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ECONOMICS AND MANAGEMENT FACULTY

Finance, banking and insurance department

QUALIFICATION WORK

education degree - Master

on: **Management of innovation and entrepreneurship departments in
educational institutions**

Completed:

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(EP Administrative Management)

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SUMY NATIONAL AGRARIAN UNIVERSITY

Faculty Economics and Management
Department Finance, banking and insurance

Education degree «Master»
Speciality 073 Management EP «Administrative management»

Approved:

Head of
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2023

TASK

on qualification work for student

Zhang Shuai

1. Theme of Qualification work: *Management of innovation and entrepreneurship departments in educational institutions*

Base of research *Yantai Nanshan University*

Supervisor *Iryna Dmytrivna Samoshkina, PhD, Associate Professor*

approved by the university order dated _____

No

2. Deadline for student completed project (work) _____

3. Background to the project (work):

As the global demand for innovation increases, the roles and functions of educational institutions are undergoing major changes, especially in the establishment of innovation and entrepreneurship management departments. These departments have become an important force in promoting the integration of educational innovation with industry and accelerating the transformation of scientific and technological achievements. How to effectively manage it to ensure its continuous role is an urgent problem for educational institutions to solve. This paper will explore the relevant management strategies and theoretical basis to provide guidance for the reform and development of the education field.

4. Contents of settlement and explanatory notes (the list of issues to develop):

This research will outline the study objectives and significance, review relevant literature, and describe the methodology used. This research aims to analyze the current management status and challenges of the innovation and entrepreneurship departments of educational institutions, explore their core elements and strategies, and propose effective methods to strengthen management. provide reference for managers, help educational institutions to stand out in the fierce competition, cultivate talents with innovative ability and practical experience, and promote social development and the future progress of the country. The conclusion will summarize the findings and their implications for improving the management of innovation and entrepreneurship departments in educational institutions in China.

5. Date of assignment:

June, 19 2023

CALENDAR PLAN

№	Name of the diploma project's stages	Dates of project stages' performance	Note
1	Definition and approval of the thesis, preparation of the plan - schedule of work	<i>June, 2023</i>	
2	Selection and analysis of literary sources, the preparation of the first theoretical chapter	<i>September – October, 2023</i>	
3	Preparation and presentation of draft of the first chapter of the thesis	<i>November, 2023</i>	
4	Collection and processing of factual material, synthesis analysis of application issues in the enterprise	<i>December, 2023</i>	
5	Making the theoretical part of the thesis, summarizing the analytical part	<i>January, 2024</i>	
6	Design options improve the research problem	<i>January, 2024</i>	
7	Completion of the project part of the thesis, design chapters	<i>January, 2024</i>	
8	Previous work and its defense review	<i>March, 2024</i>	
9	Checking the authenticity of the thesis	<i>August, 2024</i>	
10	Deadline for student completed the thesis	<i>September, 05 2024</i>	
11	Defense of the thesis	<i>September, 12 2024</i>	

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Thesis allowed for defense _____ **Svitlana Lukash**
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АНОТАЦІЯ

Управління відділами інновацій і підприємництва в освітніх установах (база дослідження ТОВ “ЯНТАЙ НАНШАНЬ УНІВЕРСИТЕТ”, Китай)

Кваліфікаційна робота за спеціальністю 073 «Менеджмент» ОП «Адміністративний менеджмент» СНАУ, Суми-2024 - Рукопис.

Зі зростанням глобального попиту на інновації, ролі та функції освітніх установ зазнають значних змін, особливо у створенні відділів управління інноваціями та підприємництвом. Ці відділи стали важливою силою у сприянні інтеграції освітніх інновацій із промисловістю та прискоренні трансформації науково-технічних досягнень. У контексті виклику економічної глобалізації, традиційний освітній підхід вже не здатен задовольнити суспільний попит на різноманітні та інноваційні таланти, тому освітнім установам потрібно активно досліджувати нові моделі освіти. Завдяки інтеграції ресурсів та оптимізації послуг, відділи інновацій та підприємництва мають на меті виховувати інноваційні кадри із почуттям соціальної відповідальності та практичними навичками. Однак управління відділом інновацій та підприємництва передбачає багато складних аспектів, таких як організаційна структура, побудова команди, інкубація проектів та розподіл ресурсів. Як ефективно керувати ним, щоб забезпечити його постійну роль - це нагальне питання, яке мають вирішити освітні установи. У кваліфікаційній роботі досліджені відповідні стратегії управління та теоретична база для надання керівництва щодо реформування та розвитку освітньої сфери.

Дане дослідження спрямоване на аналіз поточного стану управління та виклики, з якими стикаються відділи інновацій та підприємництва в освітніх закладах, дослідження їх основних елементів та стратегій, а також застосування запропонованих ефективних методів для удосконалення системи менеджменту відділів інновацій та підприємництва в освітніх закладах.

Ключові слова: Інновації та підприємництво, менеджмент освіти, менеджмент підприємництва, інноваційне мислення.

ANNOTATION

Management of innovation and entrepreneurship departments in educational institutions (research base of YANTAI NANSHAN UNIVERSITY LLC, China)

Qualification work on specialty 073 “Management” EP “Administrative management” SNAU, Sumy-2023 - Manuscript.

