journey, ultimately enhancing their opportunities for exploration, organizational skills, strategic decision-making, resource integration, and resilience in the face of adversity.

On the other hand, through the study of entrepreneurship theory, students gain a deeper understanding of the entrepreneurial environment. The analysis of entrepreneurial cases, coupled with the study of business plans, significantly elevates their entrepreneurial awareness and accomplishment, preparing them for the rigors of entrepreneurship in the real world.

(2) curriculum Purposes

Research study Purposes are the first step in the design of innovative entrepreneurial skills training curriculums. Teachers can analyze learning Purposes by studying existing curriculums or curriculum syllabus. More importantly, teachers are advised to identify conditions that can meet the goals. This gives faculty insight into key factors that may positively or negatively influence teaching.

Countries have embraced the concept of "public entrepreneurship, people's innovation," marking a shift in the goals of societal and entrepreneurship education from traditional approaches. Traditional entrepreneurship education primarily emphasized increasing the rate of college graduates entering entrepreneurial endeavors. In contrast, the era of innovative entrepreneurship education places significant emphasis not only on developing college students' entrepreneurial skills but also on fostering innovative thinking and methods.

To effectively promote successful entrepreneurship, it is crucial to develop college students' innovative awareness, thinking, and methods. Therefore, in designing curriculum Purposes, equal attention should be given to both innovation and entrepreneurship.

Respecting the individual learning needs of college students, the innovative entrepreneurship curriculum is designed with a comprehensive approach that incorporates a questionnaire to assess students' expectations. This curriculum aims to cultivate three levels of proficiency: basic knowledge, basic skills, and practical ability, while focusing on five key capabilities: exploring opportunities, organization and management, strategic decision-making, resource integration, and resilience in the face of challenges.

At the basic knowledge level, the curriculum aims to equip students with a solid theoretical foundation in innovation and entrepreneurship. This includes understanding the history, development, and current state of innovation and entrepreneurship education in China, along with grasping the fundamental concepts, classifications, and significance of this field. The goal is to foster innovative and entrepreneurial thinking, thereby enhancing students' ability to identify and seize opportunities.

At the practical ability level, the curriculum strives to ignite students' motivation for innovation and entrepreneurship. It provides guidance on how to embark on this journey, refining their organizational skills, strategic decision-making, resource integration, and resilience. Ultimately, this enhances the quality of higher education personnel training and prepares students to better meet the demands of economic and social development.

(3) Curriculum content

The curriculum of College Students' Innovation and Entrepreneurship serves as an introductory curriculum of innovation and entrepreneurship education in colleges and universities. The content of the curriculum revolves around two main lines: innovation and entrepreneurship. According to the teaching Purposes of the curriculum, the curriculum is divided into 8 units, namely ：

Unit 1 is mainly an overview of the basic knowledge of innovation;

Unit 2 is an overview of the basic skills of innovation;

Unit3 is an overview of the practical ability of innovation;

Unit4 is an overview of the basic knowledge of entrepreneurship;

Unit 5 is an explanation of market research and competitive analysis.

Unit 6 provides an overview of basic entrepreneurial skills;

Unit 7 provides an overview of entrepreneurial practice competencies.

Unit 8 provides an overview of financing and investment.

(4) Teaching activity

The design of teaching activities falls into four parts: stimulation, support, exploration and sharing, in which the stimulation strategy is divided into two kinds: "problem stimulation" and "game stimulation", and the support activities mainly include the support of interpersonal and physical environments, and the principle of the support element is to provide a series of resource lists for learners to achieve the learning goals. The principle of the support element is to provide a series of resource lists for the learners to achieve the learning Purposes, and the form of the resources should be as rich as possible, and personalised explanatory support should be provided for the learners during the teaching process; at the exploration level, it is required that the teacher creates an exploration situation for the learners and guides them to explore in a work-oriented way; at the sharing level, it is required to create a corresponding situation to organise the learners to share the tacit knowledge, i.e. the experience, the experiences, etc., in order to achieve the sharing of the tacit knowledge. At the sharing level, corresponding contexts are created to organise learners to share tacit knowledge, i.e. experiences, experiences, etc., in order to share tacit knowledge.

(5) Teaching evaluation

1)Distribution of achievements

Total score of this curriculum = 20% attendance + 25% homework + 55% homework.

A. Attendance =2 points * 10 times, 1 point for each late arrival and early leave, 2 points for each leave, and 4 points for each absenteeism.

B. Homework: 15 points for homework (knowledge card), 10 points for class homework.

C. Final assignment: 30 points for entrepreneurial plan, ppt10 points for roadshow, 15 points for roadshow video.

2) Operation evaluation criteria

The homework type of this curriculum includes three parts: class homework, homework, final work and homework form. It is divided into knowledge card, classroom homework text, roadshow PPT, roadshow video and business plan. Homework set Guided by the work of Business Plan, the operation design is combined with the content of each chapter. Work evaluation standard Quite as follows:

Knowledge card for 5 times, each full score of 3 points, a total of 5 * 3=15 points.

(6) Lesson Allocation

This curriculum consists of 8 lessons with a total of 16 class hours. The first lesson is the basic knowledge of innovation, which mainly summarizes the basic knowledge about "innovation"; The second lesson is to innovate basic skills, the main purpose of which is to provide theoretical support for subsequent applications; The third lesson is innovative practical ability, which mainly tells the basic knowledge of innovative ability and carries out preliminary practice; The fourth lesson is the basic knowledge of entrepreneurship, mainly teaching the basic theory of entrepreneurship; The fifth lesson is market research and competition analysis, mainly to teach students the relevant knowledge and methods of market research and competition, so that they can learn to judge the feasibility of the project; The sixth lesson is the basic skills of entrepreneurship, which mainly teaches students some basic skills of entrepreneurship, such as discovering opportunities, making plans, roadshows, etc. The seventh lesson is entrepreneurial practical ability, the main goal is to cultivate students' organizational ability, strategic decision-making ability, resource integration ability, frustration tolerance and so on; The eighth lesson is financing and investment, mainly because teachers

teach students the basic knowledge of finance, which is convenient for students to start their own businesses later.

The contents of these eight classes correspond to the five dimensions of students' innovation and entrepreneurship skills (ability to explore opportunities, ability to organize and manage, ability to make strategic decisions, ability to integrate resources, and ability to withstand setbacks). The specific corresponding situations are: the first, second, fourth and sixth classes correspond to the ability to explore opportunities, the third and seventh classes correspond to the ability to organize and manage, the fifth class corresponds to the ability to integrate resources, and the eighth class corresponds to the ability to make strategic decisions.

The allocation of class hours in each class, the specific summary results are shown in Table 15:

TABLE 15 The sequence of content and the suggested allocation of class time

NO.	Knowledge unit content	Class hour
1	Innovate basic knowledge	2 Class hours
2	Innovate basic skills	2 Class hours
3	Innovative practical ability	2 Class hours
4	Basic knowledge of entrepreneurship	2 Class hours
5	Market research and competition analysis	2 Class hours
6	Basic skills for entrepreneurship	2 Class hours
7	Entrepreneurship practice ability	2 Class hours
8	Financing and investment	2 Class hours

To devise the curriculum, the author conducts a thorough analysis of the existing "Innovation and Entrepreneurship for College Students" program and subsequently crafts a comprehensive curriculum framework. The Purposes of this curriculum are segmented into three primary levels: the basic knowledge level, aimed at equipping students with theoretical knowledge of innovation and entrepreneurship; the

basic skills level, focused on honing students' proficiency in innovative and entrepreneurial methods, fostering innovative and entrepreneurial thinking, and enhancing their ability to identify opportunities; and finally, the practical ability level, designed to spark students' motivation for innovation and entrepreneurship, guide them accurately in their endeavors, and refine their organizational skills, strategic decision-making, resource integration, and resilience in the face of challenges. In terms of curriculum content, the curriculum is divided into 8 chapters with two main lines of innovation and entrepreneurship. The design of teaching activities include four parts: stimulation, support, exploration and sharing. Teaching evaluation consists of three parts, 20% of attendance grade, 25% of usual assignments, and 55% of final assignments, and the grading rules of assignments are formulated. And the teaching content of these 8 chapters is allocated class time, 2 hours per chapter.

(7) Teaching procedure

1) Introduction

Teaching through the practice of case introduction, the first to explain the theoretical part of the curriculum, in the curriculum of the introduction process of the curriculum to choose students familiar with the case, the way to carry out, hooking up with the students' existing knowledge, to the students as the main body, the teacher led the curriculum.

2) Implementation process

This curriculum is practice-based and requires students to co-operate with each other to complete. Take group teaching, each group of 5 students, free combination, to complete the task as a group.

The group is responsible for the implementation of the group leader, the internal division of labour cooperation, the number of times required to focus on the discussion of not less than three times, each discussion has a theme, the results of the discussion and a summary of the task, requires a person to make a written record, and as the basis for curriculum grading submitted to the archives.

The student group leader reports the progress of the task to the instructor every week, reflecting the existing problems. The instructor will closely monitor the group's progress by attending their discussions, administering spot checks, and promptly addressing any issues or challenges encountered by the group.

3) Project Presentation

The final stage of the curriculum is the project roadshow, which is also the centralised display of students' pre-practice results. Presentation in groups, requiring each group to make a PPT, within 20 minutes to promote and publicise the results of the group's project, of which 10 minutes for PPT presentation, 5 minutes for questions and 5 minutes for evaluation.

Regarding the content scope of the PPT, the instructor guided each group to integrate materials from several aspects according to the selected topic. Among them, the PPT of the selected entrepreneurial project is required to include at least the following contents: project background, market demand, business characteristics and shortcomings of similar products in the market, project product description and characteristics of the positioning of the project product, the market prospects of the project product (input costs, profitability, risk, etc.), the main problems (including problems of the project itself, problems of co-operation, etc.). The PPT of the selected innovation project, in addition to the first three items required by the PPT of the aforementioned entrepreneurial project, also requires a specific description of the project product and its novelty, originality and practicality, as well as the main problems.

In order to test the specifics of the students' participation in the group activities, the presentation required the participation of all members of each group, with at least two of the students explaining and the others answering questions. For students who did not take the initiative to answer questions, the incumbent teacher will ask special questions during the group summary.

4) Handling of special cases

Not every student is interested in innovation and entrepreneurship, some students, because of personality or endowment problems,

inherently like to follow the diagrams of the hands-on, rather than like to labour to brain innovation and entrepreneurship. Curriculum mandatory requirements for all students must be brain innovation and entrepreneurship, for this part of the students is not only difficult, but also simply unable to complete. In view of this, a class of evaluation group is temporarily set up in the teaching process, and the group that still cannot be effectively carried out for several times of guidance is turned into an evaluation group, which is required to choose a group that is making good progress as an object of evaluation, and to complete the curriculum teaching through observation, participation in the discussion, and tracking and reviewing of the research report and business plan or innovation report of the object of evaluation, and the group submits the evaluation report as the basis of curriculum assessment.

To ensure fairness and the attainment of curricular Purposes, it is imperative that the evaluation team participate in the presentation. The PPT for this presentation must explicitly include the following: an overview of the evaluation target group's fundamental situation, a summary of the group's product, a detailed account of the communication between the group and the target group, including methods, approaches, and outcomes, an analysis and assessment of the target group's learning characteristics, and a discussion of the major issues encountered, encompassing both project-specific challenges and collaborative difficulties.

4.4.1.2 Quality inspection results of the training curriculum conducted by experts

After the completion of the curriculum design, the expert group is first determined according to the requirements. After discussion and agreement, the expert panel is composed of five university teachers. Specific expert information sheets are provided in Appendix A. After determining the expert team members, submit the completed curriculum of the design to the expert to evaluate the consistency and applicability of the curriculum. The evaluation form is shown in Appendix C and D . The evaluation results are depicted in the following tables 16 、 tables 17、 tables 18 and tables 19 :

TABLE 16 Curriculum consistency assessment result

Evaluation items	Expert evaluation results (full score=5)					M	SD	Level
	1	2	3	4	5			
1.Curriculum concept and the importance of and curriculum development	5	3	5	4	4	4.20	0.75	High
2.Curriculum Purposes and the importance of curriculum development	4	4	3	5	4	4.00	0.63	High
3.curriculum Content and the Importance of and curriculum Development	4	3	5	4	5	4.20	0.75	High
4.Curriculum structure and the importance of and curriculum development	4	5	3	4	5	4.20	0.75	High
5.Curriculum development concept and curriculum Purposes	5	4	4	4	5	4.40	0.49	High
6.Curriculum development concept and curriculum structure	3	4	4	4	5	4.00	0.63	High
7.Curriculum development Purposes and curriculum structure	4	3	4	5	4	4.00	0.63	High
8.Curriculum development Purposes and curriculum learning activities organization	5	3	5	4	5	4.40	0.80	High
9.Curriculum development Purposes and curriculum evaluation	+4	5	3	4	5	4.20	0.75	High

TABLE 16 (CONTINUE)

Evaluation items	Expert evaluation results (full score=5)					M	SD	Level
	1	2	3	4	5			
10.curriculum outline and curriculum learning activities organization	5	3	4	5	5	4.40	0.80	High
11.curriculum outline and curriculum evaluation	3	5	4	4	4	4.00	0.63	High
12.Curriculum learning activities organization and curriculum evaluation	4	5	4	5	3	4.20	0.75	High
13.curriculum content and curriculum learning activities organization	4	3	5	4	5	4.20	0.75	High
14.curriculum content and curriculum evaluation	5	5	3	4	5	4.40	0.80	High
15.Curriculum development Purposes and "Exploring opportunities" teaching plan Purposes	4	4	5	5	4	4.40	0.49	High
16.Curriculum development Purposes and "organization Management" teaching plan Purposes	4	5	4	4	3	4.00	0.63	High
17.Curriculum development Purpose and "strategic decision" teaching plan Purpose	5	3	4	4	5	4.20	0.75	High
18.Curriculum development Purposes and "resource integration" teaching plan Purposes	5	3	5	4	4	4.20	0.75	High
19.Curriculum development Purposes and "withstand setbacks" teaching plan Purposes	4	5	4	4	5	4.40	0.49	High

TABLE 16 (CONTINUE)

Evaluation items	Expert evaluation results (full score=5)					M	SD	Level
	1	2	3	4	5			
20.Curriculum development goal and overall goal of improving undergraduate innovation and entrepreneurship ability	5	4	3	4	5	4.20	0.75	High
TOTAL						4.21	0.71	High

TABLE 17 For the curriculum consistency expert modification suggestion table

Name of specialist	Status	Suggestion
Ding en quan	Professor	Some curriculum structure design can be added
Jia xiang hua	Professor	Recommended for increased flexibility in activity organization
Wang ying ji	Associate Professor	not have
Zhang xin hai	Professor	The detailed details of the added curriculum Purposes are still somewhat general
Liu hai sheng	Professor	The curriculum Purposes are in line with the planned Purposes, and it is suggested to strengthen this part of the curriculum content

TABLE 18 curriculum suitability assessment result

Evaluation items		Expert evaluation results (full score=5)					M	SD	Level
Aspects	Indicators	1	2	3	4	5			
Importance	Necessity of curriculum development	5	4	5	3	5	4.40	0.80	High
	Rationality of curriculum development	3	5	4	4	5	4.20	0.75	High
	Needs and necessity of curriculum development	4	5	5	3	5	4.40	0.80	High
	The expected program of curriculum development is reasonable	5	4	5	4	5	4.60	0.49	Highest
	Operability and rationality	4	5	3	4	5	4.20	0.748	High
Concept	Can be really put into practice	5	3	5	4	5	4.40	0.80	High
Purposes	Basic theoretical support	3	4	5	5	4	4.20	0.75	High
	curriculum Purposes are clear and clear	5	4	5	3	5	4.40	0.80	High
	Operability in achieving curriculum Purposes	3	4	5	5	4	4.20	0.75	High
	Curriculum Purposes fit the target group	5	3	5	4	5	4.40	0.80	High
	Curriculum Purposes are scientific and reasonable	4	5	3	5	4	4.20	0.75	High

TABLE 18 (CONTINUE)

Evaluation items	Expert evaluation results (full score=5)					M	SD	Level
Indicators	1	2	3	4	5			
The curriculum content is consistent with the curriculum Purposes	4	5	3	5	4	4.20	0.75	High
curriculum content supports the achievement of curriculum Purposes	5	3	4	5	5	4.40	0.80	High
The sequence of curriculum contents supports the achievement of curriculum Purposes	5	4	5	3	5	4.40	0.80	High
The curriculum content supports the preset knowledge level and the improvement of innovation and entrepreneurship ability	3	5	4	5	4	4.20	0.75	High
Can support the achievement of curriculum Purposes	4	5	3	4	5	4.20	0.75	High
All aspects of the teaching process are arranged appropriately	5	4	5	3	5	4.40	0.80	High
Align with target groups and curriculum duration	4	5	4	5	3	4.20	0.75	High
Attractive and contagious	5	4	5	3	5	4.40	0.80	High
Adapt to the organization of curriculum learning activities	3	5	5	4	5	4.40	0.80	High
Can support the achievement of curriculum Purposes	4	5	3	5	3	4.00	0.89	High

TABLE 18 (CONTINUE)

Evaluation items		Expert evaluation results (full score=5)					M	SD	Level
Aspects	Indicators	1	2	3	4	5			
Evaluation	Cover the Purposes that must be evaluated	3	5	4	5	4	4.20	0.75	High
	Match the level of knowledge and ability related to innovation and entrepreneurship that must be improved	5	3	4	5	4	4.20	0.75	High
	The achievement of the curriculum Purposes can be checked	4	5	3	5	3	4.00	0.89	High
TOTAL							4.28	0.79	High

TABLE 19 For the curriculum consistency expert modification suggestion table

Name of specialist	Status	Suggestion
Ding en quan	Professor	It is suggested to add practical parts to the curriculum design, such as the production of business plan, road show, PPT, etc., and the current curriculum content is mainly theoretical.
Jia xiang hua	Professor	not have
Wang ying ji	Associate Professor	The curriculum design is very good
Zhang xin hai	Professor	The curriculum content needs to be adjusted appropriately, and it is recommended to do student research
Liu hai sheng	Professor	not have

4.4.2 Results of Training curriculum Improvement (Second version)

4.4.2.1 Curriculum improvement program

According to the experts 'opinions on the curriculum design, the curriculum Purposes and curriculum content design are optimized, and the details of the unit Purposes of College Students' Innovation and Entrepreneurship are added. The curriculum is divided into eight knowledge units, The details of these 8 knowledge units are as follows ：

Chapter 1 : Introduction to Curriculum Background and Innovation Basics,which provides an overview of the foundational aspects of innovation. It is divided into three parts: the concept of innovation, the significance of engaging in innovation activities, and types of innovation.

Chapter 2 : Basic Skills of Innovation, which focuses on acquiring fundamental innovation skills, encompassing innovative thinking and methods. It covers two main sections: "setting trends in thinking" and "innovation through addition and subtraction".

Chapter 3 : Practical Skills of Innovation,which delves into practical aspects of innovation, exploring constructivist theory and creative evaluation. Creative evaluation centers on assessing the market potential of creativity.

Chapter 4 : Basics of Entrepreneurship,which provides an overview of entrepreneurship fundamentals, comprising four parts: the importance of entrepreneurship education for college students, the history and evolution of college student entrepreneurship, advantages of student entrepreneurship, and basic types of entrepreneurship. It primarily focuses on foundational entrepreneurial skills.

Chapter 5: Team Building and Leadership, which covers team dynamics and leadership skills essential for entrepreneurship. It includes sections on understanding entrepreneurial needs and risks, building effective teams, and developing a viable business model.

Chapter 6 : Market Research and Competition, which introduces the fundamentals of market research and competitive analysis. It includes topics such as

the concept of market research, methods for data collection and analysis, and elements of competitive analysis.

Chapter 7 : Entrepreneurial Practice, which focuses on practical entrepreneurial skills, including the preparation of business plans and conducting roadshows to pitch business ideas.

Chapter 8: Financing and Investment, which addresses the essentials of financing and investment in entrepreneurship. It covers concepts related to financing, the importance of financial planning, and methods for securing investment.

From the first version to the second version of the curriculum, the principles, Purposes, content, teaching activities, teaching evaluation, curriculum allocation and teaching process have changed to varying degrees. The specific situation is demonstrated in Table 20:

TABLE 20 Summary table of curriculum design changes (version 1-version 2)

Curriculum components	Improvement
1.Curriculum principle	Unchanged
2Curriculum Purposes	The module goal of students' innovation and entrepreneurship is added to the original goal. The Purpose level of the eight modules has been further improved.

TABLE 20 (CONTINUE)

Curriculum components	Improvement
3.Curriculum content	In designing the curriculum content, we should prioritize an increase in practical curriculums that integrate innovation and entrepreneurship, while minimizing theoretical curriculums. The emphasis should be on innovative and entrepreneurial practice projects. The first chapter introduces the curriculum's background and outlines the fundamentals of innovation, encompassing its definition, the significance of innovative activities, and the various types of innovation. The second chapter addresses the fundamental skills of innovation, dividing the discussion into two parts: "thinking sets" and "addition and subtraction innovation," to summarize innovative thinking and methods. The third chapter centers on innovative practical abilities, encompassing "constructivism theory" and creativity evaluation. The fourth chapter provides a comprehensive overview of entrepreneurship basics, highlighting the importance of entrepreneurship education for college students, its historical evolution, the benefits it offers, and the fundamental types of entrepreneurship. The fifth chapter is about team building and leadership, which mainly includes four parts: entrepreneurial needs and risks, team building and business model. Chapter 6 introduces the knowledge of market research and competition, including the concepts of market research and competition, data collection and analysis methods and elements of competition analysis. Chapter 7 focuses on entrepreneurial practice, including the writing of business plan and roadshow. The eighth chapter is about financing and investment, including "the concept of financing and investment", "the significance of financing and investment" and "the methods of financing and investment".
4. Teaching activity	Unchanged
5.Teaching evaluation	Unchanged
6.Lesson Allocation	Unchanged(A total of 16 class hours, 2 class hours per class)
7.Teaching procedure	Unchanged

4.4.2.2 Results of the Development of Innovation and Entrepreneurship Skills Measurement (IOC)

The development of the innovation and entrepreneurship skills test was verified by five experts from teaching fields and companies on the Purpose consistency project index (IOC) of the project. See the appendix E for the evaluation results of each expert, and see Table 4-9 for a summary of the evaluation results:

TABLE 21 Summary table of the expert evaluation results

Question	Evaluation dimension					otal points	OC	Paraphrase
	Expert1	Expert2	Expert3	Expert4	Expert5			
Explore opportunities	+1	+1	+1	0	+1	4	0.8	pass
1.Creative thinking	+1	+1	+1	-1	+1	3	0.6	pass
2.Independent thinking	0	+1	+1	+1	+1	4	0.8	pass
3.Sharp observation	+1	+1	+1	+1	+1	5	1	pass
Organisation and management	+1	0	+1	0	+1	3	0.6	pass
1.Setting goals	+1	+1	+1	+1	-1	3	0.6	pass
2.Communication and co-operation	0	+1	+1	+1	0	3	0.6	pass
3.High level of execution	+1	0	0	+1	+1	3	0.6	pass
Strategic decision-making	+1	+1	0	+1	+1	4	0.8	pass

TABLE 21 (CONTINUE)

Question	Evaluation dimension					Total points	OC	Paraphrase
	Expert1	Expert2	Expert3	Expert4	Expert5			
1. Assessing needs	0	+1	+1	+1	+1	4	0.8	pass
2.Measure strengths	+1	0	+1	+1	+1	4	0.8	pass
3.Develop a plan	+1	+1	0	+1	+1	4	0.8	pass
Resource integration	+1	+1	0	0	+1	3	0.6	pass
1.Data collection	0	+1	+1	+1	0	3	0.6	pass
2.Material collection	0	0	+1	+1	+1	3	0.6	pass
3.Experience Sharing	+1	+1	-1	+1	+1	3	0.6	pass
Skills to withstand setbacks	+1	+1	0	+1	+1	4	0.8	pass
1. Correctly view the failure	0	+1	+1	+1	+1	4	0.8	pass
2. Summarise the successful experience	+1	0	+1	+1	+1	4	0.8	pass
3. Purpose self-evaluation	+1	+1	0	+1	+1	4	0.8	pass

4.4.2.3 Results of the trial of the training curriculum

In order to verify the applicability of the curriculum, the author selected 20 students to try the curriculum. After class, a few students put forward suggestions to modify the class time allocation of the curriculum, and most students agreed with the goal and applicability of the curriculum.

From the second version to the third version of the curriculum, the principles, Purposes, content, teaching activities, teaching evaluation, curriculum allocation and teaching process have changed to varying degrees. The specific situation is illustrated in Table 22:

TABLE 22 Summary table of curriculum design changes(version 2-version 3)

Curriculum components	Improvement
1. Curriculum principle	Unchanged
2. Curriculum Purposes	Prioritize enhancing students' practical skills and fostering innovative thinking.
3. Curriculum content	Unchanged
4. Teaching activity	Focus on practical team projects to improve teamwork, communication, and leadership skills.
5. Teaching evaluation	Incorporate a stronger focus on strategic planning and risk management evaluation criteria.
6. Lesson Allocation	There are 16 class hours in 8 units, and the allocation of class hours in each unit has been adjusted (1 class hour in units 1 and 2, 2 hours in units 3, 4, 5 and 8, and 3 hours in units 6 and 7).
7. Teaching procedure	Give students more case analysis and discussion and practical operation opportunities, in order to improve students' practical skills.

4 . 4 . 2 . 4 Reliability test results of innovation and entrepreneurial skills measurement

In this study, the data of 4 0 0 students selected from Zhoukou Normal University were collected by random sampling through the integration of "online and offline" forms. After strict screening, the collected questionnaires are all valid questionnaires, and all subsequent data analysis results are derived from valid questionnaires. Logistic regression analysis was used in this questionnaire, and ABCD was assigned to 1 2 3 4 5 respectively. Finally, through the effective integration of

computer software modeling and analysis data, and rank analysis, the reliability and validity are calculated.

(1) Reliability

When the questionnaire is conducted, the recovery and the survey will be affected by various subjective factors, such as the investigator to fill in the answers at will, or part of the input results are lost when collecting the data. Therefore, the reliability analysis of the currently collected questionnaire information is conducted to ensure the reliability of the data after the questionnaire survey. The reliability analysis was performed using SPSS software, and post-survey data reliability was considered high when the results was> 0.7. When the study coefficient is greater than 0.8, it indicates that the good reliability of the questionnaire can be widely used. The reliability test of the questionnaire in this paper shows that the overall and sub-dimensions are greater than 0.8, indicating that the reliability of the questionnaire is trustworthy. The specific summary is shown in the following table 23:

TABLE 23 Cronhach α Alpha

Innovation and entrepreneurial skills measurement	Cronbach αAlpha
Ability to explore opportunities	.900
Organizational management ability	.897
Strategic decision-making ability	.907
Resource integration capability	.904
The ability to withstand setbacks	.902
Total	.896

4.4.2.5 Results of Training curriculum Improvement (Version 3)

After completing the curriculum trial, the curriculum allocation and development of class hours were modified to form the third version. In the third version

of the curriculum design, it deliberately reduces the class hours of theoretical curriculums and increases the classroom practice, so that the instruction can play a more auxiliary role in improving students' ability.

From the third version to the fourth version of the curriculum, the principles, Purposes, content, teaching activities, teaching evaluation, curriculum allocation and teaching process have changed to varying degrees. The detailed results are shown in Table 24:

TABLE 24 Summary table of curriculum design changes (version 3-version 4)

Curriculum components	Improvement
1.Curriculum principle	Unchanged
2.Curriculum Purposes	Unchanged
3. Curriculum content	Unchanged
4. Teaching activity	Unchanged
5. Teaching evaluation	Unchanged
6. Lesson Allocation	There are 16 class hours in 8 units, and the allocation of class hours in each unit has been adjusted (1 class hour in units 1, 2 and 3, 2 class hours in units 4 and 8 and 3 class hours in units 5, 6 and 7).
7. Teaching procedure	Unchanged

4.4.3 Results of the training curriculum implementation

4.4.3.1 Basic information of the samples

A total of 20 senior students, 10 male and 10 female, all between the ages of 23-26 and with comparable academic achievements, were selected for this experiment.

4.4.3.2 Results of the training curriculum implementation

(1) Evaluation criteria for students' ability

The five abilities—exploring opportunities, organizing and management, strategic decision-making, resource integration, and resilience in bearing setbacks—are pivotal in fostering college students' innovation and entrepreneurship capabilities. Developing and enhancing these abilities enables students to effectively navigate dynamic environments, capitalize on opportunities, and achieve success. Educational institutions, organizational leaders, and individuals alike should prioritize the cultivation and advancement of these skills.

In practice, comprehensive evaluation is essential, aligning with educational goals and specific contexts. Utilizing diverse methods and tools for assessment and feedback is crucial. This approach promotes comprehensive student development and enables continual enhancement of their abilities.

(2) The effect of improving students' ability

In this paper, a questionnaire designed to assess the enhancement of students' abilities in the realm of innovation and entrepreneurship for college students is presented. The Purpose is to measure the progression of these abilities before and after the experiment. The subjects were 20 students randomly selected from Zhoukou Normal University who had participated in the innovation and entrepreneurship curriculum development survey. The questionnaire includes 15 questions, highlighting five aspects: the ability to explore opportunities, the ability to organize and manage, the ability to make strategic decisions, the ability to integrate resources and the ability to withstand setbacks. See table 25 for the statistics of students' five abilities before and after the test.

TABLE 25 Five capacity improvements

	Full score	Pretest		Posttest		t□	p□
		X	SD	X	SD		
1.Ability to explore opportunities	3	2.00	0.97	2.92	0.88	7.388	.01**
2.Organizational management ability	3	2.08	0.91	3.111	0.71	9.212	.01**
3.Strategic decision-making ability	3	2.02	0.92	3.17	1.06	8.546	.01**
4.Resource integration ability	3	1.88	0.92	3.50	0.85	12.652	.01**
5.The ability to withstand setbacks	3	2.00	0.84	3.14	0.99	9.238	.01**
Total	15	2.01	0.78	3.12	0.40	13.283	.01**
* * p<0.01							

From the data comparison, all the data of the five set of pairs will show differences, indicating that the students' five abilities are significantly improved after class.

In conclusion, the questionnaire test conducted both before and after the experiment has demonstrated that the innovative entrepreneurship skills training curriculum tailored for college students in this study has yielded significant improvements in five key abilities: opportunity exploration, organizational management, strategic decision-making, resource integration, and resilience in the face of adversity.

4.5. Phase IV: Evaluation results of the training curriculum

4.5.1 Effectiveness evaluation results of the training curriculum

After the curriculum modification, the designed curriculum will be submitted to an expert group of five experts to evaluate the consistency and applicability of the curriculum. The evaluation results are shown in Table 26 below：

TABLE 26 Expert evaluation of the test results

	Criteria	Results	Conclusion
1.Ability to explore opportunities	Posttest＞Pretest	Significant at .01	pass
2.Organizational management ability	Posttest＞Pretest	Significant at .01	pass
3.Strategic decision-making ability	Posttest＞Pretest	Significant at .01	pass
4.Resource integration ability	Posttest＞Pretest	Significant at .01	pass
5.The ability to withstand setbacks	Posttest＞Pretest	Significant at .01	pass
Total	Posttest＞Pretest	Significant at .01	pass

Summary: As can be seen from the above table, the implementation effect of the revised curriculum shows a good result, which shows that the students after the training of this development curriculum are "post-test > pre-test" in five aspects: the ability to explore opportunities, the ability to organize and manage, the ability to make strategic decisions, the ability to integrate resources and the ability to withstand setbacks, indicating that the students' innovation and entrepreneurship skills have been improved after the training of this curriculum. Moreover, from the significance test results, we can see that the difference of this promotion effect is very significant. All the above results show that the innovation and entrepreneurship training curriculum developed this time is effective and worthy of recognition, and experts unanimously agree to apply the curriculum designed in this study to practice.

4.5.2 Results of Training curriculum Improvement (Final Version)

The final version of the innovation and entrepreneurship curriculum developed this time is briefly described as follows, as detailed in Appendix F.

1.Introduction

Innovation and Entrepreneurship for College Students" serves as an introductory curriculum in innovation and entrepreneurship education within colleges and universities. Structured around two principal themes: innovation and entrepreneurship, the curriculum is segmented into eight comprehensive units. The first unit outlines the basic knowledge of innovation; the second unit outlines the basic skills of innovation; unit 3 summarizes the practical ability of innovation; Unit 4 summarizes the basic knowledge of entrepreneurship; and unit 5 explains the market research and competition analysis. Unit 6 overview of the basic entrepreneurial skills; Unit 7 overview of entrepreneurial practice ability. Unit 8 The curriculum explains the content related to financing and investment, and the structure is shown in the figure.

2.Curriculum principle

Constructivism's view of knowledge, learning and teaching is of great value to this research. It is mainly reflected in the guidance based on knowledge view, which makes the innovation and entrepreneurship curriculum developed by us to be task-driven as the basis, so that students have a solid theoretical foundation; The guidance based on the concept of learning makes the curriculum developed by us more operational and enables students to enhance their teamwork ability in the process of participating in practice; Based on the guidance of teaching concept, teachers can guide students to cultivate five abilities related to innovation and entrepreneurship more skillfully.

Humanism is of great value to this research theme, which is mainly reflected in the theory's emphasis on paying attention to the individual's potential ability, respecting the individual's ideas, and treating the individual as a complete personality. Based on the guidance of these theoretical knowledge, we can make the innovation and entrepreneurship curriculum developed this time more applicable. The curriculum content is designed with the aim of fostering students' innovative thinking and

entrepreneurial abilities, while practical activities are conducted with a principle of respecting and accommodating students' individual perspectives and ideas.

3.Curriculum Purposes

The curriculum Purposes combine three levels of basic knowledge, basic skills and practical ability, and five abilities: exploring opportunities, organizational management, strategic decision-making, resource integration, and suffering setbacks.

4.Curriculum structure

After adjustment, in this version, the content arrangement order of the curriculum and the suggested class time allocation are presented in table 27:

TABLE 27 The order of content and the proposed allocation of class hours

Unit	Topic	Class hour arrangement
1	Introduction to innovation and entrepreneurship	1 Class hours
2	Innovative thinking and innovative entrepreneurship methods	1 Class hours
3	Innovation practices and creative evaluation	1 Class hours
4	Innovation and entrepreneurship practice and case analysis	2 Class hours
5	Team building and leadership	3 class hours
6	Market research and competition	3 class hours
7	Business plans and road shows	3Class hours
8	Financing and investment	2 Class hours
Total	/	16 hours

5.Teaching activity

Teaching activity design is divided into four links: stimulation, support, exploration and sharing.

(1) Stimulate the link activity design

This chapter employs two distinct stimulation strategies to provoke thought around the issues posed in the following questions: "Why should college students be imparted with education in innovation and entrepreneurship?" and "What are

the benefits of college students engaging in innovation and entrepreneurship?" By bridging learners' existing entrepreneurial knowledge with new knowledge to be acquired, this approach ignites learners' interest in learning and generates learning motivation. Together with students, we establish learning goals, clarify that the curriculum content is oriented towards practical work, and throughout the entire teaching process, the culminating work takes the form of a Project Business Plan.

(2) Support the link activity design

This chapter provides support for learners through the construction of interpersonal environment and materialized environment, and learners can choose freely according to their needs. The support of interpersonal environment includes intangible entrepreneurial knowledge support; direct discussion with learners, explanatory dialogue, produce personalized entrepreneurial spirit and belief support; the structure of materialized environment provides learners with a rich list of resources, including the content chart of the first chapter, corresponding curriculumware, micro-lesson, and video resource "Silicon Valley Legend", and provide the electronic bibliography of the curriculum, bibliography, organizational management methods, strategic management methods, resource integration skills, and enhance the ability of setbacks.

(3) Exploration link activity design

This chapter incorporates exploratory homework assignments for learners, such as "researching innovation and entrepreneurship policies for college students" and "investigating the process of college student entrepreneurship." These assignments aim to enhance college students' sensitivity and decision-making abilities. Subsequently, learners select team members to collaborate on or independently complete commercial projects, thereby testing their organizational and management skills, resource integration capabilities, resilience in the face of adversity, and strategic decision-making abilities. The exploration content in this chapter revolves around the "Project Business Plan" as a platform for integrating new knowledge. Learners delve into products, narratives, and projects that pique their interest, gaining an understanding of

the entrepreneurial journey of college students and the policies that support their innovation and entrepreneurship in their respective locales. This foundation serves as a precursor to crafting comprehensive business plans for ambitious undertakings.

(4) Sharing link activity design

Since "Entrepreneurship Overview" is the first chapter of the curriculum "College Students' Innovation and Entrepreneurship", it is set at the sharing level.

"What are the entrepreneurial stories around you? “Learners share their entrepreneurial stories with others.

People, and will explore the content of the homework to share in the knowledge card, to achieve a personal experience about entrepreneurship, and a person.

The sharing of human beliefs, perspectives and values, experience, intuition, secrets, hunch, and other dark knowledge.

6. Curriculum evaluation

(1) Achievement distribution

Total score of this curriculum = 20% attendance + 25% normal homework + 55% completed homework.

A. Attendance =2 points * 10 times, 1 point for each late arrival and early leave, 2 points for each leave, and 4 points for each absenteeism.

B. Homework: 15 points for homework (knowledge card), 10 points for class homework.

C. Final assignment: 30 points for entrepreneurial plan, ppt10 points for roadshow, 15 points for roadshow video.

(2) Operation evaluation standards

The homework type of this curriculum includes three parts: class homework, homework, final work and homework form.

It is divided into knowledge card, classroom homework text, roadshow PPT, roadshow video and business plan. The homework design is guided by

the Business Plan and is combined with the content of each chapter. The evaluation criteria are as follows: knowledge cards for 5 times with full score 3 points, 5 * 3=15 points; 1 class homework with 10 points; 1 roadshow PPT with full score 10 points; 1 roadshow video with 15 points; the evaluation standard of business plan is 1 business plan with full score 30 points; the curriculum evaluation is mainly knowledge card. The homework is included in the usual score, and the total score is 3 points.