As the global demand for innovation increases, the roles and functions of educational institutions are undergoing major changes, especially in the establishment of innovation and entrepreneurship management departments. These departments have become an important force in promoting the integration of educational innovation with industry and accelerating the transformation of scientific and technological achievements. In the face of the challenge of economic globalization, the traditional education mode is difficult to meet the social demand for diversified and innovative talents, so the educational institutions need to actively explore the new education mode. By integrating resources and optimizing services, the innovation and entrepreneurship department aims to cultivate innovative talents with a sense of social responsibility and practical ability. However, the management of innovation and entrepreneurship departments involves many complex links, such as organizational structure, team building, project incubation and resource allocation. How to effectively manage it to ensure its continuous role is an urgent problem for educational institutions to solve. This paper will explore the relevant management strategies and theoretical basis to provide guidance for the reform and development of the education field.

This paper aims to analyze the current management status and challenges of the innovation and entrepreneurship departments of educational institutions, explore their core elements and strategies, and propose effective methods to strengthen management. We will study how to tackle the challenges of globalization through educational innovation, and emphasize cultivating students' entrepreneurial spirit to enhance their future career adaptability and innovation ability. We hope to provide reference for managers, help educational institutions to stand out in the fierce competition, cultivate talents with innovative ability and practical experience, and promote social development and the future progress of the country. The innovation and entrepreneurship sector will play a key role in this transformation, becoming a bridge between theory and practice, school and society, and laying a foundation for the demand for talents in the 21st century.

Keywords: Innovation and Entrepreneurship, Educational Management, Entrepreneurship Management, Innovative Thinking.

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INTRODUCTION

Actuality of theme. As an important position of knowledge dissemination and innovation, the role and function of educational institutions are undergoing unprecedented changes. With the rise of global innovative wave and the increasing social need for innovative talents, innovation and entrepreneurship departments in educational institutions arise at the historic moment, and gradually become the key force to promote educational innovation, improve the deep integration of industries, universities and researches, as well as speed up the transformation of scientific and technological achievements. This paper aims to deeply explore the management strategies and practices of the innovation and entrepreneurship departments of educational institutions, in order to provide theoretical support and practical guidance for the reform and development in related fields.

Facing the challenges and opportunities of economic globalization, the traditional education model has been difficult to satisfy the society demand for diversified and innovative talents. Thus, educational institutions must change their thinking and actively explore the educational mode and path conforming to the needs of the times. The establishment of the innovation and entrepreneurship department is an important attempt in this context. The goal is to stimulate students' innovation thought and practical ability by building platforms, integrating resources and optimizing services, and cultivate high-quality talents characterized by social responsibility, innovative spirit and practical ability.

The purpose of the research is to study the role of management of innovation and

entrepreneurship departments, a complex and systematic project.

According to a particular purpose, only the important objectives of this work are:

1. To analyze organizational structure design, project incubation process, team building optimization, funding and resource allocation, and other aspects;
2. To analyze external and internal factors influencing the dynamics of activity of innovation and entrepreneurship departments;
3. To analyze management mechanism and organizational structure of the innovation and entrepreneurship departments of educational institutions;
4. To identify the role of management status and challenges activity of innovation and entrepreneurship departments of educational institutions;
5. To develop ways to improve the system of management of innovation and entrepreneurship departments of educational institutions.

Subject of the research theoretical, methodological, and practical provisions of the process of management of innovation and entrepreneurship departments of educational institutions.

Object of the research there are organizational and economic relations that arise in connection with the process of management of innovation and entrepreneurship departments of educational institutions.

Elements of scientific novelty of the obtained results of work are: modelling a system of indices for evaluating scientific research activity based on the Delphi method in the context of globalization; developing ways to improve the system of management of innovation and entrepreneurship departments of educational institutions.

The practical significance of the obtained results is that they can serve as a basis for managing the process of activity of innovation and entrepreneurship departments of educational institutions.

Methodological basis of the study there are scientifically substantiated interpretations of processes and phenomena in economics, dialectical, logical and systemic approaches to their consideration. During the research general scientific methods of analysis and synthesis, theoretical generalization and comparison, statistical and graphical analysis and grouping were used. The following methods were used to solve the tasks in the work: scientific generalization (when determining the essence of processes and systematization of their components); system approach; formation of tables, diagrams, graphs - to present the results of theoretical and practical research in a visual form; classification, scientific abstraction, system and complex analysis, economic analysis; calculation-analytical, comparative - to compare indicators over the years; modern computer technologies for processing economic information, in particular, the MS Excel application package, SWOT-analysis.

SECTION 1

THEORETICAL BASIS OF MANAGEMENT RESEARCH FOR INNOVATION AND ENTREPRENEURSHIP DEPARTMENTS IN EDUCATION INSTITUTIONS

The research on the management of innovation and entrepreneurship departments in education institutions is a complex and multi-dimensional topic, with a profound and extensive theoretical foundation, covering many key fields such as project management, educational innovation, entrepreneurship education and organizational behavior.

The project management theory, intensively related to innovation and entrepreneurship management, not only focuses on the execution process of the project itself, but also emphasizes the full-life-cycle administration from the start to the end of the project. Managers are required to have a comprehensive management knowledge and skills, including project planning, execution, monitoring and closing all links. Project management theory emphasizes goal orientation, resource optimization, risk management, and continuous improvement to ensure that projects achieve established goals within limited time, cost, and quality requirements.

There are several key points in innovation and entrepreneurship project management, including the following:

The first one is project planning and startup: in the innovation and entrepreneurship sector, the project planning and start-up phase are crucial. This requires the project team to conduct detailed market research, demand analysis, risk

assessment, and budgeting.

Table 1.1 - Main content and work process of project management theory

No	Primary coverage	Flow of work
1	Overall project management	project startup
		project plan
		project implementation
		Project monitoring
		End of the project
2	Project scope management	Scope planning
		Scope confirmation
		Range control
3	Project Time Management	project planning
		progress control
		Progress monitoring
4	Project cost control	cost estimation
		Cost budget
		cost control
5	Project quality management	Quality planning
		quality assurance
		quality control
6	Project human resource management	organizational planning
		team construction
		Project team management
		personal development
7	Project risk management	risk identification
		risk analysis
		Risk response
		Risk monitoring

Source: systematized by the author

Through SWOT analysis, PESTEL analysis and other tools, identify the advantages, disadvantages, opportunities and threats of the project, and come up with a feasible plan for the project. On the other hand, a cross-departmental collaboration mechanism is established to make sure effective communication and cooperation among

project members.

Secondly, resource allocation and coordination: in the case of limited resources, the project managers need to use the resource allocation principles in the project management theory, such as priority ranking, resource balance and key path method, to ensure that the key resources required by the project are guaranteed in priority. At the same time, a resource monitoring mechanism is established to track the use of resources in real time and rationalize the resource allocation strategy in time so as to avoid the waste and idle of resources.

Thirdly, risk management and response: innovation and entrepreneurship projects are often accompanied by high risks, such as market risk, technical risk, financial risk and so on. Project management theory requires project managers to identify, evaluate and monitor risks at the beginning of the project, and formulate corresponding risk response measures and plans. During the implementation of the project, regular risk assessment and updates to ensure that the project can respond quickly to risks and reduce losses.

Finally, monitoring and evaluation: project monitoring and evaluation is a necessary and essential part in the project management process. Innovation and entrepreneurship departments need to establish a scientific monitoring system, regularly evaluate the project progress, cost, quality and other aspects, and timely detect and correct deviations. At the same time, through project review meetings, results display, the project summary and reflection, to provide valuable experience for the follow-up projects.

There is also a deep connection between educational innovation theory and the

management of innovation and entrepreneurship departments. Educational innovation theory emphasizes the continuing exploration and practice of new education concepts, methods as well as technologies in education fields, in order to develop the sustainable development and progress in education. It focuses on the students' overall development, encourages students to explore and innovate, and stimulate their innovative thought and manipulative ability. The theory of educational innovation requires educators to foster innovation consciousness and innovation ability, dare to challenge the traditional educational concepts, and have the courage to try new educational modes and teaching methods.

The innovation and entrepreneurship departments of educational institutions need to pay close attention to the market dynamics and industry needs, and to develop a curriculum system and teaching material with innovation and entrepreneurship characteristics by combining school feature and superior resources. These courses should cover innovative thinking, entrepreneurial spirit, marketing, financial management and other aspects, and provide students with a comprehensive knowledge system and skills training. In the meantime, the introduction of case teaching, simulation training as well as other teaching methods could help students to learn and grow in practice.

In order to arouse students' learning interest and initiative, the innovation and entrepreneurship departments actively try to use new teaching modes and methods. For example, new teaching models including mixed learning and flipped classroom allow students to independently absorb basic knowledge before class, and focus on discussion, practice and problem solving in class. In addition, project-based learning and

inquiry-based learning methods can also be used to help students cultivate their innovation consciousness and innovation ability in the process of participating in the project.

Additionally, traditional evaluation system often takes the test result as the only standard, ignoring the evaluation on students' comprehensive ability and innovation capability. For innovation and entrepreneurship departments, a diversified and developmental evaluation system should be established to focus on students' individual differences and growth process. By combining self-evaluation, peer evaluation and teacher evaluation, students' learning results and comprehensive quality are comprehensively evaluated. On the other hand, students are encouraged to join in scientific research projects, social practice and other meaningful activities so as to broaden their horizons and knowledge, and to improve their practical capability and innovative spirit.

Entrepreneurship education theory is the specific application of innovation and entrepreneurship department management. Entrepreneurship education theory is aimed to foster students' entrepreneurial consciousness and entrepreneurial capability through systematic education and training. It emphasizes the combination between theory and practice, and focuses on cultivating their innovative thinking, entrepreneurial spirit and entrepreneurial skills. Entrepreneurship education theory requires education institutions to give students rich resources and platforms for entrepreneurship, helping them realize their thought by transforming their entrepreneurial ideas into practical actions.

Innovation and entrepreneurship departments should arouse students' interest and enthusiasm in entrepreneurship in all kinds of ways. It is suggested that holding

activities including basic entrepreneurship courses, entrepreneurship lectures and salons can help students know the basic knowledge and processing of entrepreneurship. Inviting prestigious entrepreneurs and mentors to share their entrepreneurial experience is helpful to let students know about the charm and challenges of entrepreneurship. Besides, It can be seen that entrepreneurship competitions and entrepreneurship project exhibitions are both good platforms for students to display their entrepreneurial thought and achievements.

To improve students' entrepreneurial capability, the innovation and entrepreneurship department has also provided systematic entrepreneurial skills training and knowledge teaching services. These training should include business plan writing, marketing, financial management and other aspects so students can master the elemental and necessary skills and knowledge to start up a business. In the meanwhile, through simulation training and case analysis, students can learn and grow in practice. In addition, it also provides entrepreneurial counseling and counseling services for students to help them solve problems and face difficulties they maybe encounter in the process of starting a business.

Entrepreneurship education theory supports the establishment of entrepreneurial practice bases or incubators and other platforms to give students entrepreneurial opportunities and resource support. These platforms can provide students with office space, financial support, policy consultation and market docking services to help them transform their entrepreneurial ideas into practical actions.

Strategic management theory is also closely related to innovation and entrepreneurship management. It emphasizes that organizations achieve long-term goals

by developing, implementing, and evaluating strategies in complex and volatile environments. It requires organizations to be forward-looking and adaptable, and to be able to flexibly respond to the variety in the external environment as well as the adjustment of internal resources. The following aspects are mainly involved:

The first one is strategy development: this theory requires clear strategic directions, including short-term and long-term goals, as well as strategies and action plans to achieve these goals.