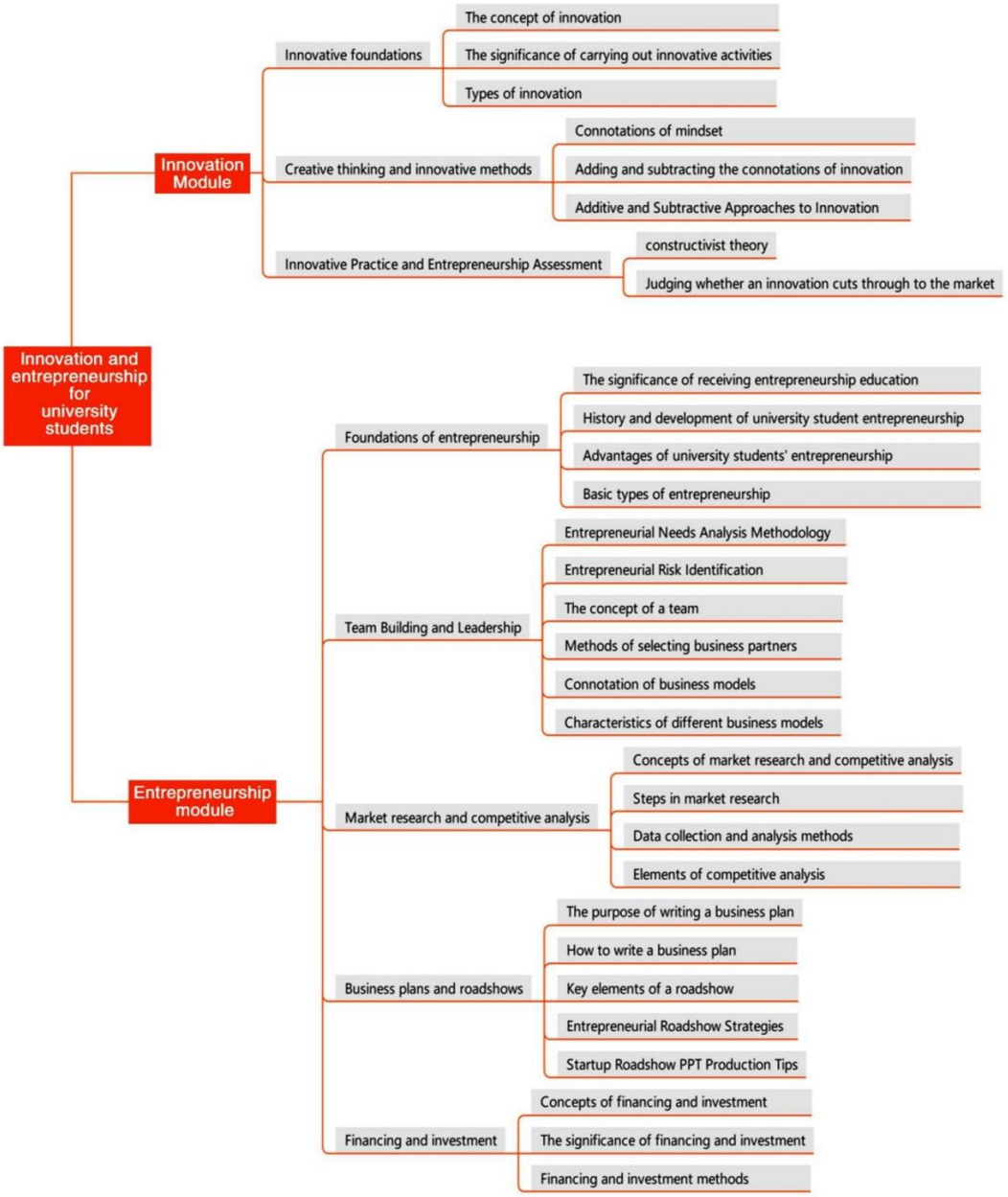

FIGURE 20 Curriculum content

CHAPTER 5
CONCLUSION DISCUSSION AND SUGGESTION

5.1 Conclusion

The primary Purpose of this study is to devise undergraduate curricula for innovation and entrepreneurship grounded in constructivism and humanism, aiming to furnish strategic insights that augment students' proficiency in these domains.

Initially, the study conducts a comprehensive review of pertinent literature on innovation and entrepreneurship, delving into the conceptual framework and foundational theories that underpin curriculum development. By integrating domestic and international scholarly works, it examines the intricate structure of innovation and entrepreneurship, highlighting the cultivation of key skills, measurement benchmarks, components, and behavioral metrics that constitute these abilities. Integral components such as opportunity recognition, organizational stewardship, strategic decision-making, resource orchestration, and resilience in adversity are identified as pivotal to fostering innovation and entrepreneurship aptitudes, which can be fostered through educational interventions.

Furthermore, in the design of these curricula, this study takes into account not only the curriculum's content but also external environmental dynamics, internal student motivations, and the broader institutional landscape of the academic institution. This study introduces novel concepts and methodologies for institutions seeking to cultivate and impart curricula in innovation and entrepreneurship, thereby bolstering college students' innovative mindset and entrepreneurial acumen in alignment with the aspiration of 'mass entrepreneurship and innovation.'

Secondly, this study constructs an innovative entrepreneurship curriculum tailored specifically for college students, drawing upon a comprehensive review and synthesis of pertinent literature on these topics. By integrating theories of constructivism and humanism, the curriculum aims to significantly bolster students' capabilities in innovation and entrepreneurship; while elevating institutional and faculty focus on these critical aspects. To validate the curriculum's efficacy, the author conducted a

questionnaire survey among 400 senior students at Zhoukou Normal University and further interviewed five experienced educators specializing in undergraduate innovation and entrepreneurship curriculums. Based on the findings from these interviews and questionnaires, the initial curriculum design was developed. The first version of the curriculum comprises six parts: curriculum analysis, Purposes, content, teaching activities, class schedule, evaluation, and teaching methodology. Subsequently, five experts evaluated the consistency and applicability of the curriculum, identifying areas for improvement such as content arrangement, Purpose determination, and activity enhancement. Based on expert feedback, a revised second edition of the curriculum was completed. Following the completion of the second edition, another round of expert review was conducted, and 20 students participated in a trial to provide feedback on the curriculum. The curriculum was further refined based on student feedback, resulting in the third edition of the training curriculum.

Finally, to assess the curriculum's effectiveness, a pre-post evaluation was conducted with a sample of 20 students, measuring their innovative entrepreneurial abilities before and after completing the curriculum using t-tests. The curriculum's impact on students' abilities in exploring opportunities, organizational management, strategic decision-making, resource integration, and resilience to setbacks was evaluated. Following the experiment, experts assessed the curriculum's consistency and applicability, leading to the final iteration of the training curriculum.

This study validates the effectiveness of the developed undergraduate innovation and entrepreneurship learning model in enhancing students' innovation and entrepreneurship abilities. The results endorse the successful integration of constructivism and humanism theories in this context, bridging existing research gaps. Therefore, the learning model proposed in this study can be readily adopted by educators in other universities for teaching purposes.

5.2 Discussion

Based on the data results comparing the pre- and post-test scores of college students' innovation and entrepreneurship learning mode, there has been a significant

improvement in the total scores across the five assessments. This enhancement in senior students' innovation and entrepreneurship ability serves as proof that this learning mode is conducive to their development in these crucial areas. The following sections elaborate on these improvements:

5.2.1. The effectiveness of the curriculum design and the theoretical basis matching

While compiling and organizing design materials for innovation and entrepreneurship curricula, the author observed that numerous scholarly inquiries into the curriculum and fundamental design of innovation and entrepreneurship education predominantly concentrate on several key aspects: the value orientation and fundamental Purposes of such education (Wang, 2011; Zhou & Duan, 2018); the implementation of these curricula in universities (Li, 2017; Liu, 2020); and the comprehensive structure of innovation and entrepreneurship education (Li, 2017).

This paper delves into the viability of entrepreneurship and employment education, considering the development of information platforms, content, and team construction. It specifically examines the curriculum system for entrepreneurship and innovation education tailored for students in specific majors. The study reveals that Chinese universities' innovation and entrepreneurship curricula face certain challenges (Shang & Xu, 2015). For instance, despite the current enthusiasm for innovation and entrepreneurship education in China (Lin & Zeng, 2016), the teaching staff in this field remains underdeveloped. In some universities, educators' mindset towards innovation and entrepreneurship has not evolved, resulting in a curriculum that is heavily theoretical and lacks practical application. There is a notable absence of proactive innovation consciousness, and practical abilities are significantly lacking. Additionally, the space and environment for innovation and entrepreneurship within Chinese universities are comparatively limited, and many universities continue to employ traditional teaching methods that primarily involve lecturing, imparting knowledge, and resolving doubts (Wang, 2020). The examination primarily takes the form of a paper-based test, emphasizing assessment rather than practical evaluation. Even when universities opt for

university-enterprise partnerships to facilitate innovation and entrepreneurship education, related enterprises often provide limited opportunities for hands-on experience, predominantly technical internships. This approach poses challenges in fostering students' innovative thinking and entrepreneurial prowess.

Over the past decade, in the evolution of entrepreneurship education in Chinese universities, issues such as unreasonable curriculum design, a scarcity of teachers, insufficient funds for entrepreneurial practice, limited business incubation facilities, and policy barriers for business practice have emerged (Guo, 2022). In contrast, the curriculum construction for innovation and entrepreneurship in Chinese universities has established a clear framework for class hours, content distribution, and entrepreneurial experience, emphasizing the need for specific and actionable reforms in entrepreneurship education content (Zheng, 2021). Through analyzing the data, we can discern that the current trend in the development of innovation and entrepreneurship education in colleges and universities is on the right track, having established some distinctive models. However, there persist some challenges in the construction of the curricula. Specifically, the theoretical framework of innovation and entrepreneurship education for senior students is imperfect and lacks a comprehensive education system.In addition, the teachers' resources for entrepreneurship education for senior students are insufficient, and the reference of curriculum plan is limited. The composition of the curriculum team is often homogeneous, lacking industry professionals with entrepreneurial experience.In addition, the target system and curriculum content of innovation and entrepreneurship education for senior students are often unbalanced and vacillate between innovation and entrepreneurship education. Teaching methods mainly rely on traditional methods, which are single and lack of student-centered methods.

This paper integrates humanism and constructivism in improving innovation and entrepreneurship curricula through student research and expert interviews. Targeted design research, like Bridges' perspective on educational goals within schools, aligns entrepreneurship education curriculum Purposes with broader

educational goals. This alignment aims to ensure consistency in goal orientation, encouraging senior students to engage deeply in innovative entrepreneurship curricula and develop practical life skills.

Doepker (2 0 0 9) suggests that students benefit from gaining a robust theoretical foundation and practical insights through school-based innovation and entrepreneurship curricula. This approach enhances their market acumen and stimulates their interest in innovation and entrepreneurship. Furthermore, successful entrepreneurs nurtured by universities often contribute back to entrepreneurship education, aiding in school development.

Scholars studying entrepreneurship education in British universities propose curriculum Purposes focused on cultivating entrepreneurial logic, thinking, skills training, and practical experience, emphasizing quality education for entrepreneurs (Chen, 2 0 1 7). Empirical analyses of universities like Wenzhou University, Heilongjiang University, and Zhejiang University indicate a shift from utilitarian goals toward quality student training, reflecting actual student needs.

Therefore, the updated Purposes of innovation and entrepreneurship education curricula should prioritize cultivating students' innovative consciousness and entrepreneurial ideas at a macro level. Specifically, this involves focusing on fundamental knowledge and practical entrepreneurial skills to foster entrepreneurial practitioners. The curriculum goals should balance utilitarian and non-utilitarian Purposes (Lu, 2011), aligning with societal needs, student realities, available resources, and teaching obligations (Xu, 2 0 1 8). Goal-setting should consider both students' learning requirements and their interests to effectively guide curriculum development.

This approach ensures that innovation and entrepreneurship education curricula are not only relevant but also impactful in preparing students for entrepreneurial success in today's dynamic context.

5.2.2. Effectiveness of the design of each component of the curriculum design

In terms of curriculum content design, American colleges and universities make professional recognition in entrepreneurship education, integrate their

own teaching concepts into the curriculum organization structure, and design characteristic curriculum system and teaching plans. In terms of curriculum organization, there are two types: subject curriculums and practical curriculums. The core theories of the subject curriculums are innovation and entrepreneurship consciousness, basic knowledge of entrepreneurship and entrepreneurial ability quality, and the teaching is combined with professional knowledge. Once students have attained proficiency in theoretical knowledge, they are then guided to engage in practical activities encompassing entrepreneurship competitions, hands-on entrepreneurial projects, operational ventures, and practical training sessions, thus gaining valuable experience throughout the entire practical curriculum. A single curriculum can be divided into three modules: entrepreneurship theory elaboration, typical case analysis and simulation exercise. The curricula for innovation and entrepreneurship education in French universities are structured into three main categories: activity-based curricula, comprehensive core curricula, and practical curricula. The curriculum content also includes the skills training of future entrepreneurs, such as creative thinking, new product development, speech communication, technological innovation, market development and other curriculums. In addition, French universities will also include the training of entrepreneurship in their curriculums, emphasizing the concept of sustainable development, such as green entrepreneurship, social responsibility and other curriculums. In the cultivation of entrepreneurial student projects, curriculums such as business logic design, business plan writing, risk identification and fund application are introduced. Zhang divided the types of entrepreneurship education curriculum in universities into three categories: basic curriculum of entrepreneurship education and practical curriculum (Zhang, 2007). In delving into the precise content of innovation and entrepreneurship curricula, it is crucial that education in these domains takes into account the disparities between various majors and their respective talent literacy needs, subsequently crafting tailored educational content unique to each major (Cui & Xu, 2019). It is recommended to offer curricula that exhibit both continuity and distinctiveness for college students apt for

entrepreneurship and inclined to pursue their entrepreneurial aspirations, thereby enhancing the curriculum system for innovation and entrepreneurship education (Li, 2015). Mass entrepreneurship and innovation education in universities are characterized by interdisciplinary integration, necessitating the incorporation of diversity in the integration of curriculum content (Lu, 2020). It is vital to establish a practical curriculum ensemble, blending professional advantages with the breadth and depth of knowledge. This paper primarily aligns with Wei's perspective on curriculum content design, emphasizing practical curricula as the cornerstone of innovation and entrepreneurship curricula for college students (Wei, 2019).

In the realm of curriculum evaluation for innovation and entrepreneurship education, various scholars have contributed insights and methodologies to assess the effectiveness and impact of these programs.

Jun (2017) focuses on evaluating university performance in innovation and entrepreneurship by analyzing metrics such as the number of student startups and their value in enterprises. This approach helps rank universities based on their contributions to fostering entrepreneurial activities.

Berggren (2009) conducted longitudinal studies on entrepreneurs who have received entrepreneurship education, assessing their entrepreneurial timelines and income levels. This longitudinal perspective provides valuable insights into the long-term outcomes of entrepreneurship education.

Bulut et al. (2013) centered their evaluation on graduates, using indicators like the number of innovation projects initiated, the scale of entrepreneurship curricula, student organization involvement, curriculum frameworks, social resources integration, and scholarship distribution. This comprehensive approach ensures a holistic assessment of innovation and entrepreneurship education.

Xu & Zhang (2018) proposed a curriculum evaluation mechanism that encompasses educational goals, implementation processes, evaluation subjects, and long-term effects. They structured their evaluation into top-level policy assessment,

process evaluation, and post-campus impact evaluation, highlighting the importance of a systematic approach.

Yuan & Tian (2018) identified shortcomings in current curriculum systems across eight universities, emphasizing the need for systematic improvements in operability and structure. Their analysis underscores the importance of a well-defined and practical curriculum evaluation mechanism.

Wang & Chen (2018) advocate for an innovation entrepreneurship education evaluation system that emphasizes differentiation, scientific efficiency, and diverse evaluation subjects. This approach aims to capture the multifaceted aspects of student learning and development in innovation and entrepreneurship.

Wang et al. (2019) argue for an integrated evaluation approach that combines formative and summative evaluations tailored to each university's unique talent development goals. This adaptive approach ensures that evaluation methods are aligned with specific institutional contexts and Purposes.

Similarly, Yi et al. (2018) proposed a method that combines formative and summative evaluations, employing multi-subject and diversified evaluation techniques. This methodological approach allows for a comprehensive assessment of both the process and outcomes of innovation and entrepreneurship education programs.

In summary, these studies collectively advocate for robust evaluation frameworks that are systematic, adaptable, and aligned with the goals and contexts of individual universities. By incorporating diverse evaluation methods and considering longitudinal impacts, these frameworks provide valuable insights into enhancing the effectiveness of innovation and entrepreneurship education.

In the context of curriculum inspection, a decision-oriented evaluation revealed that the integrated curriculum design model grounded in deep learning effectively fostered initiative and autonomy in students' professional English curriculum learning (Zheng, 2018). Furthermore, various teaching methods were employed to administer standardized training programs, where comparisons were drawn between

nursing staff's theoretical and practical achievements prior to and following the training. Additionally, a satisfaction evaluation was conducted (Xu, 1998). This paper utilizes an experimental group to validate the curriculum's effectiveness.

5.2.3. Various elements of innovation and entrepreneurship

(1) The ability to explore opportunities

The ability to explore opportunities is crucial to start innovation smoothly. The success of entrepreneurship largely depends on whether the ability of entrepreneurs to accurately grasp the needs and opportunities of the market and propose innovative solutions accordingly. Exploring the opportunity ability can not only bring competitive advantages to enterprises, but also stimulate the spirit of innovation and promote the sustainable development of enterprises.

This curriculum is studied through the innovative practice and creative evaluation curriculum of the third unit of 2 periods. The curriculum focuses on practice. After a simple introduction of the curriculum, the curriculum is studied through four links: encouragement, support, exploration and sharing. For example, "whether students have found suitable entrepreneurial opportunities in life" encourages senior students to speak actively, ask senior students to refine their entrepreneurial ideas, answer why they choose, whether there is no development space, etc., and judge the feasibility of these entrepreneurial opportunities, and improve senior students' ability to explore opportunities through these.

After senior students to explore the corresponding "by learning this curriculum, I am easier to find around business opportunities" and "the curriculum improved my ability to explore opportunities" the two questions before and after the test found that the average is significantly higher than the average before the test. Specifically, on the question of "through learning this curriculum, I am easier to find business opportunities around me", the post-test average is 2.59, and the pre-test average is 2.47; on the question of "this curriculum improves my ability to explore opportunities", the post-test average is 2.57 and the pre-test average is 2.47. Both results showed that senior students felt their ability to explore opportunities had

improved at the end of the curriculum. In addition, the P-value of the two questions was also less than 0.01, indicating that this curriculum is a significant improvement in senior students' ability to explore opportunities.

(2) Organizational and management ability

To facilitate innovation and entrepreneurship effectively, the significance of organizational and managerial competencies must not be overlooked. Effective organizational management capabilities can help entrepreneurs build efficient teams, allocate resources well, make informed decisions, and motivate team members to work together to achieve corporate goals. Good organizational and management skills can also help to reduce risk, promote innovation and continuous improvement, and enable businesses to adapt to market changes and remain competitive.

The organization and management abilities are mainly shown through the group's joint business plan writing, road show, PPT production and other situations. In order to exercise the senior students 'organizational management ability in this paper in the curriculum of unit 5 set up the team building and leadership curriculum, arranged three hours of curriculum. In addition to the simple theory curriculum, mainly is given priority to by students practice, in this unit, students free group of five team, and take turns when the team leaders, dealing with the different five business problems, improve each senior student's leadership.