Second, environmental analysis: use PESTEL analysis and other tools to scan the external macro environment, and SWOT analysis evaluates the internal advantages and disadvantages to develop strategies to adapt to the environment.

Third, strategy implementation: make sure the effective implementation of resource allocation, adjustment of organizational structure and cultural construction.

Fourth, strategic evaluation: regularly evaluate the implementation of the strategy, adjust it to better adapt to changes in the external environment in time.

Knowledge management theory is the basis of innovation and entrepreneurship department management. Its core focuses on how to effectively acquire, integrate, share and apply knowledge resources inside and outside the organization to enhance the organization's innovation ability and competitiveness.

Knowledge management theory encourages team members to constantly learn new knowledge, new technologies and new methods, and to acquire external knowledge resources through training, seminars, academic exchanges and other ways. Integrate the acquired knowledge with the existing knowledge within the organization to form an innovative knowledge system. Establish a knowledge sharing platform, promote the

knowledge exchange and sharing among team members, and promote the overall innovative capability. Apply integrated knowledge to the innovation and entrepreneurship practices to enhance the innovation and development of the project.

Innovation and entrepreneurship projects require teams to execute, so leadership and team management theory are critical. Leadership and team management theory focuses on how to effectively lead and manage the team to stimulate the team members' potential and to promote the overall effectiveness of the team.

The theory focuses on cultivating the leadership of innovation and entrepreneurship departments, including strategic vision, decision-making ability, communication and coordination ability, etc. Through team building activities, training and other kinds of methods, foster trust and collaboration among team members. Build a scientific and reasonable incentive mechanism, stimulate enthusiasm and creativity of the team members, and make sure the successful realization of the team goals. Timely find and solve the conflicts and contradictions within the team, and maintain the harmony and stability of the team.

The theory of an innovation ecosystem is equally a trending subject. The theory of an innovation ecosystem highlights how various entities interact and synergize in the process of innovation. The notion holds that innovation transcends individual or organizational conduct, requiring a collective effort in an ecosystem comprising various roles and resources.

Building an Ecosystem: The department of innovation and entrepreneurship needs to foster an environment of innovation encompassing students, educators, former students, businesses, investors, and additional participants. By creating collaborative

platforms and systems, we aim to foster interaction and teamwork among the involved parties.

Resource Complementarity in the ecosystem: Diverse elements possess unique resources and benefits. Departments of innovation and entrepreneurship need to foster a synergistic use of resources; for instance, businesses should offer market and technological assistance, and universities ought to supply skills and research findings.

Innovation incubation involves creating incubators, accelerators, and various other platforms to offer comprehensive assistance for innovation endeavors, covering everything from initial seed development to growth phases, encompassing funding, technology, market, legal, and additional services.

Guidance on Policy: The departments of innovation and entrepreneurship ought to collaborate with pertinent governmental departments to develop strategies and incentive plans favorable to innovative progress, ensuring a conducive environment externally for fostering the innovation ecosystem.

Sustainable development concepts are also integrated with the concepts of innovation and entrepreneurship. The theory of sustainable development prioritizes fulfilling present necessities while preserving the potential of future generations to fulfill these needs. Within innovation and entrepreneurship sectors, it implies that entrepreneurial endeavors must aim not just at economic gains but also prioritize social and environmental sustainability. Submission for the innovation and entrepreneurship sections at academic establishments:

Eco-friendly entrepreneurship: Motivate and assist learners and educators in executing eco-friendly entrepreneurial endeavors, while advancing the research,

development, and utilization of sustainable development technologies.

Social responsibility aims to direct entrepreneurial endeavors towards embracing social responsibility, addressing challenges like poverty, educational disparities, health issues, etc., thereby achieving the dual enhancement of social and economic benefits.

Integrating education: Incorporate sustainable development ideas into teaching about innovation and entrepreneurship, enhance students' understanding and skills regarding sustainable development, enabling them to actively apply sustainable development in their upcoming business ventures.

Evaluation and Supervision: Implement a system for sustainable development to consistently scrutinize and oversee the financial, societal, and ecological effects of entrepreneurial ventures, safeguarding their enduring viability.

The modern service management sector supports the innovative design theory, which focuses on the user. The user-centered design principle advocates for prioritizing user preferences and experiences in product or service designs, directing decisions with a thorough analysis of user actions, likes, and requirements to guarantee the product or service effectively fulfills user demands. Submissions for the innovation and entrepreneurship sectors of schools:

User research: Initial phases of innovation and entrepreneurship initiatives involve in-depth user studies to grasp the requirements, challenges, and anticipations of the intended users, laying the groundwork for the project's strategic placement and design.

Test of prototypes: expedite the development of project prototypes, encourage specific users to experiment, gather input, and continually enhance both the product's characteristics and user interaction.

Optimization of the user experience: During project execution, consistently heed user input, promptly modify the product's approach and service methodology, to maintain ongoing enhancement of user contentment.

Building of a user community involves fostering a shared community, encouraging interaction and exchange among members, gathering comprehensive and genuine user viewpoints, and generating a feeling of connection and worth for the users.

Intimately connected to innovation and entrepreneurship, the concept of digital transformation involves using digital technology to transform businesses' models and decision processes, aiming to boost efficiency, cut costs, and increase competitive edge. Within the domain of innovation and entrepreneurial ventures, adopting digital transformation plays a crucial role in enhancing the innovative capabilities for projects and their market flexibility. Submission in the sectors of innovation and entrepreneurship at educational establishments:

Utilizing digital instruments: Encourage the adoption of cloud computing, large datasets, AI, and additional digital instruments, and enhance the effectiveness and precision of projects' research, marketing, operational management, among others.