After the senior student organization management ability corresponding "through this curriculum I think their leadership improved", "I can rely on a diversified team of curriculum knowledge management team" and "in management and assign personnel perform business plan, curriculum provides me with great help" the three problems before and after test found that after the average is significantly higher than the average before measurement. On the question of "I think my leadership has been improved through this curriculum", the post-test average value is 2.69 and the pre-test average is 2.41; on the question of "I can manage a diversified team with curriculum knowledge", the post-test average value is 2.59 and 2.48; on the question of " 3.64 and the pre-test average is 2.45. All the three results show that the organization and

management ability of the students has been generally improved after this experiment. And the p values of the three questions are less than 0.05, indicating that senior students believe that this curriculum can improve their leadership to a certain extent, and they can also use the curriculum knowledge to help them manage and assign personnel to implement the business plan. This curriculum has significantly improved the organizational ability, leadership, and management ability of senior students.

(3) Strategic decision-making ability

In the process of innovation and entrepreneurship, strategic decision-making ability is crucial. Entrepreneurs need to have a clear strategic vision and decision-making skills to develop and implement effective development strategies. Good strategic decision-making ability can help enterprises seize market opportunities, cope with competitive challenges, avoid risks, and achieve long-term sustainable development. During the entrepreneurial journey, it is frequently essential to make pivotal strategic choices encompassing product positioning, marketing strategy, and partnership selection. These decisions have a direct bearing on the developmental trajectory and ultimate success of the enterprise.

This class is mainly reflected in the market research and competition of Unit 6. Unit 6 also allocates three classes. In this class, group competition is mainly used to exercise students 'strategic decision-making ability, such as simulated bidding and simulated company operation, so as to fully exercise students' practical application ability.

After completing the curriculum, students' strategic decision-making abilities showed significant improvement, as evidenced by the increase in accuracy during the innovation process and their ability to better assess risks and benefits between various choices. Pre- and post-test comparisons revealed that the average scores for both questions were notably higher following the curriculum. Specifically, the post-test average for "this curriculum increases the accuracy of my decision in the process of innovation and entrepreneurship" was 2.92, compared to 2.44 in the pre-test. Similarly, the post-test average for "I can better balance the risks and benefits between

different choices" was 3.71, surpassing the pre-test average of 2.46. Both results indicate that students have a significant improved perception of their strategic decision-making ability after receiving the curriculum training. The p-value of both questions is 0.000, which also shows that the curriculum has an obvious effect on improving students' strategic decision-making ability.

(4) Resource integration ability

The significance of resource integration ability differs in the contexts of innovation and entrepreneurship. For entrepreneurs, proficiency in integrating diverse resources such as human capital, financial assets, and technological advancements is crucial for supporting enterprise growth and attaining innovation targets. This ability enables entrepreneurs to optimize the utilization of limited resources, enhance resource efficiency, reduce costs, and ultimately bolster the competitiveness of their enterprises. By effectively integrating resources, entrepreneurs can build strong teams that motivate employee creativity and work enthusiasm, and drive innovation and continuous improvement. In addition, resource integration capabilities can also help entrepreneurs establish good partnerships, expand market channels, and develop new products or services to achieve the growth and expansion of the enterprise.

The curriculum focuses on cultivating senior students' resource integration ability alongside mastery of the other four abilities, primarily in Unit 7 which covers business plan development and roadshow presentations. Unit 7 is structured to begin with essential instruction on business plan writing and creating excellent roadshow videos. Students receive initial information and guidance during this phase.

Subsequently, the remaining sessions in Unit 7 are organized into four groups. Each group is tasked with refining their business plans and producing compelling roadshow videos. Throughout the production process, students are encouraged to seek assistance from teachers, network contacts, and peers.

After the senior students' resource integration ability corresponding "curriculum can help me integrate multiple departments or team resources, to ensure the smooth progress of collaboration" and "curriculum knowledge can help me coordinate

resources to achieve the realization of organizational strategic goal" the two problems do before and after the test found that after the average is significantly higher than the average before. In particular, the resources of multiple departments or teams, the measured average is 2.94 and the pre-test average is 2.46; "the curriculum can help me integrate the resources of multiple departments or teams to ensure the smooth progress of collaboration", the measured average is 3.81 and the measured average is 2.46. Both results indicate that the curriculums designed in this study also improved the resource integration ability of college students. The p-values for both questions are below 0.05, which signifies a statistically significant result, indicating that this curriculum has a notable impact on enhancing senior students' resource integration abilities.

(5) The ability to withstand setbacks

In the process of innovation and entrepreneurship, failure and setbacks are inevitable, so we need to improve senior students' ability to withstand setbacks. A good ability to withstand setbacks can help entrepreneurs remain calm, firm and optimistic in the face of setbacks, face problems calmly, and find solutions. By suffering setbacks, entrepreneurs can learn to learn lessons, constantly optimize their own abilities and strategies, and improve their ability and wisdom to deal with crises.

In this class, the cultivation of the ability to withstand setbacks is mainly reflected in the financing and investment of Unit 8. In this unit, senior students are divided into a group of 5 students and introduce their projects to other classes. Finally, the one who gets the most votes wins. In the process of attracting investment and discussing cooperation, it is a good time to exercise senior students' ability to withstand setbacks.

After the senior students bear frustration ability corresponding to "the curriculum of my ability to make me satisfied" this problem do before and after testing found that after the average of 2.48, the average of 2.15, and the p value of 0.000 significant, this shows that most senior students think that after the study design curriculum, their frustration ability has improved.

5.3 Suggestions

5.3.1 Recommendations for applied research results

(1) Integrity of the curriculum structure

This curriculum is designed for teachers in higher education responsible for undergraduate innovation and entrepreneurship programs. The author has integrated constructivist and humanist theories into the curriculum design, ensuring that the content is interconnected and cohesive. When implementing this curriculum, teachers should consider aligning it with their own teaching styles and habits to effectively encourage students to actively engage in classroom activities, construct knowledge independently, and enhance their critical thinking and problem-solving skills.

The primary goal of this curriculum is to enhance students' innovation and entrepreneurship abilities, specifically in terms of their capacity to explore opportunities, manage organizations, make strategic decisions, integrate resources, and overcome setbacks. It has been demonstrated that partial implementation of the curriculum units may not fully develop these five abilities. However, comprehensive delivery of all eight units as designed in this curriculum significantly enhances students' proficiency in these areas.

This underscores the remarkable effectiveness of the innovation and entrepreneurship training curriculum in teaching, which not only guarantees the achievement of teaching Purposes, quality, and efficiency, but also elevates the comprehensive learning experience for students. Overall, this curriculum system is comprehensive and highly practical in developing students' abilities. To maximize its effectiveness, it is recommended that educators ensure the curriculum's integrity when implementing it.

(2) Replicability of teaching methods

This curriculum is designed to be utilized by higher education teachers overseeing undergraduate innovation and entrepreneurship programs, as well as enterprises focused on innovation and entrepreneurship topics. Given the evolution of innovative entrepreneurship training curriculums in terms of their novel format, teaching

resources, and instructional steps compared to previous iterations, it is advisable to conduct innovation entrepreneurship curriculum teacher training prior to the commencement of the program. This training will assist teachers and external enterprise trainers in acquiring the necessary knowledge, skills, and resources to effectively organize and deliver the curriculum content. It primarily involves the utilization of textbooks, reference books, teaching aids, and multimedia resources, alongside training in various teaching methodologies and evaluation strategies. Additionally, it covers the process of selecting the most appropriate teaching techniques based on the unique characteristics and requirements of the students.

Due to the different learning situation of different schools, although the curriculum system is complete, the specific activities need to be changed according to the students' interests, ability, and personality. During the process of curriculum design and implementation, teachers should demonstrate flexibility in employing diverse teaching methods and strategies to cater to the varied needs of students. As they execute the curriculum, teachers should foster a reflective learning environment, encouraging students to identify shortcomings and providing them with guidance and support. Concurrently, teachers should offer a range of resources and tools to broaden learning avenues, urging students to integrate knowledge with practical application in their work and lives. By establishing goals and models, teachers should continuously track and evaluate student progress, aiding them in overcoming obstacles and maintaining a positive learning attitude and motivation. Finally, during the summation phase, teachers should steer students towards consolidating and reflecting on their learning. This involves organizing the acquired knowledge, synthesizing their learning experiences and insights, offering curriculum evaluations and feedback, and ultimately contributing to the refinement and enhancement of the curriculum.

Through the teaching of this curriculum, the teachers of the same profession and the principals of the enterprises will have some gains, which reflects that the teachers can directly copy the designer, and save a lot of effort for lesson preparation and class; the principals of the enterprises can not only apply the teaching

method of curriculum design to the enterprise training, but also improve the overall effect of the training through the actual curriculum content and case guidance.

(3) The diversity of curriculum evaluation

This curriculum is accessible to teachers in higher education who oversee undergraduate programs focused on innovation and entrepreneurship. The diversity of curriculum evaluation is reflected in both teachers and students, which is embodied as follows:

From the perspective of teachers, most of those applying this curriculum evaluate its design based on teaching content, diversity of teaching methods, interaction, and feedback mechanisms. Among them, most teachers find the teaching content of this curriculum to be highly appropriate. It covers many facets of innovation and entrepreneurship, such as creative stimulation, business model design, and marketing strategy, thereby providing a strong foundation for students to acquire comprehensive knowledge.

Secondly, most teachers believe that the teaching methods designed in this curriculum are diverse and align well with the requirements of efficient classroom teaching methods. Teachers can flexibly utilize methods like case analysis, group discussions, practical projects, and others according to the content, which stimulates students' interest in learning and cultivates their innovative thinking.

Additionally, most teachers find the interaction and feedback mechanisms designed in this curriculum to be suitable. Many problem settings are conducive to triggering students' thinking and promoting effective interaction between teachers and students during teaching.

From a student's perspective, those who have completed the curriculum have assessed its design based on the practicality of the teaching content, their learning experience, the demonstration of achievements, and the evaluation system. Among them, most students find the curriculum highly practical. They indicate that after acquiring theoretical knowledge about innovation and entrepreneurship, they feel better equipped for practical entrepreneurial endeavors.

Secondly, after receiving instruction from this curriculum, most students report having a positive learning experience. They find the learning tasks clear and well-structured. They also notice significant improvements in their skills, which contributes to a positive overall experience and sense of accomplishment.

Additionally, most students value the performance display and evaluation integrated into the curriculum design. They find it beneficial for assessing their progress and understanding their achievements.

5.3.2 Recommendations for future studies

After conducting thorough research and analyzing pertinent literature, it is apparent that the development of innovation and entrepreneurship curricula for college students faces numerous challenges. These challenges encompass the broad scope of innovation and entrepreneurship, a dearth of in-depth research, the inadequacy of tools to assess students' abilities, the lack of emphasis on long-term impacts, and the scarcity of practical orientation and support for entrepreneurial resources. To foster progress in this area, potential avenues for future researchers to explore include:

Delving into the Dimensions of Innovation and Entrepreneurship Abilities: An In-Depth Exploration and Discussion. For instance, researchers like Lai (2019) and Lu (2011) have categorized these dimensions differently—further detailed analysis could reveal the significance and characteristics of various capabilities across different fields of innovation and entrepreneurship.

Development of Effective Evaluation Tools: Develop robust evaluation tools and measurement indicators. For instance, creating assessment frameworks specific to secondary vocational and tertiary students could accurately gauge entrepreneurial abilities, offering targeted feedback and suggestions for improvement.

Long-Term Impact Assessment: Conduct an investigation into the sustained effects of innovation and entrepreneurship abilities. Through follow-up studies with students pursuing entrepreneurial ventures and careers, it aims to identify the pivotal factors that influence entrepreneurial success, thereby deepening the comprehension of the enduring impacts of these skills.

Optimizing the construction of innovation and entrepreneurship curricula through enhanced practical orientation and support: Emphasizing hands-on operations and experiential learning. Provide ample support through entrepreneurial resources such as guidance, funding, and business incubators. Collaboration with enterprises, investment firms, and seasoned entrepreneurs can offer students valuable entrepreneurial opportunities and resources, fostering their growth in the entrepreneurial environment.

By addressing these crucial areas, researchers can make significant contributions to the advancement of innovation and entrepreneurship education, thereby ensuring that curricula are more robust, relevant, and effective in preparing students for entrepreneurial endeavors.

REFERENCES

Ai, J., Zou, J. C., Luo, E. P., & Zou, T. Y. (2014). On the organic integration of college ideological and political education and college students' innovation and entrepreneurship education. Leading Journal of Ideological & Theoretical Education, (12), 92-94.

Bechard, J. P., & Gregoire, D. (2002). Entrepreneurship Education Revisitied: The Caseand Higher Education. Academy of Management Learning & Education, 4(1), 22-43.

Berggren, E. . (2009). Student entrepreneurs : the influence of university, entrepreneurship education and research. Chalmers University of Technology.

Bi, X. Y., & Ma, Y. K. (2023). "Informed Intention and Action": Peer Education Cognition Based on Social Constructivism Theory. Jiangsu Education, (6), 6-9.

Bloom, J. W. (2003). Entering the community of teachers: The difficulties and prospects in raising the bar of expectations in an elementary science methods curriculum.

Brown, A. , & Barnard, B. . (2019). Entrepreneurship, innovation and strategic foresight: how entrepreneurs engage the future as opportunity. Expert Journal of Business and Management, 7.

Bulut, C. , Mutlu, E. E. , & Nazli, M. . (2013). Innovation and entrepreneurship assessment initiatives: a critical view.

Cao, S. L. (2010, January 13). What kind of innovation and entrepreneurship education do Chinese universities need. China Education Daily.

Chai, X. D. (2010). Research on university entrepreneurship education based on tacit knowledge [Doctoral dissertation, East China Normal University].

Chen, C. (2020). Research on the Value Orientation of Entrepreneurship Education Curriculum in Colleges and Universities. Perspective.

Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers. Journal of Business Venturing, 13(4),

295-316.

Chen, J. (2017). Research on the Construction of Leading Entrepreneurship Education Ecosystem in Colleges and Universities. Northeast Normal University.

Chen, Q., & Shi, G. H. (2013). An empirical study of the relationship between college students' emotional intelligence and entrepreneurial ability. Journal of Higher Education Management, 7(3), 109-114.

Chen, X. (2016). Research on the application of meaningful learning theory in junior high school mathematics teaching. (Doctoral dissertation, Yan 'an University).

Chen, X. Y., & Chen, S. (2016). The impact of Undergraduates'Entrepreneurial capability on entrepreneurial performance- the intermediary function of entrepreneurial team. Science and Technology Management Research, 36(8), 222-228.

Cheng, W. (2017). Construction of entrepreneurial ability structure model of university students. Research on Higher Education in Heilongjiang Province, (5), 133-136.

Cui, M., & Xu, M. (2019). Research on the Integrated Development of Innovative Entrepreneurship Education and Professional Education for Applied Talents. Scientific Consultation (4), 2.

Dai, W. D., & Liu, C. Y. (2004). New Developments in Learning Theories and the Shift of FLT Models. Journal of Foreign Languages, (4), 10-17.

Dangel, J. , & Guyton, E. . (2003). Expanding our view of teaching and learning: applying constructivist theory(s) to teachers education. Action Research, 33.

Dean, T. J. , & Meyer, G. D. . (2005). Industry environments and new venture formations in u.s. manufacturing: a conceptual and empirical analysis of demand determinants. Journal of Business Venturing, 11.

Doepker, P. E. . (2009). Enhancing the product realization process by emphasizing innovation and entrepreneurship. The Journal of Engineering Entrepreneurship, 1(1).

Du, J. Q., & Du, S. R. (2018). Value Orientation and Target Orientation of College Students' Innovation and Entrepreneurship Curriculum. Educational Research, 39(5), 4.

Fan, L. M. (2016). A Study on the Theory and Practice in Cultivation of Innovation and Entrepreneurship Core Competencies——Taking Shanghai University of Finance and Economics as an example. China Higher Education Research, (10), 83-87.

Fang, Y. (2020). Research on the Construction of Broad-spectrum Innovation and Entrepreneurship Education Curriculum System in Application-oriented Universities. Think Tank Times, 000 (021), p.211-212.

Gao, G. J., & Su, Y. (2013). The composition of college students' entrepreneurial ability: Concept and demonstration. Higher Education Development and Evaluation, 29(3), 27-35.

Ge, J. L., & Ye, W. W. (2010). Entrepreneurship education model based on enterprise growth theory. Higher Engineering Education Research, (S1), 58-61.

Guo, L. (2022). Dilemma and Optimization Path of Innovation and Entrepreneurship Education for College Students in China. Shanxi Youth (8), 101-103.

Han, C. G., Qu, S. W., & Ji, X. H. (2015). Design and practice of entrepreneurship and maker curriculums for science and engineering college students——based on an survey of science and engineering college students' entrepreneurial ability between Taiwan and Mainland. Modern Educational Technology, 25(2), 114-119.

Han, C. G., Qu, S. W., & Ji, X. H. (2015). Design and practice of entrepreneurship and maker curriculums for science and engineering college students——based on an survey of science and engineering college students' entrepreneurial ability between Taiwan and Mainland. Modern Educational Technology, 25(2), 114-119.

Han, L. (2017). The current situation and training path of innovation and entrepreneurship ability of college students. Chinese University Science & Technology, (Z1), 121-123.

Harvey, J. (1994). Entrepreneurship and Profit. In J. Harvey (Ed.), Economics Revision Guide (pp. 87-88). Palgrave McMillan.

Henry, C., Hill, F. M., & Leitch, C. M. (2004). The effectiveness of training for new business creation: a longitudinal study. International Small Business Journal, 22(3), 249-271.

Hong-Jian, P. , & Bin-Wu, H. U. . (2006). The prospects of constructivist theory of teaching. Journal of Yangzhou University(Higher Education Study Edition).

Horwood, C. , Vermaak, K. , Rollins, N. , Haskins, L. , Nkosi, P. , & Qazi, S. . (1999). Norms as emergent properties of adaptive learning: the case of economic routines. Social Science Electronic Publishing, 9(1), 5-26.

Hu Min, & Chen Lijun. (2008). Research on the current situation of college students' entrepreneurship and the countermeasures of entrepreneurship education based on swot analysis. Educational exploration (11), 2.

Hu, J. F., & Jiang, Y. (2016). Research on the construction of curriculum system of innovation and entrepreneurship education in universities. Journal of Innovation and Enterprise Education, 7(4), 107-109.

Hu, J., & Zhang, Y. (2019). Research on characteristics of curriculum system construction of innovation and entrepreneurship education in Massachusetts Institute of Technology. Higher Education Exploration, (12), 69-73.

Hu, L., & Yang, B. (2020). An Empirical Study of Influencing Factors of University Innovation and Entrepreneurship Education Effects: Based on the Data from 150 Universities with Typical Experience of Innovation and Entrepreneurship in China From 2016 to 2018. Journal of East China Normal University (Education Sciences), 38(12), 64-75.

Huang, Y. J. (2013). An Analysis of Entrepreneurship Education for College Students Based on the Theory of "Comprehensive Human Development". Journal of Suzhou Education Institute, 16(6), 86-89.

Huang, Z. X. (2017). Promoting the transformation and development of innovation and entrepreneurship education in Chinese universities. China Higher Education, (7), 45-47.