Reengineering digital processes: enhance the project's internal efficiency, achieve process digitization and automation, minimize mistakes, and boost responsiveness.

Digital decision-making support involves employing data analysis techniques to aid in project choices and enhance both the scientific precision and accuracy of decision processes.

Innovative digital marketing strategies: Employ social media alongside content marketing to broaden the project's reach, drawing in a larger pool of prospective users

and investors.

The current era necessitates collaborative efforts and growth, with theories of cross-cultural exchange and cooperation intimately linked to the stewardship of innovation and entrepreneurial training. Intercultural exchange and cooperation theory concentrate on the diverse challenges and opportunities encountered by individuals or groups from varied cultural origins in their communicative and cooperative efforts. Within the framework of globalization, the role of cross-cultural interactions and collaborative efforts is crucial for fostering innovation and entrepreneurial endeavors.

Submissions to the innovation and entrepreneurship divisions of educational entities:

Cross-cultural education: Offer cross-cultural exchange education to both students and educators, boost their cross-cultural understanding and communication abilities, and establish a strong base for international collaboration endeavors.

Expansion of International Partner: Actively pursue and enlarge collaborative ties with globally recognized universities, corporations, and research bodies, while infusing international assets and expertise into innovative and entrepreneurial endeavors.

Cross-cultural team management: Emphasize the variety and management of intercultural team members in projects involving transnational cooperation to enhance communication and teamwork among team members.

Cultivating a global perspective: by engaging in international exchanges, participating in overseas courses, etc., expand students' worldwide outlook, and enhance their ability to compete globally and exchange cross-cultural knowledge.

This study also found that the social network and social capital theory had a great

influence on innovation and entrepreneurship. Social networks and social capital theory focuses on social capital such as resources, relationships and information held by individuals or organizations in social networks, and how these social capital influences their behavior and outcomes. This theory actively constructs and maintains the relationship network with external stakeholders such as government departments, enterprises, universities and scientific research institutions. Make use of the resources and information advantages in the social network to provide capital, technology, market and other support for innovation and entrepreneurship projects. Jointly carry out innovation activities with partners to share resources, share risks and achieve mutual benefit as well as win-win results. Spread brand image and achievements of the innovation and entrepreneurship department through the social network, and enhance its influence and popularity in the society.