Huang, Z. X. (2017). Promoting the transformation and development of innovation and entrepreneurship education in Chinese universities. China Higher Education, (7), 45-47.

Huang, Z. X., & Du, J. C. (2020). Research on Improving the Quality of Innovation and

Entrepreneurship curriculums for College Student in "Double First-class" Construction. Journal of East China Normal University (Education Sciences), 38(12), 33-41.

Jaleel, S. , & Verghis, A. M. . (2015). Knowledge creation in constructivist learning. Universal Journal of Educational Research, 3(1), 8-12.

Jiang, Y. H.(2016).Research and Practice on Curriculum Construction of College Students' Innovation and Entrepreneurship Education —— Taking Guangxi Arts University as an Example. Asia-Pacific Education (35), 2.

Jin Gongshi. (2017). Universities in Beijing, Tianjin and Hebei have reached a consensus that "a single tree cannot make a forest" for dual-innovation education in universities. Connecting Beijing and Tianjin —— Essays on the coordinated development of xiong'an new area and Beijing, Tianjin and Hebei.

Jin, S. R. (2005). Education: Thoughts and Dialogue. Educational Science Press.

Jin, X. (2016). The empirical research on the construct and the status quo of contemporary college students' entrepreneurship. Journal of Northeast Normal University (Philosophy and Social Sciences Edition), (3), 204-209.

Jin, X. (2016). The empirical research on the construct and the status quo of contemporary college students' entrepreneurship. Journal of Northeast Normal University (Philosophy and Social Sciences Edition), (3), 204-209.

Jones, B. D. . (2009). Motivating students to engage in learning: the music model of academic motivation. International Society for Exploring Teaching and Learning. Web site: http://www.isetl.org/ijtlhe(2).

Jun, L. . (2017). A study on evaluation system and safeguard mechanism of self promotion of higher vocational students in foreign trade in the era of big data. Times Agricultural Machinery.

Kong, J. J., & Zang, H. (2015). Research on the structure and improvement strategies of college students' entrepreneurship ability. Ideological & Theoretical Education, (2), 91-94.

Kruja, A. . (2013). Entrepreneurship and knowledge-based economies. Revista

Romaneasca pentru Educatie Multidimensionala, 5(1), 7-17

Kuznik, L. . (2009). Where is my avatar? opportunities for learning in virtual worlds. Iated.

Lai, M. Z. (2019). Research on the influence of innovation and entrepreneurship education in colleges and universities on the quality and behavior of college students' innovation and entrepreneurship. (Doctoral dissertation, Beijing University of Posts and Telecommunications).

Li, C. B. (2015). Exploration on the feasibility of micro-curriculums in college students' entrepreneurship and employment education. Science China people (5X), 1.

Li, D. L., Liu, J. T., & Yu, X. Y. (2019). Integration and embedding: Innovation and entrepreneurship curriculum system construction and model transformation. Higher Education Exploration, (3), 30-35.

Li, F. (2016). Explore a more powerful new policy of employment and entrepreneurship-multi-sector linkage to provide employment services for college graduates. Labor and Social Security World (7), 2.

Li, J. (2017). Curriculum Characteristics of Innovation and Entrepreneurship Education in Colleges and Universities in Jilin Province. Sports Fashion (12), 1.

Li, L. (2010). Instructional Design. Higher Education Press.

Li, W. M., Li, C. Y., & Du, X. H. (2013). Research on Ten-year Entrepreneurship Education in Chinese Universities: Evolution, Problems and System Construction. Educational Research, 34(6), 42-51.

Li, W. M., Li, C. Y., & Du, X. H. (2013). Research on Ten-year Entrepreneurship Education in Chinese Universities: Evolution, Problems and System Construction. Educational Research, 34(6), 42-51.

Li, W., Xi, X. T., & Wang, Y. (2017). Research on the structural model and cultivation tactics for entrepreneurial competency of college students of science and technology. Modern Education Management, (10), 79-85.

Li, Y. Y. (2017). Investigation on contemporary college students entrepreneurship status quo and education guidance countermeasures research. Educational Research, 38(2), 65-72.

Li, Y., Zhao, T. C., Wu, F., & Yang, J. J.. (2005). Practical Exploration of Cultivating Creative Thinking of Application-oriented Undergraduate Students. Education and Occupation (32), 3.

Lien, N. T. , Trung, H. V. , & Minh, D. T. . (2020). The role of science, technology and innovation in economic growth: a theoretical and empirical review and its implications for vietnam.

Lin, X. Z. (2016). A Study of Constructing Advanced Type Curriculum System of Innovation and Entrepreneurship Education. Journal of Teacher Education, (1), 65-70.

Lin, Y. I., & Zeng, C. (2016). Analysis and Construction of Innovation and Entrepreneurship Education in Colleges and Universities. Heilongjiang Higher Education Research (5), 3.

Liu, C. (2017). Empirical study of college students' entrepreneurial ability cultivating mechanism. Journal of Xinjiang Normal University (Edition of Philosophy and Social Sciences), 38(3), 147-160.

Liu, Q. L. (2006). The Research on Development of Enterprise Education in China. Science & Technology Progress and Policy, 23(5), 173-177.

Liu, Q. L. (2013). Construction of the evaluation system on the innovative entrepreneurial abilities-research based on the case of Chinese Graduates’initial start-up. Science and Technology Management Research, (24), 65-69.

Liu, Q. M. (2020). Research on the Curriculum of Innovation and Entrepreneurship Education in Colleges and Universities under the Background of Deepening the "Double Innovation" Education Reform. Li, B. (2017). Research on Students' Employment and Entrepreneurship Based on the Construction of Employment Information Management Platform in Colleges and Universities. Educational Modernization, 000(039), P.26-28.

Liu, Z. K. (2014). Retrospective Study and Consideration on Undergraduate Enterprise Education in Colleges. Journal of Chongqing Institute of Technology, 28(2), 116-122.

Liu, Z., & Jiang, H. Y. (2017). Research on the impact of ethnic network on minority college students' entrepreneurial competence——the mediation of entrepreneurial learning. Science & Technology Progress and Policy, 34(14), 140-146.

Lu L. J. (2011). On the three dimensions of practical teaching of cultivating students' innovative ability —— Taking students majoring in finance and economics as an example. Adult Education in China (8), 3.

Lu, B. C. (2011). Construction of Talent Training System from the Perspective of Innovation and Entrepreneurship Education. Heilongjiang Higher Education Research (7), 2.

Lu, C. (2020). Research on the integration path of cultivating socialist core values and innovation and entrepreneurship education for college students. (Doctoral dissertation, Guilin University of Electronic Technology).

Lu, X. L. (2015). The evaluation and promotion mechanism of entrepreneurial abilities of graduates from vocational colleges. Research in Higher Education of Engineering, (3), 152-156.

Lu, X. L. (2015). The evaluation and promotion mechanism of entrepreneurial abilities of graduates from vocational colleges. Research in Higher Education of Engineering, (3), 152-156.

Luo, T. (2021). Research and Practice on Curriculum Construction of College Students' Innovation and Entrepreneurship —— Taking Guangxi Universities as an Example. Popular Literature and Art: Academic Edition (12), 2.

Ma Ning, & Yang Chaoji. (2019). Research on Innovation and Entrepreneurship Education Reform in Colleges and Universities in the "internet plus" Era. Education and Teaching Forum (11), 2.

Ma Yongbin,&Bai Zhe. (2015). Research and Exploration on the Practical Mode of University Innovation and Entrepreneurship Education. Tsinghua University Education Research (6), 5.

Ma, Y. B., & Bai, Z. (2015). Innovation and Entrepreneurship Education Research and Practice Mode of China's. Tsinghua Journal of Education, (6), 99-103.

Ma, Z. Q., Li, Z., & Li, G. H. (2016). The effect of entrepreneurial service value on undergraduates' entrepreneurial ability: The moderating effect based on undergraduates' entrepreneurial motivation. Forecasting, (04), 43.

Martin, J. . (2004). The educational inadequacy of conceptions of self in educational psychology. Interchange, 35(2), 185-208.

Mei, Y. Y., & Xia, F. (2016). Construct a new mode of cultivating college students' innovation and entrepreneurship ability - from the perspective of social entrepreneurship. Jiangsu Higher Education, (3), 114-116.

Meng, D., Wang, Y. J., Ma, B. B., Zhang, J. J., & Xie, Z. (2020). Research on "Four-in-One" College Students' Innovation and Entrepreneurship Service System. Theoretical Research and Practice of Innovation and Entrepreneurship (3), 2.

Meng, D., Wang, Y. J., Ma, B. B., Zhang, J. J., & Xie, Z. (2020). Research on "Four-in-One" College Students' Innovation and Entrepreneurship Service System. Theoretical Research and Practice of Innovation and Entrepreneurship (3), 2.

Mo, R., et al. (2020). The impact of the COVID-19 outbreak, SARS epidemic, and the global financial crisis on employment and comparative analysis of their responses. China Labor, (1), 16–30.

Moses, C. L. , Efobi, U. , & Salako, I. . (2009). Effect of entrepreneurship education on students' entrepreneurial actions:a study of covenant university and babcock university students,ogun state.

Pang Yongshi, Wang Mansi,&Guo Cheng. (2012). Construction of practice base of economic management based on innovation and entrepreneurship —— Exploration from Guangzhou University. Technology and Innovation Management, 33(4), 6.

Qi, M. M., & Han X. (2015). Exploration and Reflection on the Curriculum System Reform of Entrepreneurship Education in the New Era. Science Age (9).

Qi, S. Y., & Fang, Y. Y. (2017). Construction of evaluation index system of college students' innovation and entrepreneurship ability. Science and Technology Management Research, 37(24), 68-74.

Qi, S. Y., & Fang, Y. Y. (2017). Construction of evaluation index system of college students' innovation and entrepreneurship ability. Science and Technology Management Research, 37(24), 68-74.

Qi, S. Y., & Fang, Y. Y. (2017). Construction of evaluation index system of college students' innovation and entrepreneurship ability. Science and Technology Management Research, 37(24), 68-74.

Ren Hong, & Chen Xia. (2022). Comparative Study on the Learning Effect of Innovation and Entrepreneurship curriculum for Medical Students and Non-medical Students. Theoretical Research and Practice of Innovation and Entrepreneurship (8), 94-96.

Ren, Z. Z. (2016). Build a "vertical and horizontal" college students' innovation and entrepreneurship ability cultivation system. China Higher Education, (12), 60-62.

Rhoades, G. (2009). Housing the measurement of university innovations' social value: organizational site, professional perspective, institutional outlook. Advances in the Study of Entrepreneurship, Innovation, and Economic Growth, 19, 237-267.

Shang, D. J. (2015). Curriculum System Construction of Innovation and Entrepreneurship Education for College Students. Educational Exploration (9), 5.

Solomon, G. T., Duffy, S., & Tarabishy, A. (2002). The state of entrepreneurship education in the United States: A nationwide survey and analysis. International Journal of Entrepreneurship Education, 1(1), 65-86.

Song, D. L., Fu, B. H., & Tang, H. (2011). The construction of entrepreneurship ability evaluation index of Entrepreneurship University. Science & Technology Progress and Policy, 28(9), 116-119.

Sun, W. Q., Meng, C. Y., & Wang, W. J. (2020). A Study on the Curriculum System for the Cultivation of Innovation and Entrepreneurship Ability in Application-oriented Universities. Modern Education Management, (7), 75-81.

Tang, D. M. (2017). Construction and Evaluation of Curriculum System of Innovation and Entrepreneurship Education in Colleges and Universities. Contemporary Educational Practice and Teaching Research: Electronic Edition (3X), 3.

Tang, J., & Jiang, Y. F. (2008). Theoretical construct and empirical study on the concept

of entrepreneurial competence. Science of Science and Management of S.&.T.(Monthly), 29(8), 52-57.

Tao, W. , & Qihu, L. I. . (2017). On the innovative entrepreneurship education and the reform of curriculum system——a case study of physical geography and resources/environment. The Guide of Science & Education.

Timmons, J. (2009). Entrepreneurship (2nd ed., J. M. Feng, Trans.). China Renmin University Press.

Tong, J. L., & Zhou, Z. X. (2020). Analysis on the Elements of College Students' Entrepreneurial Ability. Theoretical Research and Practice of Innovation and Entrepreneurship (1), 4.

Wang, F. (2010). The Practices and Reflections of the Education Promotion of Innovation and Entrepreneuring in Universities. Journal of Jiangxi Science & Technology Normal University, (4), 101-104,35.

Wang, G. Z., Chen, S. H., Li, T. P., Zheng, C., Pang, Q. G., & Xu, Y. H. (2019). Analysis on the application of formative assessment in domestic universities. Guangdong Chemical Industry, 46(14), 4.

Wang, H., & Zhang, H. H. (2012). The connotation and structure of entrepreneurship ability of college students: A case and empirical study. Journal of National Academy of Education Administration, (2), 81-86.

Wang, J. k. (2020). Discussion on the strategy of promoting the development of library maker space through innovation and entrepreneurship in colleges and universities.

Wang, K., Hu, C. D., & Wu, W. (2017). "Discipline-Major-Industry Chain"-based the innovative and entrepreneurial university: Concept,connotation and practice approaches. Tsinghua Journal of Education, 38(5), 110-117.

Wang, L. (2011). Innovation of teaching mode of financial management curriculum based on entrepreneurship education. Journal of Yunnan University of Finance and Economics: Social Science Edition (2), 3.

Wang, L. Y. (2016). Application of entrepreneurship training in higher vocational colleges: A case study of three colleges in Nanjing area [Master's thesis, Zhejiang

University of Technology].

Wang, L. Y. (2016). Application of entrepreneurship training in higher vocational colleges: A case study of three colleges in Nanjing area [Master's thesis, Zhejiang University of Technology].

Wang, S., & Chen, X. (2018). Evaluation and application of innovation and entrepreneurship education in higher vocational colleges based on "differential evaluation model". Journal of Wuxi Vocational and Technical College, 17(2), 6.

Wang, W. J., Wang, X. H., Xu, M., Ma, S., Chen, J. H., & Zhang, L. H. (2017). Exploration of training mode of innovation and entrepreneurship ability of excellent engineers. Chinese University Science & Technology, (3), 90-93.

Wang, X. B. (2018). Economic analysis of "Internet plus manufacturing"——on the current employment competitiveness of university students. Journal of Shandong Institute of Business and Technology, 32(1), 47-54.

Wang, Y. (2018). The cultivation of college students' entrepreneurial ability from the perspective of case teaching. Jiangsu Higher Education, (4), 92-94.

Wang, Y., & Xu, Y. F. (2015). An analysis of entrepreneurship advantages and disadvantages of college students in Universities of Finance and Economics and research on the improvement of their ability. Theory and Practice of Education, 35(24), 11-13.

Wang, Z. R. (2015). On the systematic framework and theoretical value of the "University-wide" Innovation and entrepreneurship education. Educational Research, 36(5), 56-63.

Wang, Z. R. (2018). Analysis on the essential meaning and peripheral relationship of innovative entrepreneurship education. Journal of National Academy of Education Administration, (1), 21-26.

Wei Y. (2019). Construction and Practice of College Students' Innovation and Entrepreneurship Curriculum under the Background of School-enterprise Cooperation. Think Tank Era (51), 2.

Wen, N., & Tian, X. Z. (2018). Research on the present situation of curriculum setting of

innovation and entrepreneurship education in local universities. Heilongjiang Education, (12), 9-11.

Wu, A. h. Hou, Y. F. Hao, J., Zhan, Y. & Wang, K. (2017). Deepening the Innovation and Entrepreneurship Education Reform in Colleges and Universities with the "internet plus" Competition as the Carrier. Research on Biology Teaching in Colleges and Universities: Electronic Edition, 37(1), 5.

Wu, B. Y. (2016). Research on Innovation based entrepreneurship curriculum design - A case study of Jiangxi Science and Technology Normal University. Examination Weekly, (23), 154-154,155.

Wu, S. J., Teng, X. J., & Zhang, J. H. (2017). New inspiration of cbe teaching module for innovation and entrepreneurship ability training——taking as an example landscape architecture major. Heilongjiang Researches on Higher Education, (1), 144-146.

Xu, F., & Zhang, P. (2018). Curriculum System Design of Innovative and Entrepreneurial Talents Training in Application-oriented Undergraduate Colleges under OBE Education Mode. Journal of Jilin Radio and TV University (10), 2.

Xu, Y. (2015). Research on Curriculum System Construction of Innovation and Entrepreneurship Education for College Students. Industry and Technology Forum (21), 2.

Xu, Y. l. (1998). Using various teaching methods to improve classroom teaching effect —— Experience of learning nursing teaching concept. Secondary Medical Education (5), 24-25.

Xu, Y. Y. (2018). Research on the Curriculum of Entrepreneurship Education in Research Universities. (Doctoral dissertation, Chongqing University).

Xue, X. J. (2018). Curriculum system construction of innovation and entrepreneurship education for applied undergraduate students. Journal of Heilongjiang Institute of Education, 37(4), 3.

Xue, Y. B. (2016). A study on the cultivation and promotion strategies of college students' entrepreneurial ability——based on the construction of entrepreneurial

education ecosystem. Academic Forum, 39(7), 177-180.

Yan, Y. P. (2014). Research on training mode of innovation and entrepreneurship ability of business college students based on VPTP. E-Education Research, 35(10), 48-52.

Yang Lijiang, & Chen Xiaomei. (2018). Construction of practical curriculums of innovation and entrepreneurship education for college students majoring in animal husbandry and veterinary medicine. China Veterinary Journal, 54(5), 3.

Yang, D. J., Zhao, X. C., Chen, W. J., & Zhu, Z. Y. (2014). Empirical study on the relationship among the entrepreneurship training environment, entrepreneurial quality and entrepreneurial competence of college students. Science and Technology Management Research, (20), 130.

Yang, L. Q., & Li, W. R. (2017). Investigation and analysis of the current situation of training innovative and entrepreneurial talents in colleges and universities. The Party Building and Ideological Education in Schools, (16), 80-82.

Yang, Y. l., Kimi, & Zhao, Z. l. (2020). The Role of ERP Sand Table Training in College Students' Innovation and Entrepreneurship Education. journal of hubei correspondence university, 033(015), 9-10.

Yellow, L., Guo, J. k., Yan, F. Y., & Fu, L. Y. (2019). Reform and innovation of teaching methods of "College Students' Innovation and Entrepreneurship Foundation". Tomorrow (5), 1.

Yi, G., Dong, Q. Q., Yang, Z. C. B.,&Cai, J. S. (2018). Construction of formative evaluation system model of college physical education under the situation of innovation and entrepreneurship education. Economist (8), 2.

Yin, M. M., & Cai, L. (2012). Analysis of the current situation and future prospects of research on entrepreneurial ability. Foreign Economics & Management, 34(12), 1-11,19.

Yin, S. Q. (2022). Countermeasures for cultivating students' innovative and entrepreneurial skills under the project of integration of production and education in colleges and universities. Public Digest (27), 0013-0015.

Yin, S. Q. (2022). Countermeasures for cultivating students' innovative and entrepreneurial skills under the project of integration of production and education in colleges and universities. Public Digest (27), 0013-0015.

Yuan, J., & Tian, X. P. (2018). Development Status and Path Selection of Innovation and Entrepreneurship Education in Colleges and Universities under the New Normal Background —— Based on the Investigation and Analysis of Eight Colleges and Universities in the Yangtze River Delta Region. Modern Education Management (6), 7.

Zhang Haiyan. (2007). Discussion on the Curriculum of Entrepreneurship Education in Colleges and Universities in China. (Doctoral dissertation, Southwest University).

Zhang Tianmei, He Yanhong,&Gao Chun. (2012). Exploration and Construction of Innovation and Entrepreneurship Education Curriculum System for Civil Engineering Major. Foreign Investment in China (14), 2.

Zhang Yingjie. (2018). Evaluation of the Academic Entrepreneurship Ability of Entrepreneurship Education Teachers in Colleges and Universities and Ways to Improve it. College Education Management, 12(2), 8.

Zhang, B., & Bai, H. (2014). On the concept of "Innovation and entrepreneurship education in universities". Higher Education Exploration, (3), 48-52.

Zhang, H. Y. (2017). Research on Evaluation of Entrepreneurial Ability of postgraduate Students [Master's thesis, Harbin Institute of Technology].

Zhang, K. J., & Song, L. Z. (2012). Classified guidance of graduate entrepreneurship education based on entrepreneurial opportunity theory. Journal of Innovation and Enterprise Education, (2), 14-17.

Zhang, X. F., & Shi, X. R. (2018). The construction of the creative and innovative talents training system in universities based on the"Internal and external coordination". Modern Educational Management, (3), 47-51.

Zhang, X. Y. (2016). Research on innovation and entrepreneurship education in Chinese universities [Master's thesis, Tianjin University].

Zhang, Y. I. (1999). The role of teachers' stimulating function in teaching. Journal of

Chengdu University: Social Science Edition (3), 2.

Zhang, Y.Q. & Hao, X. (2020). Internal Logic and Construction Path of Innovative and Entrepreneurial Talents Training in Colleges and Universities from the Perspective of "Internet+Education". Innovation, 14(3), 9.

Zhang, Y.Q. & Hao, X. (2020). Internal Logic and Construction Path of Innovative and Entrepreneurial Talents Training in Colleges and Universities from the Perspective of "Internet+Education". Innovation, 14(3), 9.

Zhao, B., Zhang, Z. H., & Fan, W. (2016). Mode innovation and path collaboration: Strategies for cultivating college students' entrepreneurial ability. Jiangsu Higher Education, (3), 111.

Zhao, L. (2020). Reconstructing College Curriculum System for the Deep Integration of Innovation & Entrepreneurship Education and Professional Education. Jiangsu Higher Education, (6), 83-88.

Zheng, S. A. (2018). Research on Practice Teaching System Based on Deep Learning Theory. Comparative Study on Cultural Innovation (25), 2.

Zheng, W. N. (2021). Platform teaching system construction and teaching mode reform for innovation and entrepreneurship education. Cultural and educational materials, 000(023), 191-194.

Zhong, Q. Q. (2008). *Curriculum and teaching theory.* East China Normal University Press.

Zhong, T. Z. (2019). *Research on the Application of Online Teaching Platform for Innovation and Entrepreneurship curriculums in Colleges and Universities. E-commerce* (1), 2.

Zhou, C. B., & Duan, Y. H. (2018). Rational thinking and exploration of the teaching objectives of innovation and entrepreneurship education. Contemporary educational practice and teaching research (electronic journal).

Zhou, W. Z., Ge, J. X., & Sun, G. H. (2009). Exploration of entrepreneurship education model in finance and economics colleges - taking Central University of Finance and Economics as an example. China University Teaching, (11), 65-67.

Zhu, C. N. (2017). Research on the Education of College Students' Entrepreneurial Values. (Doctoral dissertation, Northeast Normal University).

Zhu, C. P., Xie, X. K., Zhao, C. H., Wang, H. Y., Zhuang, H. F., Zhang, X. H., & Zhu, C. S. (2015). Exploration into college students' entrepreneurial capacity in team mode. Research in Higher Education of Engineering, (3), 33-37,82.

APPENDIX

APPENDIX A

A LIST OF EXPERTS, A QUESTIONNAIRE TOOL AND INVITATIONS

List of experts

Name	Gender	Major	Teaching years	Educational qualifications	Status
Ding en quan	Male	Chinese Linguistic Literature	20	Doctoral candidate	Professor
Jia xiang hua	Female	Education	37	Master Degree Candidate	Professor
Wang ying ji	Male	Chinese Linguistic Literature	38	Master Degree Candidate	Associate Professor
Zhang xin hai	Male	Education	37	Doctoral candidate	Pr ofessor
Liu hai sheng	Male	Education	36	Master Degree Candidate	Pr ofessor

Interview outline of the curriculum development plan of Undergraduate Innovation and Entrepreneurship

Part I: Basic information

1. School

2: Gender

3. Teaching experience

Part II Interview information

1. Please talk about your assessment of the innovation and entrepreneurship ability of contemporary undergraduates.

2. Please briefly talk about your current understanding of the knowledge and information related to the undergraduate Innovation and Entrepreneurship curriculum.

3. In the era of rapid economic and social development, how do you think the goals of innovation and entrepreneurship curriculums in colleges and universities should be set?

4. What problems do you think exist in the content setting of college innovation and entrepreneurship curriculums and how to improve them?

5. What do you think are the advantages and disadvantages of traditional teaching methods in the curriculum design of innovation and entrepreneurship in colleges and universities?

6. What are the current forms of resources for innovation and entrepreneurship curriculums?

7. Do you think it is feasible to set up curriculums specifically to enhance undergraduate students' ability of innovation and entrepreneurship?

8. Please talk about the problems existing in the current undergraduate innovation and entrepreneurship curriculums.

Expert Invitation

HESI. 8718/466

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

28 March 2024

Topic: Request for Invitation to be an Expert
To: Associate Professor Wang ying ji

I am writing to invite you to be an expert for the research project "Development of a Training Course to Enhance Creativity and Entrepreneurial Skills for Students" conducted by Mr. Chuanlei Liu, a doctoral student in the Curriculum Research and Development Program at Srinakharinwirot University.

Mr. Liu has been approved to conduct this research under the supervision of Assoc. Prof. Dr. Marut Pattaphol. The research aims to develop a training course that will enhance students' creativity and entrepreneurial skills.

We would like to invite you to be an expert to review the research instruments, including the research format, tools, and questionnaires. Mr. Liu has already contacted you initially and will coordinate further details with you.

We would be grateful for your acceptance of this invitation and your contribution to Mr. Liu's research.

Sincerely,

(Assistant Professor Waraporn Viyanon, Ph.D.)
Deputy Dean for Digital Technology
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

HESI. 8718/466

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

28 March 2024

Topic: Request for Invitation to be an Expert

To: Professor Liu hai sheng

I am writing to invite you to be an expert for the research project "Development of a Training Course to Enhance Creativity and Entrepreneurial Skills for Students" conducted by Mr. Chuanlei Liu, a doctoral student in the Curriculum Research and Development Program at Srinakharinwirot University.

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Deputy Dean for Digital Technology
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

HESI. 8718/466

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

28 March 2024

Topic: Request for Invitation to be an Expert

To: Professor Zhang xin hai

I am writing to invite you to be an expert for the research project "Development of a Training Course to Enhance Creativity and Entrepreneurial Skills for Students" conducted by Mr. Chuanlei Liu, a doctoral student in the Curriculum Research and Development Program at Srinakharinwirot University.

Mr. Liu has been approved to conduct this research under the supervision of Assoc. Prof. Dr. Marut Pattaphol. The research aims to develop a training course that will enhance students' creativity and entrepreneurial skills.

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(Assistant Professor Waraporn Viyanon, Ph.D.)
Deputy Dean for Digital Technology
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064

Note: Please give the student a call if you would like further information on 13926141749

HESI. 8718/466

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

28 March 2024

Topic: Request for Invitation to be an Expert

To: Professor Jia xian hua

I am writing to invite you to be an expert for the research project "Development of a Training Course to Enhance Creativity and Entrepreneurial Skills for Students" conducted by Mr. Chuanlei Liu, a doctoral student in the Curriculum Research and Development Program at Srinakharinwirot University.

Mr. Liu has been approved to conduct this research under the supervision of Assoc. Prof. Dr. Marut Pattaphol. The research aims to develop a training course that will enhance students' creativity and entrepreneurial skills.

We would like to invite you to be an expert to review the research instruments, including the research format, tools, and questionnaires. Mr. Liu has already contacted you initially and will coordinate further details with you.

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(Assistant Professor Waraporn Viyanon, Ph.D.)
Deputy Dean for Digital Technology
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

HESI. 8718/466

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

28 March 2024

Topic: Request for Invitation to be an Expert

To: Professor Ding en quan

I am writing to invite you to be an expert for the research project "Development of a Training Course to Enhance Creativity and Entrepreneurial Skills for Students" conducted by Mr. Chuanlei Liu, a doctoral student in the Curriculum Research and Development Program at Srinakharinwirot University.

Mr. Liu has been approved to conduct this research under the supervision of Assoc. Prof. Dr. Marut Pattaphol. The research aims to develop a training course that will enhance students' creativity and entrepreneurial skills.

We would like to invite you to be an expert to review the research instruments, including the research format, tools, and questionnaires. Mr. Liu has already contacted you initially and will coordinate further details with you.

We would be grateful for your acceptance of this invitation and your contribution to Mr. Liu's research.

Sincerely,

(Assistant Professor Waraporn Viyanon, Ph.D.)
Deputy Dean for Digital Technology
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

Appendix B

This is a questionnaire

Hello, everyone!

This questionnaire is a survey on the curriculum development with the goal of "improving undergraduates' innovation and entrepreneurship ability". It adopts the method of anonymous answering. There is no right or wrong answer. Your answer has important reference value for the development of this curriculum, thank you for your cooperation!

Part I: Basic information

1. Gender

2. Grade

3. Major

Part II: curriculum information

What do you think entrepreneurship is? ( )

A. Start a business (company)B. Open a small shop, such as a convenience store

C. Just open a business can be called entrepreneurship D. Design a cutting-edge technology project

E. Other

2. What do you think is innovation? ( )

A. Do something different from others B. Make inventions and creations

C. Using different methods to solve problems D. When there is change, it is called innovation

E. Other

3. What is your attitude towards innovation? ( )

A. Strongly support B. Support C. Neither support nor oppose D. oppose E. Strongly oppose

Are you interested in entrepreneurship? ( )

A. I am very interested in it. B. I am a bit interested in it. C. Just so so. D. I am not very interested in it. E. I am not interested in it.

5. Have you ever thought about starting your own business? ( )

A. I haven't thought about it at all. B.I have thought about it. C. I'm starting a business. D. I have started a successful business.

6. What aspects do you think the innovation and entrepreneurship curriculum can improve your quality? (Multiple choices)( )

A. Strong spirit of challenge B. Excellent communication and communication skills

C. Entrepreneurial practice D. Management and leadership

7. What aspects do you think the innovation and entrepreneurship curriculum needs to improve your ability? (a)

A. Innovation ability B. Problem solving skills C. Ability to start a business D. Earning power

8. What basic knowledge do you want to know in the curriculum of innovation and entrepreneurship? ( )

A. Concept and significance of innovation and entrepreneurship B. Historical development of innovation and entrepreneurship

C. Classification D of innovation and entrepreneurship. The advantages of undergraduate innovation and entrepreneurship

9. What do you think is the most attractive reason for entrepreneurship to you? ()

A. Entrepreneurship enables individuals to grow and develop continuously B. Success in entrepreneurship makes money free C. Have a strong entrepreneurial interest and desire D. Quickly improve your social status by starting a business. Solving employment I. other

10. What do you think is the most attractive reason for innovation? ( )

A. Open up your mind B. Make money by inventing C. Have a strong interest in innovation

D. Challenge their own ability, give full play to their own subjective initiative

E. Maximizing self-worth F. Other

11. How much do you know about the requirements for writing a business plan? ()

A. I am familiar with it. B I am familiar with it to some extent. C. I know a little about it. D. I don't know

12. What do you think of the current social environment for undergraduate to start entrepreneurship? ( )

A. It is relatively good. B. It's O.K. C. It is poor. D. No idea.

13. What do you think are the advantages of undergraduate entrepreneurship compared to other social classes? (Multiple options available) ()

A. Young, energetic, brave to work hard B. High professional quality C. Strong learning ability and innovative spirit

D. Having more information channels E. Other

14. If a curriculum on innovation and entrepreneurship is offered, what aspects would you like the curriculum content to focus more on? (Maximum three items)()

A. Training of innovative thinking B. Innovative ways to learn C. Entrepreneurial personalized coaching D. Entrepreneurial opportunities and environment analysis

E. Entrepreneurial case study F. Entrepreneurial personality training G. other

15. Do you think it is better to explain innovation content and entrepreneurship content separately or together?

A. It is better to be taught separately B. It is better to be taught together

16. In your opinion, what problems should be paid attention to in the implementation of entrepreneurship education curriculums? (Multiple choices)()

A. Integration with specific majors B. C is opened according to social needs. Set up D according to local industrial characteristics. Increase the proportion of practical curriculums E. Expand school-enterprise cooperation channels

17. If the teaching practice of innovation and entrepreneurship is carried out in the following ways, which ones do you prefer? (Multiple choices)()

A. The teacher teaches B. The teacher guides the students to explore independently

C. Play videos about entrepreneurs or entrepreneurs D. Conduct case studies on innovation and entrepreneurship

18. Your understanding of the requirements for writing a business plan ()

A. I am familiar with it. B I am familiar with it to some extent. C. I know a little about it. D. I don't know

19. Do you think it would be more helpful to work on a business plan in a group or alone? ( )

A. Group work B. Do it alone

20. What resources do you think are most needed for innovation and entrepreneurship curriculums? (Multiple choices)()

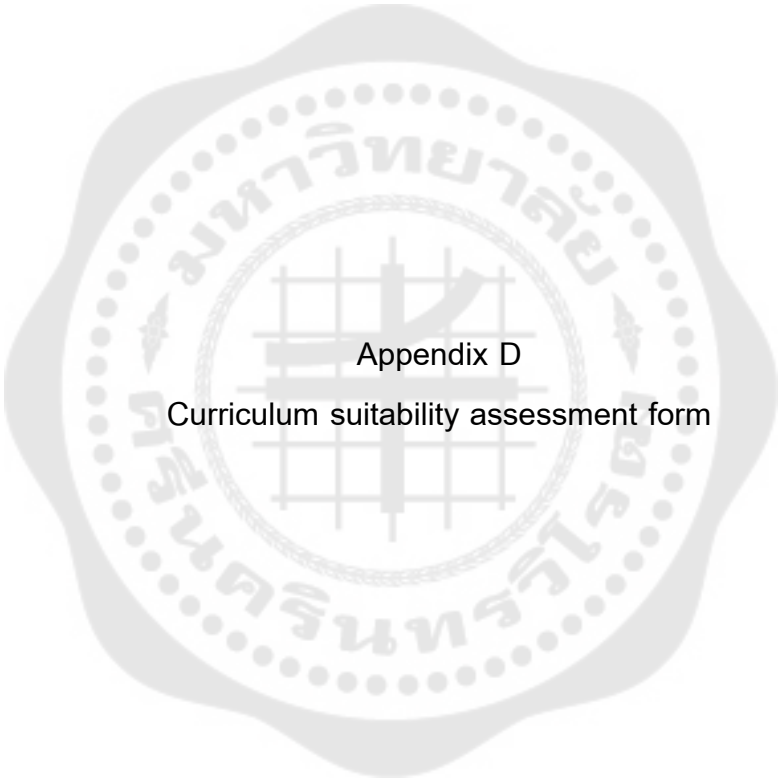
A. Lecture notes B. curriculumware C. Micro-curriculum resources。

D. curriculum-related videos and movies E. curriculum-related e-book resources

APPENDIX C

CURRICULUM CONSISTENCY ASSESSMENT FORM

NO.	Evaluation items	Degree of consistency				
		1	2	3	4	5
1	Curriculum concept and the importance of and curriculum development					
2	Curriculum objectives and the importance of curriculum development					
3	curriculum Content and the Importance of and curriculum Development					
4	Curriculum structure and the importance of and curriculum development					
5	Curriculum development concept and curriculum objectives					
6	Curriculum development concept and curriculum structure					
7	Curriculum development objectives and curriculum structure					
8	Curriculum development objectives and curriculum learning activities organization					
9	Curriculum development objectives and curriculum evaluation					
10	curriculum outline and curriculum learning activities organization					
11	curriculum outline and curriculum evaluation					
12	Curriculum learning activities organization and curriculum evaluation					
13	curriculum content and curriculum learning activities organization					
14	curriculum content and curriculum evaluation					
15	Curriculum development objectives and "Exploring opportunities" teaching plan objectives					
16	Curriculum development objectives and "organization Management" teaching plan objectives					
17	Curriculum development objective and "strategic decision" teaching plan objective					
18	Curriculum development objectives and "resource integration" teaching plan objectives					
19	Curriculum development objectives and "withstand setbacks" teaching plan objectives					
20	Curriculum development goal and overall goal of improving undergraduate innovation and entrepreneurship ability					



Appendix D

Curriculum suitability assessment form

Evaluation items	Degree of suitability				
	1	2	3	4	5
1. The importance of curriculum development					
1.1 Necessity of curriculum development					
1.2 Rationality of curriculum development					
1.3 Needs and necessity of curriculum development					
1.4 The expected program of curriculum development is reasonable					
2. Curriculum concept					
2.1 Operability and rationality					
2.2 Can be really put into practice					
2.3 Basic theoretical support					
3. curriculum objectives					
3.1 curriculum objectives are clear and clear					
3.2 Operability in achieving curriculum objectives					
3.3 Curriculum objectives fit the target group					
3.4 Curriculum objectives are scientific and reasonable					
4. curriculum content					
4.1 The curriculum content is consistent with the curriculum objectives					
4.2 curriculum content supports the achievement of curriculum objectives					
4.3 The sequence of curriculum contents supports the achievement of curriculum objectives					
4.4 The curriculum content supports the preset knowledge level and the improvement of innovation and entrepreneurship ability					
5. Organize learning activities of the curriculum					
5.1 Can support the achievement of curriculum objectives					
5.2 All aspects of the teaching process are arranged appropriately					
5.3 Align with target groups and curriculum duration					
5.4 Attractive and contagious					
6. curriculum resources					
6.1 Adapt to the organization of curriculum learning activities					
6.2 Can support the achievement of curriculum objectives					

Appendix E

Entrepreneurship skills assessment form

Question	Evaluation dimension					Total points	IOC	Paraphrase
	Expert1	Expert2	Expert3	Expert4	Expert5			
Explore opportunities	+1	+1	+1	0	+1	4	0.8	pass
1.Creative thinking	+1	+1	+1	-1	+1	3	0.6	pass
2.Independent thinking	0	+1	+1	+1	+1	4	0.8	pass
3.Sharp observation	+1	+1	+1	+1	+1	5	1	pass
Organisation and management	+1	0	+1	0	+1	3	0.6	pass
1.Setting goals	+1	+1	+1	+1	-1	3	0.6	pass
2.Communication and co-operation	0	+1	+1	+1	0	3	0.6	pass
3.High level of execution	+1	0	0	+1	+1	3	0.6	pass
Strategic decision-making	+1	+1	0	+1	+1	4	0.8	pass
1. Assessing needs	0	+1	+1	+1	+1	4	0.8	pass
2.Measure strengths	+1	0	+1	+1	+1	4	0.8	pass
3.Develop a plan	+1	+1	0	+1	+1	4	0.8	pass
Resource integration	+1	+1	0	0	+1	3	0.6	pass
1.Data collection	0	+1	+1	+1	0	3	0.6	pass
2.Material collection	0	0	+1	+1	+1	3	0.6	pass
3.Experience Sharing	+1	+1	-1	+1	+1	3	0.6	pass
Skills to withstand setbacks	+1	+1	0	+1	+1	4	0.8	pass
1. Correctly view the failure	0	+1	+1	+1	+1	4	0.8	pass
2. Summarise the successful experience	+1	0	+1	+1	+1	4	0.8	pass
3. Objective self-evaluation	+1	+1	0	+1	+1	4	0.8	pass

Appendix F

Training curriculum for enhance undergraduate students innovative entrepreneurship skills

curriculum introduction

1. Problems and the necessity of the curriculum

First of all, with the transformation and upgrading of economic structure, traditional employment opportunities are no longer as rich and stable as in the past, and undergraduates are facing increasingly fierce employment competition. Secondly, innovation is the core driving force to promote social progress and economic development. In addition, cultivating undergraduates' innovative and entrepreneurial ability also meets the social demand for talents. Based on this, it is very important to develop undergraduate innovation and entrepreneurship curriculums, which can not only further enrich and deepen the research on curriculum system construction, but also help to improve the quality of innovation and entrepreneurship education curriculums in colleges and universities, and is also an effective way to help China's curriculum reform and construction.