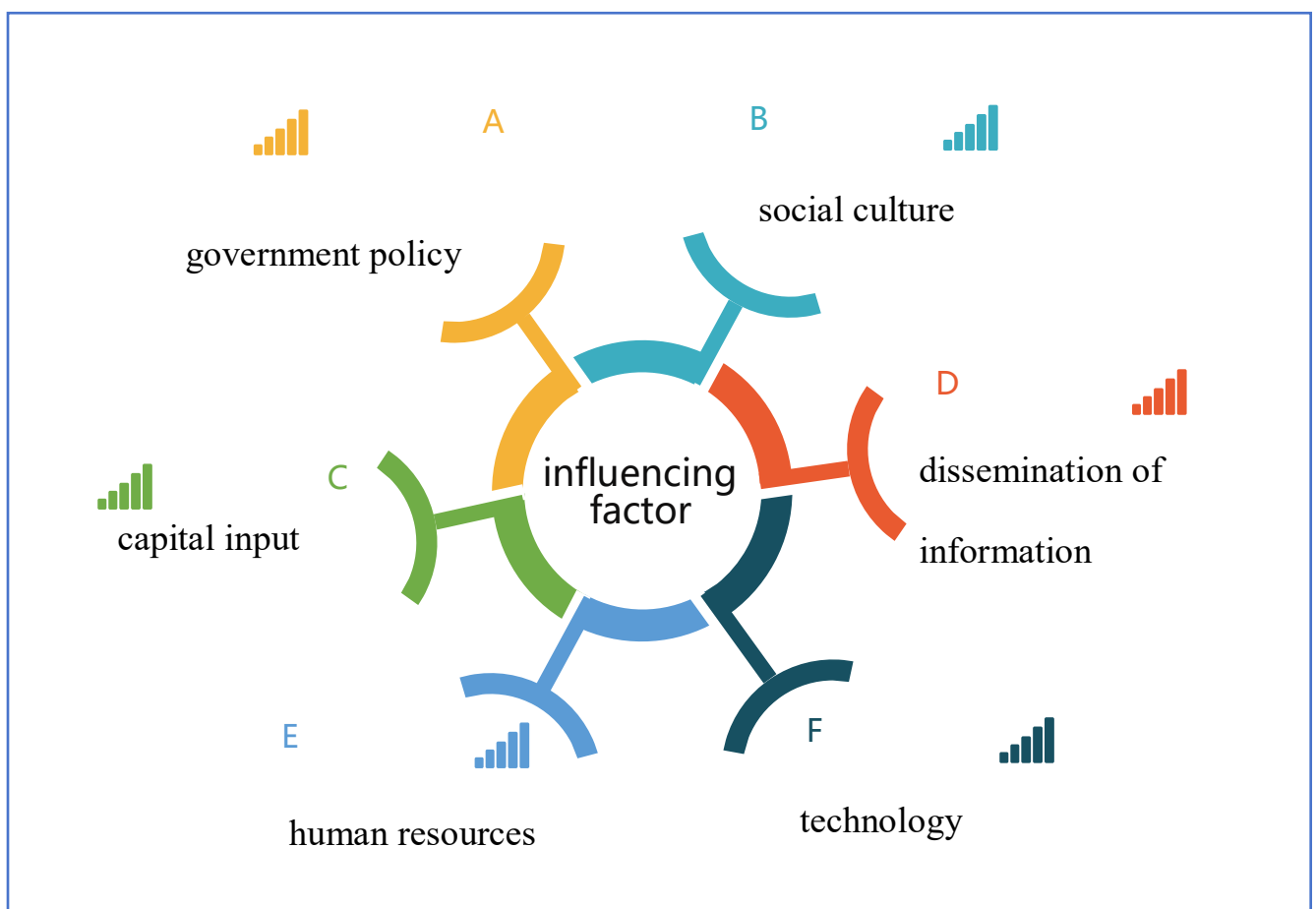


Figure 1.1 - Several key factors that will affect the development of innovation and entrepreneurship

Source: systematized by the author

To sum up, the theory basis of the management research for the innovation and entrepreneurship departments in educational institutions is multifaceted and multi-level. These theories not only provide solid theoretical support and practical guideline for the management of innovation and entrepreneurship departments, but also point out the direction for their future development. Through continuous learning and practice of these theories, innovation and entrepreneurship departments can continuously improve their own management level and innovative capability, and bring new vitality and impetus into the processing of educational institutions.

SECTION 2

MANAGEMENT STATUS AND CHALLENGES OF INNOVATION AND ENTREPRENEURSHIP DEPARTMENTS OF EDUCATIONAL INSTITUTIONS

2.1 Management mechanism and organizational structure of the innovation and entrepreneurship departments of educational institutions

Within educational entities, the innovation and entrepreneurship departments are crucially involved. These units frequently lead educational bodies, dedicated to incorporating cutting-edge educational concepts and technologies into instructional methods, while persistently striving to improve education's quality and effectiveness via innovation. They work in a setting brimming with numerous factors and intricacies.

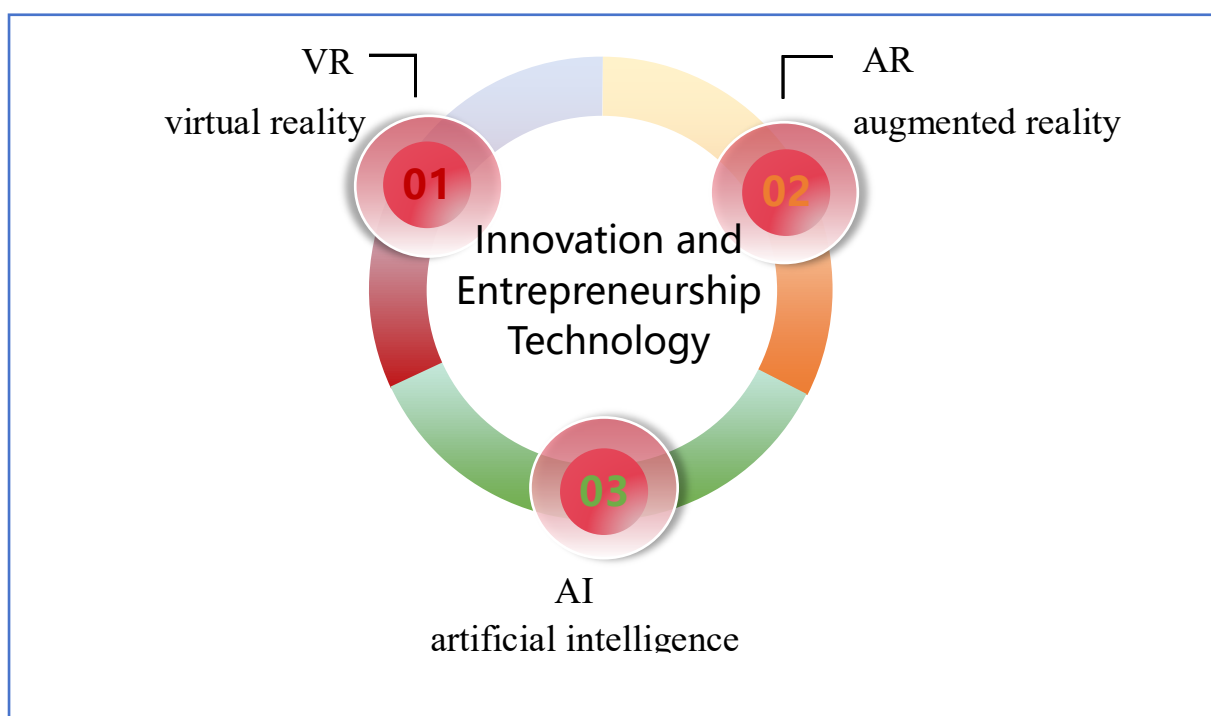


Figure 2.1 - The application of new information technology in education work

Source: systematized by the author

Through Figure 2.1, we can clearly see that the swift progression of educational tech has granted the teaching sector novel avenues for creative advancements. Emerging from virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) are numerous innovative techniques and tools, fostering an enriched and interactive educational setting for students.

Yantai Nanshan University is also exploring this model, through the use of virtual reality technology, students can investigate historical sites alone or conduct scientific research in online labs, which is a challenging feat in a traditional classroom setting, but because this is a new attempt, it is difficult for teachers to effectively grasp in the specific teaching process.

Anticipating the future, educational entities' innovation and entrepreneurship sectors are expected to confront greater obstacles. A significant obstacle they face at present involves the efficient incorporation and application of new technologies like artificial intelligence and big data analytics to improve educational standards and cater to each student's unique learning requirements while upholding the educational quality. Concurrently, amid the ongoing evolution of global education, the challenge of sustaining their competitive advantage in the worldwide educational arena has emerged as a crucial concern.