2. curriculum objectives

The curriculum goal combines three levels of basic knowledge, basic skills and practical ability, as well as five abilities of exploring opportunities, organizing and managing, making strategic decisions, integrating resources and bearing setbacks. Based on a clear understanding of the basic knowledge related to innovation and entrepreneurship, this paper aims to master the relevant basic skills and acquire the corresponding practical ability, focusing on improving the five abilities of exploring opportunities, organizing management, strategic decision-making, resource integration and bearing setbacks, so as to lay a solid foundation for carrying out innovation and entrepreneurship activities.

3. Curriculum principles

Constructivism's views on knowledge, learning and teaching are of great value to this study. Mainly reflected in the guidance based on the concept of knowledge, so that the innovation and entrepreneurship curriculums we developed are task-driven and students have a solid theoretical foundation; The guidance based on the learning concept makes the curriculums we developed more operable and enables students to

enhance their teamwork ability in the process of participating in practice; Based on the guidance of teaching philosophy, teachers can guide students to cultivate five abilities related to innovation and entrepreneurship more skillfully.

Humanism is of great value to this research topic, which is mainly reflected in its emphasis on paying attention to individual's potential ability, respecting individual's thoughts and treating individual as a complete personality. Based on the guidance of these theoretical knowledge, we can make the innovation and entrepreneurship curriculum developed this time more applicable. The curriculum content is designed to cultivate students' innovative thinking and entrepreneurial ability, and practical activities are carried out on the principle of respecting students' personal ideas.

4. Purpose of the curriculum

(1) Improve students' ability to explore opportunities. By creating market scenarios, we can cultivate students' innovative thinking, independent thinking and the ability to explore opportunities, and help them understand the importance of innovation and entrepreneurship.

(2) Strengthen students' ability of organization and management. The innovation and entrepreneurship training curriculums developed should focus on cultivating students' teamwork ability, diversifying and strengthening organizational management ability, and let them experience the role of managers.

(3) Cultivate students' strategic decision-making ability. The training curriculum of innovation and entrepreneurship should cultivate students' correct decision-making cognition and strong strategic decision-making ability through case discussion, practical project planning and business model planning.

(4) Help students master the skills of resource integration. The innovation and entrepreneurship training curriculum should teach students the knowledge and skills of resource integration and enhance their awareness and ability of resource integration.

(5) Improve students' ability to bear setbacks. The training curriculum of innovation and entrepreneurship should guide students to treat failure correctly,

strengthen their way of thinking through case analysis, and make them understand that bearing setbacks is a valuable quality of successful people.

Unit	Topic	Class hour arrangement
1	Introduction to innovation and entrepreneurship	1 Class hours
2	Innovative thinking and innovative entrepreneurship methods	1 Class hours
3	Innovation practices and creative evaluation	1 Class hours
4	Innovation and entrepreneurship practice and case analysis	2 Class hours
5	Team building and leadership	3 class hours
6	Market research and competition	3 class hours
7	Business plans and road shows	3Class hours
8	Financing and investment	2 Class hours
Total	/	16 hours

5. curriculum content

"College Students' Innovation and Entrepreneurship" is an introductory curriculum of innovation and entrepreneurship education in colleges and universities. The content of the curriculum is based on innovation and entrepreneurship. The curriculum is divided into 8 units, in which the first unit outlines the basic knowledge of innovation; The second unit outlines the basic skills of innovation; The third unit summarizes the innovative practical ability; The fourth unit summarizes the basic knowledge of entrepreneurship; The fifth unit explains market research and competition analysis. Unit 6 Overview of Basic Entrepreneurship Skills; Unit 7 Overview of entrepreneurial practice ability. The eighth unit explains the contents related to financing and investment.

6. Teaching activities

The design of teaching activities is divided into four links: encouragement, support, exploration and sharing.

① Activity design of stimulus link

This chapter uses two kinds of incentive strategies to stimulate the problem, and sets the question as follows: "Why do college students receive innovation and entrepreneurship education?" "What are the advantages of college students' innovation and entrepreneurship?" Establish a connection between learners' existing entrepreneurial knowledge and new knowledge to be learned, so as to stimulate learners' interest in learning and generate learning motivation; Work out learning objectives with students, make clear that the curriculum content is work-oriented, and the final work is the project business plan that runs through the whole teaching process.

2) Support link activity design

This chapter provides support for learners through the construction of interpersonal environment and materialized environment, and learners can choose freely according to their needs. The support of interpersonal environment includes intangible entrepreneurial knowledge support; Direct discussion and explanatory dialogue with learners will generate personalized entrepreneurial spirit and belief support; The structure of the materialized environment provides learners with a rich list of resources, including the content chart in the first chapter, the corresponding curriculum software, micro-curriculums and video resource "silicon valley legend", and provides the electronic book, bibliography, organization and management methods, strategic management methods, resource integration skills, and the ability to cope with setbacks.

3) Exploration activity design

This chapter integrates the exploration situations for learners in the form of homework: "Inquiring about college students' innovation and entrepreneurship policy" and "Inquiring about college students' entrepreneurship process", which enhances college students' sensitivity and decision-making ability. Then, they choose team members to complete business projects together or individually, which also tests the organization and management, resource integration, frustration and strategic decision-making of college students. The exploration content set in this chapter is a new knowledge combination based on "project business plan". Learners explore the products, stories and projects they are interested in, understand the entrepreneurial

process of college students and the policies of college students' innovation and entrepreneurship in their hometown, and lay the foundation for completing the business plan of great works.

4) Design of sharing activities

Since "Overview of Entrepreneurship" is the first chapter of the curriculum "Innovation and Entrepreneurship for College Students", it is set at the sharing level "What entrepreneurial stories are there around you?" Students share their entrepreneurial storytellers with others, and share the content of the exploration work into the knowledge card to realize a personal experience about entrepreneurship, and share human beliefs, viewpoints and values, experiences, intuition, secrets, hunches and other dark knowledge.

7. Teaching media

PPT, video player, etc.

9. Testing and evaluation of results

(1) Distribution of results

The total score of this curriculum = 20% attendance+25% normal homework+55% completed homework.

A attendance =2 points * 10 times, 1 point for being late and leaving early, 2 points for asking for leave and 4 points for absenteeism.

B. Homework: 15 points for homework (knowledge card) and 10 points for class homework.

C. Final homework: 30 points for business plan, 10 points for ppt10 of roadshow and 15 points for video of roadshow.

(2) Operational evaluation criteria

The homework types of this curriculum include three parts: classroom homework, homework, final homework and homework forms, which are divided into knowledge cards, classroom homework texts, roadshow PPT, roadshow videos and business plans. The homework design is guided by the business plan and combined with each chapter. The evaluation criteria are as follows: the knowledge card is full of 3

points for 5 times, and 5 * 3=15 points; 1 class assignment plus 10 points; 1 roadshow PPT out of 10 points; 1 roadshow video, 15 points; The evaluation standard of business plan is 1 business plan with a full score of 30 points; Curriculum evaluation is mainly knowledge card. Homework is included in the usual grades, with a total score of 3 points.

Appendix G

Teaching design

Teaching Design (1)

Teaching topic: Introduction to Innovation and Entrepreneurship

Teaching objective: 1. To cultivate students' deep understanding of the concept and importance of innovative thinking, so that they can clearly understand the significance of carrying out innovative activities, and learn various types of innovation and entrepreneurship. At the same time, students are made aware of the importance of innovation and entrepreneurship to individuals and society, as well as the key role it plays in economic development and social progress.

2. Understanding the significance of carrying out innovative and entrepreneurial activities can increase students' theoretical knowledge and prepare them for future entrepreneurial practice.

3. Committed to cultivating students' innovative thinking ability and enhancing their awareness of innovation and entrepreneurship. Through the training, students are able to think about problems from multiple perspectives, find solutions for innovation and entrepreneurship, and have the courage and determination to implement innovative practice plans.

Important and difficult points in teaching

Focus: Knowledge related to innovation and entrepreneurship

Difficulty: Training of innovative thinking

Teaching method

Lecture method, group discussion method, case analysis method

Teaching procedures

1. Lead-in before class

Introduce the concept and importance of innovative thinking, and stimulate students' interest and curiosity in innovation and entrepreneurship by citing relevant examples or cases, thus leading to the topic of "Introduction to Innovation and Entrepreneurship" in this lesson.

2 . New lesson teaching

(1) Knowledge explanation: Introduce the basic concepts, characteristics, and principles of innovation and entrepreneurship, including innovative thinking, entrepreneurial opportunities, risk management, and more. By explaining and discussing, help students establish a basic understanding of innovation and entrepreneurship.

(2) Case analysis: By analyzing and discussing a series of successful innovation and entrepreneurship cases, including the innovative ideas of entrepreneurs, the challenges they face during the entrepreneurial process, and solutions, students can gain a deeper understanding of the practical operations and experiences of innovation and entrepreneurship. This case study will provide valuable insights for students and stimulate their innovative potential.

3. Discuss and explore

(1) Group Discussion: Divide students into small groups and have them discuss a problem or challenge of innovation and entrepreneurship together, and propose solutions. Through group discussions, cultivate students' teamwork and innovative thinking abilities.

(2) Practical activities: Organize students to have a simulated entrepreneurship contest or creative design contest. Through practical activities, students can experience the process and challenges of innovation and entrepreneurship, and enhance their practical ability and innovation awareness.

4 . Classroom summary

The content of this lesson is summarized and reflected, so that students can review the knowledge and experience they have learned and think about the significance and impact of innovation and entrepreneurship on themselves. At the same time, students are encouraged to raise questions and suggestions to further improve the teaching content and methods.

5. Homework (in-class quiz)

Name: Basic knowledge of innovation and entrepreneurship Q&A

Related content: (1) Definition of innovation: Ask students to tell their cognition of "innovation" after learning this lesson.

Importance of innovation and entrepreneurship: Ask students to tell the difference between "entrepreneurship" and "innovation and entrepreneurship", and explain the importance of innovation and entrepreneurship.

Share learning experience: Let the students tell their own learning and reflection after learning the content of this lesson.

6 . Teaching Reflection

In this curriculum, I try my best to provide an inspiring and practical curriculum of innovation and entrepreneurship for undergraduates. Through the teaching method that combines theory and practice, I help students develop innovative thinking and entrepreneurial ability. In class, I guide students to analyze real cases and learn from successes and failures. At the same time, I organized a team project to let the students apply the knowledge and cultivate their practical operation ability. However, I also found that students faced practical challenges, so I emphasized the teaching of innovative thinking and the entrepreneurial process, and encouraged them to get out of their comfort zone. Teaching Design (2) I will continue to strive to improve the teaching methods and content to meet the needs of students, help them cultivate innovation and entrepreneurship, and lay a solid foundation for their future development.

Teaching Design (2)

Teaching topic: Innovative thinking and methods of innovation and entrepreneurship

Teaching objective: 1. By learning the connotation and application methods of thinking patterns, addition and subtraction innovation, help students deeply understand how to carry out innovation and entrepreneurship activities, and learn various types of innovation and entrepreneurship. At the same time, students are made aware of the importance of innovation and entrepreneurship to individuals and society, as well as the key role it plays in economic development and social progress.

2. Practice the theories learned, learn to think from a different perspective, and break through fixed thinking.

Important and difficult points in teaching

Key points: Basic concepts of innovative thinking and methods of innovation and entrepreneurship

Difficulty: Breaking through traditional thinking patterns and cultivating innovative thinking; Application of entrepreneurial methods

Teaching method

Lecture method, discussion method, and case analysis method

Teaching procedures

1. Lead-in before class

By introducing innovative thinking and citing relevant examples or cases, students' interest in learning innovative thinking and innovative and entrepreneurial practical operation methods is stimulated, thus leading to the title of this lesson "Innovative Thinking and innovative and entrepreneurial methods".

2 . New lesson teaching

(1) Knowledge explanation: Introduce the connotation of thinking patterns and innovative thinking through addition and subtraction, providing theoretical basis for carrying out innovation and entrepreneurship practice activities.

(2) Case analysis

Case: There is a young man named Zhang Ming who has always dreamed of founding his own coffee shop. He loves coffee and has a high pursuit of unique coffee culture and taste. However, in his market research, he found that there were already many traditional cafes in the local area, and the competition was very fierce, and he urgently needed to find an innovative business model to break through.

After careful consideration, Zhang Ming decided to combine coffee shops with art to create a unique cultural experience space. He designed the storefront in the style of an art exhibition hall, regularly holding exhibitions of artists' works and cultural

activities. Customers can enjoy art works, attend art lectures, and workshops while tasting delicious coffee.

In order to provide more personalized services, Zhang Ming also introduced intelligent ordering systems and coffee customization services. Customers can choose their preferred coffee flavor, roasting degree, and cup shape through the mobile application, which is customized by professional baristas. In this way, customers can not only enjoy high-quality coffee, but also customize a unique coffee experience according to their taste preferences.

Zhang Ming also actively utilizes social media and online promotion channels to establish good interaction and communication with customers, collect customer feedback and suggestions, and make timely improvements and optimizations.

This innovative coffee shop quickly attracted a large number of young people and art lovers, becoming one of the hot spots of local cultural life. In the process of continuous innovation and improvement, Zhang Ming not only successfully created a coffee shop with a unique cultural atmosphere, but also realized his entrepreneurial dream.

Guide students to analyze the reasons for Zhang Ming's success in entrepreneurship and the enlightenment from it.

3. Discuss and explore

(1) Group Discussion: Divide students into small groups and have them discuss a problem or challenge of innovation and entrepreneurship together, and propose solutions. Through group discussions, cultivate students' teamwork and innovative thinking abilities.

(2) Practical activities: Organize students to have a mock entrepreneurship competition. Through practical activities, students can experience the process and challenges of innovation and entrepreneurship, and enhance their practical ability and innovation awareness.

4 . Classroom summary

The content of this lesson is summarized and reflected, so that students can review the knowledge and experience they have learned and think about the significance and impact of innovation and entrepreneurship on themselves. At the same time, students are encouraged to raise questions and suggestions to further improve the teaching content and methods.

5. Homework

Students are required to practice innovative thinking in personal form. Each person chooses a business case according to his or her own preferences, carefully studies and analyzes where the protagonist's thinking is solidified in the selected case, and points out what you think can be innovative angles and methods.

6 . Teaching Reflection

In this lesson, I deeply realized the importance of cultivating students' innovative thinking and entrepreneurial ability. Through heuristic teaching methods and case analysis, I strive to stimulate students' innovative potential and entrepreneurial consciousness, and guide them to dare to try and innovate. However, I have also reflected on the need to pay more attention to the practical aspects in curriculum design. Although theoretical knowledge is essential for students' basic construction, it is far from enough to only stay in the theoretical level of explanation and discussion. In the next step, I will put more emphasis on practical operation and organize students to participate in practical activities such as project development and business model design, so that they can personally experience the process and challenges of innovation and entrepreneurship.

Teaching Design (3)

Teaching topic: Innovative Practice and Creative Evaluation

Teaching objective: 1. Understand the importance of innovative practice and creative evaluation. Let students understand the key role of creativity in the process of innovation and entrepreneurship, realize that creativity is the basis of innovation, and cultivate the importance and pursuit of creativity.

2. Master the methods and skills of creative generation. Let students master different methods and skills of creative generation, improve the ability and effect of creative generation through practice and training.

3. Develop problem-solving skills. Students learn to transform ideas into innovative products or services that solve real problems, analyze and evaluate problems, propose practical solutions, and have the ability and determination to implement them.

Important and difficult points in teaching

Key point: Analyze innovative practice cases

Difficulty: Guide students to generate innovative entrepreneurial ideas

Teaching method

Lecture method, discussion method, and case analysis method

Teaching procedures

1. Lead-in before class

Introduce the concept and importance of innovative practice and creative assessment, and stimulate students' interest and curiosity in innovative practice and creative assessment by citing relevant examples or cases.

2 . New lesson teaching

(1) Knowledge explanation: This paper introduces the basic concepts, principles and methods of innovation practice and creativity evaluation, including creative thinking, creative tools, problem solving models, etc. Through explanation and discussion, students are helped to establish a basic understanding of innovation practice and creative assessment.

(2) Case analysis

Case in point: Xiao Li is a young designer who dreams of starting his own clothing brand. However, in market research, he found that the competition in the fashion industry is very fierce, and it is very difficult to successfully build a unique brand.

As a result, Xiao Li began to work on innovation practice and creative evaluation. After repeated thinking and market research, he found that the current

clothing brands on the market pay more attention to fashion elements, but ignore comfort and practicality. He believes that if fashion and comfort can be combined to create a fashion and practical clothing brand, there will be a lot of market space.

As a result, Xiao Li began to make innovative attempts at brand positioning and product design. He has hired a professional team of designers, using advanced results in intelligent technology and material science, and constantly exploring and developing new materials and new processes to improve the comfort and practicality of clothing. At the same time, he also pays attention to the innovation of promotion strategies, establishes good interaction and communication with young consumers through channels such as social media and online platforms, and improves brand awareness and reputation.

In the process of innovation practice, Xiao Li also pays attention to creative evaluation and feedback collection. He actively participates in industry exhibitions and fashion events, exchanges and studies with peers, and constantly improves and optimizes his design concept and product structure. At the same time, he also collects customers' opinions and suggestions through customer research and market feedback, and makes timely improvements and optimizations.

After unremitting efforts and innovative practice, Xiao Li's clothing brand gradually became popular and gained high evaluation and recognition in the market. His innovative thinking and creative evaluation methods have become a model for the industry, leading the development direction of the fashion industry.

Guide students to analyze the reasons for Xiao Li's success in entrepreneurship and the enlightenment from it.

Key points of inspiration: Perceive the importance of innovation practice and creative evaluation. Through market research and innovative attempts at brand positioning, Xiao Li has created a unique fashion brand and improved the competitiveness and market share of the brand. At the same time, he also focused on creative evaluation and feedback collection, timely improvement and optimization, and thus achieved success.)