Moreover, the bureaucratic framework in education settings frequently decelerates decisions, undoubtedly hindering the prompt deployment of novel initiatives in the evolving educational sphere. Furthermore, the variance in embracing new technologies and educational frameworks hinders certain innovative endeavors from achieving broad

acknowledgment and backing. creative endeavors may be hindered by conventional mindsets.

Table 2.1 - New technologies enter the survey and statistical table of innovation and entrepreneurship education

Whether to accept new technology into innovation and entrepreneurship education	number of people	number of people
yes	83	41.09%
neutrality	66	32.67%
deny	53	26.24%

Source: systematized by the author

A survey was launched in Yantai Nanshan University, with a sample size of 202 people, and it was learned that 83 people, about 41.09% of the teachers supported the application of new technologies to innovation and entrepreneurship education, about 66 people, and 32.67% of the teachers had a neutral attitude. Through this survey, we see that there are 53 people, about 26.24% of teachers have an attitude of opposition, concerned that technological advancements could substitute their functions or fail to replace face-to-face interpersonal interactions.

In addition, the Department of Innovation and Entrepreneurship of Yantai Nanshan University is facing the actual situation of shortage of funds in management. Unequal resource allocation often leads to difficulties, as research has found that making progress on ambitious innovation projects is challenging due to insufficient funding and lack of professional knowledge. Yantai Nanshan College is a private university with

very little national funding, which hinders the speed of educational innovation and the realization of educational equity, thereby exacerbating the gap in innovation and entrepreneurship education among universities.

Table 2.2 - The Chinese government's investment in some universities in 2023

NO	School nature	school name	State funding
1	state-run	Tsinghua University	twenty-six billion, two hundred million yuan
2	state-run	Peking University	sixteen billion, seven hundred million yuan
3	state-run	Fudan University	twelve billion, eight hundred and twenty-three million yuan
4	state-run	Zhongshan University	eleven billion, five hundred and fifty million yuan
5	state-run	Southeast China University	nine billion, four hundred and ninety-one million yuan
6	state-run	SCU	seven billion, three hundred and sixty-five million yuan
7	state-run	China Agriculture University	four billion, nine hundred and ninety-six million yuan
8	state-run	Shanghai University of Finance Economics	one billion, nine hundred and forty-seven million yuan
9	state-run	University Of Qingdao	five hundred and fifty-six million yuan
10	state-run	University Of Yantai	three hundred and twenty-five million yuan
11	civilian-run (school)	Yantai Nanshan College	sixty-seven million yuan

Source: systematized by the author

From Table 2.1, it can be seen that public universities in China have a lot of funding support, while private universities have very little funding. The main source of funding for private universities is self-raised by the school's founders, which to some extent exacerbates the education gap. Insufficient funding is a major challenge for the

innovation and entrepreneurship development of Yantai Nanshan College.

Furthermore, with the increasing prevalence of online and remote education, it's vital for innovation and entrepreneurship departments to innovate in business models and educational offerings, adjusting to the dynamic market dynamics and addressing the varied learning requirements of students. Confronted with such obstacles, educational institutions' innovation and entrepreneurship departments must not only adopt a progressive outlook but also have adaptable strategic thinking and the capacity for effective implementation. In keeping with educational core values, it's vital for them to courageously discover and embrace novel educational techniques, thus ensuring the advancement and development of education.

Furthermore, there ought to be a development culture that fosters innovative thinking, inspiring both educators and learners to actively participate in novel practices. Such actions can lead to the ongoing enhancement and optimization of educational materials and services through these hands-on tasks. It's through this method that departments dedicated to innovation and entrepreneurship in educational settings might assume a pivotal position in shaping the educational sector's future direction and steering its progress.

Currently, it is essential for the departments of innovation and entrepreneurship in schools to forge tight collaborations with governmental bodies, businesses, and other educational institutions to collectively advance the ongoing growth of educational innovation. For the enhancement and implementation of educational technology, the government possesses the capability to develop tactics that foster educational innovation and to offer monetary aid. Companies can provide innovative tech solutions

and a wealth of hands-on experience to aid educational bodies in better resource integration and innovative endeavors. Collaborating with various educational bodies aids in the exchange of knowledge and expertise, alongside fostering the collective growth of fresh educational initiatives and the creation of curricula. This widespread collaborative approach enables the innovation and entrepreneurship divisions in educational settings to tackle diverse upcoming obstacles more adeptly and offer students an educational journey that is both extensive and of superior quality. Subsequently, we'll explore the managerial position, obstacles, and problems confronting the innovation and entrepreneurial units within educational settings.

The management mechanism and organizational structure of the innovation and entrepreneurship departments of educational institutions are the key factors that drive their innovation vitality, promote project incubation and the growth of students' entrepreneurship. The current main management mechanism and organizational structure are as follows:

At present, the innovation of entrepreneurial department management will generally be reflected in the top-level design and planning, innovation department in order to better management, will develop clear and executable strategic blueprint, further study of education industry development trend, market demand and their own resources and ability, develop forward-looking, feasibility and challenging strategic planning. The plan identifies development plans for different periods and sets specific measures and schedules.