3. Discuss and explore

(1) Group Discussion: Divide students into small groups and have them discuss a practical problem together and propose a solution. Through group discussions, cultivate students' teamwork and problem-solving abilities.

(2) Practical activities: Organize students to participate in creative practical activities, such as brainstorming, creative galleries, creative games, etc., to promote their creativity and imagination and cultivate their creative generation ability. Through these activities, students will have the opportunity to actively participate and develop unique innovative thinking, thus laying a solid foundation for future innovation and entrepreneurship.

4 . Classroom summary

 The content of this lesson is summarized and reflected, allowing students to review the knowledge and experience they have learned, and think about the significance and impact of innovation practice and creative evaluation on themselves. At the same time, students are encouraged to raise questions and suggestions to further improve the teaching content and methods.

5. Homework

Students are asked to work in small groups to select a practical problem and design a solution.

6 . Teaching Reflection

In this curriculum of teaching, I have deeply realized the importance of cultivating students' innovative thinking and entrepreneurial ability. In the curriculum design, I pay attention to heuristic teaching methods and case analysis to stimulate students' innovation potential and entrepreneurial consciousness. However, I reflect on the need to pay more attention to the setting of practical links, so that students can personally participate in innovation practice and experience the process and challenges of innovation and entrepreneurship. At the same time, it is also recognized that teamwork and communication skills are crucial for the success of innovative projects, and therefore, training in teamwork and the cultivation of communication skills will be

strengthened. By cultivating outstanding undergraduate students with innovative thinking and entrepreneurial abilities, we can cultivate more innovative entrepreneurs for society, promote economic development and social progress. I will constantly reflect and improve teaching methods to better guide students to achieve success in the field of innovation and entrepreneurship.

Teaching Design (4)

Teaching topic: Innovation and Entrepreneurship Practice and Case Analysis

Teaching objective: 1. Understand the importance of entrepreneurial practice. Enable students to understand the key role of entrepreneurial practice in the process of innovation and entrepreneurship, recognize that entrepreneurial practice is an important link in applying theoretical knowledge to practice, and cultivate an emphasis and pursuit of entrepreneurial practice.

2. Master the methods and skills of entrepreneurial practice. Let students learn the methods and skills of entrepreneurial practice, including market research, product development, business operation, etc., through practice and case analysis, improve the ability and effect of entrepreneurial practice.

3. Conduct a case study. Let students learn to conduct business case analysis, including successful cases and failure cases, through analyzing the experience and lessons from the case, improve innovative entrepreneurial thinking and decision-making ability.

Important and difficult points in teaching

Key points: 1. Cultivation of innovative thinking: Cultivate students' innovative thinking abilities such as open thinking, cross-border thinking, and non-linear thinking. Through case analysis, innovative projects, and other methods, stimulate students' innovative potential and creativity.

2. Business model design: Cultivate students' business sensitivity and business model design abilities. Through the analysis and research of successful business model cases, students will understand the importance of business model, and guide them to master the methods and skills of business model design.

Difficulty: 1. Risk management: Risk assessment and control is a relatively difficult task, which requires students to have the ability and experience to comprehensively analyze and grasp the market, competitive environment and finance.

2. Teamwork and leadership skills: The cultivation of teamwork and leadership requires students to have good communication, coordination and decision-making skills. At the same time, students also need to learn about team dynamics and incentives, which can be a relatively difficult subject for some students to master.

Teaching method

Lectures, discussions, case studies

Teaching procedures

1. Lead-in before class

Introduce the concept and importance of entrepreneurial practice and case analysis, and stimulate students' interest and curiosity in entrepreneurial practice and case analysis by citing relevant examples or cases.

2 . New lesson teaching

(1) Knowledge explanation: Introduce the basic concepts, steps, and elements of entrepreneurial practice, including creative generation, market research, business plan writing, and resource integration. Meanwhile, explain the methods and techniques of case analysis. Through explanation and discussion, students are helped to build a basic understanding of entrepreneurial practices and case studies.

(2) Case analysis: Select some successful or failed entrepreneurial cases for analysis and discussion, including entrepreneurial process, entrepreneurial strategy, entrepreneurial team, etc. Through case analysis, help students understand the key issues and solutions in entrepreneurial practice.

3. Discuss and explore

(1) Practical activities: Organize students to conduct an entrepreneurial practice activity, which can be a team entrepreneurial project, an individual entrepreneurial plan, etc. Through practical activities, students can experience the process and challenges of entrepreneurship and improve their entrepreneurial ability.

4 . Classroom summary

Summarize and reflect on the content of this lesson, allowing students to review the knowledge and experience they have learned, and reflect on the significance and impact of entrepreneurial practice and case analysis on themselves. At the same time, encourage students to raise questions and suggestions in order to further improve teaching content and methods.

5. Homework (in-class quiz)

Name: Entrepreneurship project planning

Related content: (1) Project overview: Provide an overview of the background, goals and vision of the venture.

Market Analysis: Analyze the size of the target market, growth trends, competitors, etc.

Business model: Describe the business model of the venture in detail, including the value proposition, revenue streams, cost structure, etc.

Marketing strategy: Develop marketing and sales strategies for entrepreneurial projects.

Financial planning: Develop financial forecasts and funding demand plans for entrepreneurial projects.

6 . Teaching Reflection

1. Insufficient practical experience: In this curriculum, practice is very important for the cultivation of students' innovation and entrepreneurship ability. However, there may be shortcomings in the practical aspects of the curriculum. It is possible to consider adding more practical projects or conducting on-site inspections, allowing students to participate in innovation and entrepreneurship practices firsthand, and improving their practical skills.

2. Lack of depth in case analysis: Case analysis is an effective method for cultivating students' ability to analyze and solve problems. However, there may be insufficient depth in the case studies presented in the curriculum. By selecting more challenging and unique cases, students can be guided to think deeply and analyze,

while paying attention to guiding them to propose their own innovation and entrepreneurship strategies and solutions.

3. The role of teachers needs to be changed: The traditional teaching method is teacher centered, but in innovation and entrepreneurship education, teachers should play more roles as mentors and guides. Teachers should encourage students to learn and think independently, provide necessary guidance and support, and focus on cultivating their teamwork and communication skills.

4. Insufficient interdisciplinary integration: Innovation and entrepreneurship involve knowledge and skills from multiple fields, requiring interdisciplinary integration. However, there may be insufficient interdisciplinary integration in the curriculum. It can be considered to increase cooperation with other relevant disciplines, introduce experts from different fields to give lectures or guidance, broaden students' horizons and improve their comprehensive abilities.

Teaching Design (5)

Teaching topic: Team building and leadership

Teaching objective: 1. Understand the importance of team building. Enable students to understand the key role of team building in the process of innovation and entrepreneurship, recognize that team building is the foundation for achieving entrepreneurial goals, and cultivate an emphasis and pursuit of team building.

2. Master the methods and skills of team building. Enable students to learn the methods and skills of team building, including team role allocation, communication and collaboration, conflict resolution, etc. Through practice and case analysis, improve the ability and effectiveness of team building.

3. Cultivate leadership skills. Enable students to learn how to cultivate and develop their own leadership skills, including goal setting, team motivation, decision-making ability, etc. Through practice and guidance, enhance their leadership abilities and skills.

Important and difficult points in teaching

Key points: 1. Emphasize the importance and key role of team building in the process of innovation and entrepreneurship;

2. Provide methods and skills for team building, cultivate students' teamwork and collaboration abilities;

3. Cultivate students' leadership skills, including goal setting, motivating teams, and decision-making abilities.

Difficult point in teaching

1. How to cultivate the leadership of students so that they can become excellent leaders who can lead the team to achieve the entrepreneurial goal;

2. How to deal with conflicts and challenges in the team, and cultivate students' ability to solve problems and deal with team relations.

Teaching procedures

1. Lead-in before class

 Introduce the concept and importance of team building and leadership, and stimulate students' interest and curiosity in team building and leadership by citing relevant examples or cases.

2 . New lesson teaching

(1) Knowledge explanation: Introduce the basic concepts, principles, and techniques of team building and leadership, including team roles, communication and collaboration, conflict management, motivation and motivation, etc. By explaining and discussing, help students establish a basic understanding of team building and leadership.

(2) Case analysis: By analyzing some successful innovation and entrepreneurship teams, exploring their team collaboration and leadership characteristics, it can stimulate students' thinking.

3. Discuss and explore

(1) Group discussion: Divide students into small groups and have them share their experiences and perspectives on team collaboration and leadership, and analyze and discuss practical cases.

(2) Practical activities: Organize students to conduct a leadership practice activity, which can be a leadership group discussion, project management, etc. Through practical activities, students can apply leadership knowledge and skills to improve their leadership skills.

4 . Classroom summary

Summarize the results of the discussion, emphasize the key role of teamwork and leadership in innovation and entrepreneurship, and propose further questions for consideration.

5. Homework (in-class quiz)

Name: Q&A on Team Building and Leadership Knowledge

Set up relevant multiple choice questions, judgment questions and other forms of quizzes in class to test students' understanding and mastery of the class content. This includes the definition of team building and leadership, the importance of teamwork, and student sharing of learning experiences related to the curriculum.

6 . Teaching Reflection

Summarize and reflect on the content of this lesson, allowing students to review the knowledge and experience they have learned, and reflect on the significance and impact of team building and leadership on themselves. At the same time, encourage students to raise questions and suggestions in order to further improve teaching content and methods.

Teaching Design (6)

Teaching topic: Market research and competitive analysis

Teaching objective: 1. Understand the importance of market research. Enable students to understand the key role of market research in the process of innovation and entrepreneurship, recognize that market research is the foundation for understanding target market demand and competitive environment, and cultivate an emphasis and pursuit of market research.

2. Master the methods and steps of market research. Enable students to learn the methods and steps of market research, including data collection, data analysis,

market positioning, etc. Through practice and case analysis, improve the ability and effectiveness of market research.

3. Analyze competitors and market demand. Enable students to analyze the strengths and weaknesses of competitors, understand the needs and trends of target markets, and provide strong support for the positioning and promotion of innovative products or services through competitive analysis and market demand analysis.

Important and difficult points in teaching

Key points: 1. Market research methods and techniques, including knowledge of target market determination, data collection and analysis, etc.

2. Methods and practices of competitive analysis, including competitor analysis Skills in SWOT analysis and other areas.

Difficulty: 1. How to conduct effective market research, including skills in data collection and analysis.

2. How to conduct a comprehensive competitive analysis, including the analysis of competitors and the application of SWOT analysis.

Teaching procedures

1. Lead-in before class

 Introduce the concept and importance of market research and competition analysis, and stimulate students' interest and curiosity about market and competition by citing relevant examples or cases.

2 . New lesson teaching

(1) Knowledge explanation: Introduce the basic concepts, methods, and tools of market research and competition analysis, including the steps of market research, data collection and analysis, and elements of competition analysis. Through explanation and discussion, students are helped to establish a basic understanding of market research and competitive analysis.

(2) Case analysis: Select some highly competitive industries or enterprises, such as brands with high market share, and conduct case studies of competitive analysis. Through such case analysis, students are helped to understand the positioning

of competitors, product characteristics, marketing strategies and other aspects, so as to understand the importance and methods of competitive analysis. Such case studies will help students better understand the market competitive environment and develop more effective competitive strategies in future innovation and entrepreneurship.

3. Discuss and explore

(1) Group discussion: Divide students into small groups and have them discuss a market research and competitive analysis problem or challenge together, and propose solutions. Through group discussions, cultivate students' teamwork and analytical abilities.

(2) Practical activities: Organize a market research practice activity for students, which can include questionnaire surveys, interviews, observations, etc. Through practical activities, students can experience the process and methods of market research firsthand, and improve their data collection and analysis abilities.

4 . Classroom summary

Summarize the results of the discussion, emphasize the key role of market research and competition analysis in innovation and entrepreneurship, and propose further thinking questions.

5. Homework (in-class quiz)

Name: Market research and competitive knowledge Q&A

Set up in class tests such as multiple-choice and true/false questions to test students' understanding and mastery of classroom content. This includes the definition and importance of market research and competitive analysis, as well as student sharing of their learning experiences with the curriculum.

6 . Teaching Reflection

Summarize and reflect on the content of this lesson, allowing students to review their knowledge and experience, and reflect on the significance and impact of market research and competition analysis on innovation and entrepreneurship. At the same time, encourage students to raise questions and suggestions in order to further improve teaching content and methods.

Teaching Design (7)

Teaching topic: Business Plan and Roadshow

Teaching objectives: 1. Understand the concept and importance of business models. Let students understand the key role of business model in the process of innovation and entrepreneurship, realize that business model is the foundation of entrepreneurial success, and cultivate the importance and understanding of business model.

2. Master the design and analysis methods of business models. Enable students to learn the design and analysis methods of business models, including value propositions, revenue models, cost structures, etc. Through practice and case analysis, enhance their ability and effectiveness in business model design and analysis.

3. Write a business plan. Enable students to learn how to write business plans, including market analysis, competition analysis, business model design, financial forecasting, etc. Through practice and guidance, cultivate the ability and skills to write business plans.

4. Learn roadshow techniques, clarify the key elements, strategies, and PPT production techniques of roadshows.

Important and difficult points in teaching

Key points: 1. Key points for writing a business plan, including knowledge of market analysis, business models, financial forecasts, and other aspects.

2. Roadshow skills, including speech skills, presentation materials production skills, etc.

Difficulties: 1. How to write a systematic and complete business plan, including the analysis and prediction of market, competition, finance and other aspects.

2. How to conduct a vivid and powerful roadshow presentation, including the design and production of speech skills and presentation materials.

Teaching procedures

1. Lead-in before class

The concept and importance of business plans and roadshows, by citing relevant examples or cases, stimulate students' interest and curiosity in business plans and roadshows.

2 . New lesson teaching

(1) Knowledge explanation: Introduce the basic concepts, elements, and structure of a business plan and roadshow. The business plan includes content such as value proposition, customer base, revenue model, and cost structure. The roadshow content includes roadshow elements, strategies PPT making skills. By explaining and discussing, help students establish a basic understanding of business plans and roadshows.

(2) Case analysis: Select some successful business models for analysis and discussion, including their innovation points, market adaptability, competitive advantages, etc. Through case analysis, help students understand the practical operation and success factors of business models.

3. Discuss and explore

(1) Group discussion: Divide students into small groups, and each group selects a specific innovation and entrepreneurship project to write a business plan and design a roadshow presentation.

(2) Practical activities: One is to guide students in writing business plans, including market analysis, competition analysis, product or service descriptions, financial forecasts, and other aspects. Through practical activities, students can experience the process of writing a business plan firsthand, improving their business thinking and plan writing skills. Such practical activities will help students better understand the importance of business plans in future innovation and entrepreneurship, and develop the ability to write business plans, making their entrepreneurial ideas more likely to be realized. The second is to organize students to review business plans, allowing them to communicate and share their business plans with each other, and propose improvement suggestions. Through evaluation activities, cultivate students' critical thinking and teamwork abilities.

4 . Classroom summary

Set up relevant multiple choice questions, judgment questions and other forms of quizzes in class to test students' understanding and mastery of the class content. It includes the definition and importance of the business plan and roadshow, as well as students' sharing of the learning experience of the curriculum.

5. Homework (in-class quiz)

Name: Road show PPT production

Guide students to make a complete road show PPT, including market analysis, competitive analysis, product or service description, financial forecast, etc.

6 . Teaching Reflection

Guide students to reflect, summarize the gains and perceptions of this class, and encourage them to apply the knowledge and skills in practice.

Teaching Design (8)

Teaching topic: Financing and investment

Teaching objectives: 1. Understand the concept and importance of financing and investment. Students should understand the key role of financing and investment in the process of innovation and entrepreneurship, realize that financing and investment are important supports for entrepreneurial success, and cultivate the importance and understanding of financing and investment.

2. Master financing and investment methods and strategies. Let students learn different financing and investment methods and strategies, including self-financing, venture capital, angel investment, etc., through practice and case analysis, improve the ability and effect of financing and investment.

3. Understand the process and key points of financing and investment. Students should understand the process and key points of financing and investment, including project evaluation, investment agreement, risk management, etc. Through practice and guidance, students should develop the ability and skills to understand the process and key points of financing and investment.

Important and difficult points in teaching

Focus: 1. Understand the basic concepts and principles of financing and investment, and understand different financing and investment methods and their advantages and disadvantages.

2. Master the practical application of financing and investment, and be able to analyze and evaluate different financing and investment schemes.

3. Cultivate students' innovative and entrepreneurial thinking ability, and improve students' innovation and decision-making ability through case analysis and practical activities.

Difficulty: 1. How to combine financing and investment knowledge with innovation and entrepreneurship practice, so that students can master application skills in practical situations.

2. How to guide students to think about financing and investment from the perspective of innovation and entrepreneurship, and explore its importance to innovation and entrepreneurship?

3. How to cultivate students' teamwork and communication skills through group discussions and practical activities, and promote the enhancement of innovation and entrepreneurship awareness?

Teaching procedures

1. Lead-in before class

Introduce the concept and importance of financing and investment, and stimulate students' interest and curiosity in financing and investment by citing relevant examples or cases.

2 . New lesson teaching

(1) Knowledge explanation: This paper introduces the basic concepts, methods and processes of financing and investment, including financing channels, types of investors, financing preparation and investment decisions. Through explanation and discussion, students are helped to establish a basic understanding of financing and investment.

(2) Case study: This paper introduces the basic methods and tools of investment analysis, including financial analysis, market analysis, risk assessment and so on. Through case studies and discussions, students are helped to understand the elements and processes of investment decision making and how to make investment decisions effectively. Such teaching activities will help students to better understand the market environment and risk factors in future investment decisions, and to be equipped with the ability to conduct investment analysis and decision-making in order to make their investments more intelligent and successful.

3. Discuss and explore

(1) Group Discussion: Divide students into groups to discuss and propose their own ideas and suggestions for a given financing and investment case.

(2) Practical activities: One is to organize students to conduct a financing practice, which can be writing financing plans, simulating financing negotiations, etc. Through practical activities, students can experience the process and skills of financing and improve their financing ability. Such practical activities will help students better understand the importance of financing in future innovation and entrepreneurship, and have the ability to write financing plans and negotiate financing, so that their entrepreneurial projects are more likely to be successful in obtaining financing support. The second is to organize students to conduct an investment practice, which can be simulated investment decision-making, investment portfolio management, etc. The content of this lesson is summarized and reflected, so that students can review the knowledge and experience they have learned, and think about the significance and impact of financing and investment on themselves. Such practical activities will help students better use investment analysis methods in the future investment field, understand the practical operation of investment decisions, and have the ability to carry out portfolio management to make their investment strategies more intelligent and effective. Through this practice, students will be able to better understand the importance of market dynamics, risk management and long-term investment planning to build a solid foundation for future investment decisions.

4 . Classroom summary

The content of this lesson is summarized and reflected, so that students can review the knowledge and experience they have learned, and think about the significance and impact of financing and investment on themselves. At the same time, students are encouraged to raise questions and suggestions to further improve the teaching content and methods.

5. Homework (in-class quiz)

Name: Q&a on Financing and Investment

Write multiple choice or short answer questions to test students' understanding of financing and investing. It includes the definition and importance of financing and investment, as well as students' sharing of the learning experience of the curriculum.

6 . Teaching Reflection

Teachers reflect and summarize the teaching of this lesson, record students' performance and problems, and prepare for the next lesson.

VITA