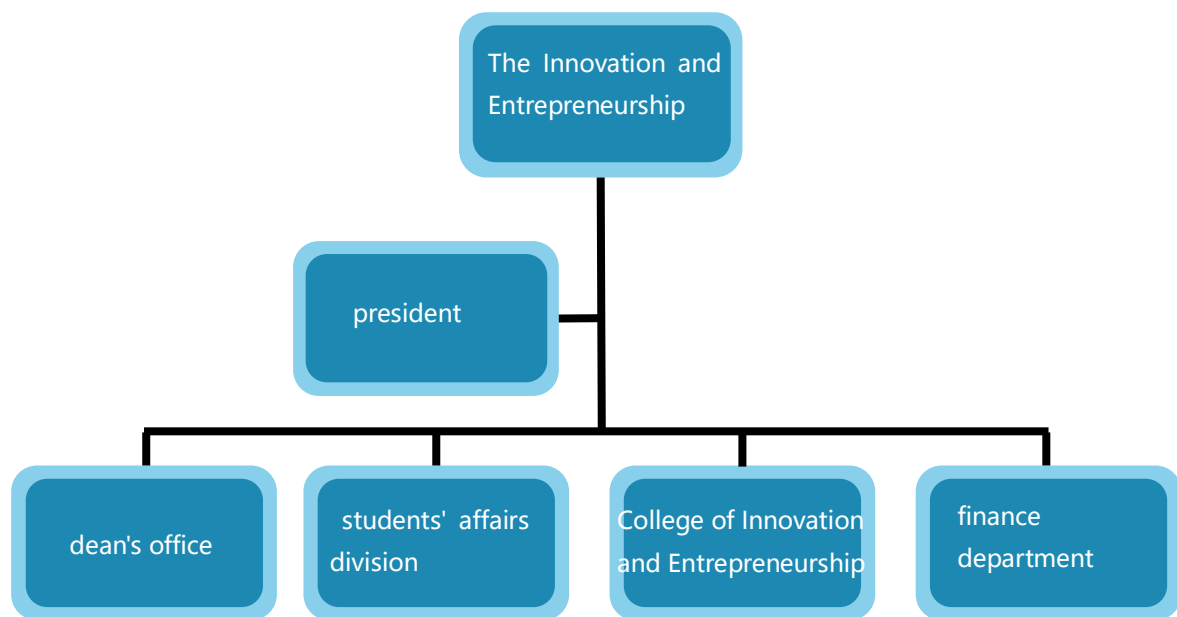


Figure 2.2 - The organizational structure of the leading group for innovation and entrepreneurship of Yantai Nanshan University

Source: systematized by the author

Through Figure 2.2, we can see that Yantai Nanshan University has basically completed the top-level design of the management work. The principal is the leader of the group, and there are four departments, which form the innovation and entrepreneurship group.

To support the realization of the strategic goals, some innovation and entrepreneurship departments have also developed a series of targeted and flexible policies. These policies cover financial support, project screening and incubation, team incentive, achievement transformation and other aspects, and are timely adjusted and optimized according to the actual situation.

At present, the Innovation and Entrepreneurship Department of Yantai Nanshan

University is also closely cooperating with other departments to break down departmental barriers and form a joint force. By establishing an information sharing mechanism, jointly holding innovation and entrepreneurship activities, and jointly developing courses, we will promote resource complementarity and advantage sharing. The Innovation and Entrepreneurship Management Department of educational institutions is also actively expanding off-campus resources, establishing close cooperative relations with government departments, industry associations and enterprises, In this way, the development of innovation and entrepreneurship projects is further supported.

The management department of innovation and entrepreneurship will pay more attention to the efficient integration and full use of resources. Through the establishment of an effective work distribution mechanism , perfect project management mechanism and strict performance appraisal mechanism, to ensure that resources can be accurately invested in the most potential and valuable innovation and entrepreneurship projects.

Many innovation and entrepreneurship management departments will develop whole-chain project management services, providing services from project screening, incubation and acceleration to market docking. By setting up project review committee, setting up professional mentor team, providing technical support and market guidance, help the project team to solve technical problems, optimize business model and expand market channels. The relevant departments pay more attention to the growth and development needs of the project team, and provide them with necessary training and consulting services.

In order to improve the quality and development of the project, the Ministry of

Innovation and Entrepreneurship has established a performance evaluation and evaluation system , for example, Nanshan University in Yantai, China, has established a high-level evaluation standard for job development. The system covers the innovativeness, practicality and benefits of the project, and introduces a third-party evaluation agency or expert jury to conduct an objective and fair evaluation. By regularly releasing evaluation reports and organizing communication and sharing meetings, we will promote excellent project experience and urge the project team to continuously improve through regular communication and sharing meetings.

In order to increase the enthusiasm of teachers and students to participate in innovation and entrepreneurship, many educational institutions have also established diversified incentive mechanisms. It can also provide guidance from entrepreneurship mentors, priority recommendation to participate in various entrepreneurship competitions, and provide internship and employment opportunities. In addition, the cultivated innovation and entrepreneurship achievements can also be included in the promotion assessment system to further enhance the sense of honor of the participants.

Most educational institutions will also provide comprehensive safeguard measures, provide necessary venues, equipment, funds and other hardware support to strengthen the construction of teaching teams.

The organizational structure of any management department is the concrete embodiment and supporting framework of its management mechanism. Here is an in-depth description of the organizational structure:

The education sector usually has a special committee or a professional management school. For example, in 2021, Yantai Nanshan University established a

new committee to manage innovation and entrepreneurship. The director of the committee is the chief director and strategic leader of innovation and entrepreneurship work. The director of the committee has keen market insight, excellent leadership and decision-making ability. He / she needs to fully grasp the overall direction and the future development of innovation and entrepreneurship management, and formulate scientific and reasonable development strategies and policies and measures for the department.

The deputy director is the right-hand man and the specific executive of the director of the committee. He / she generally has extensive practical experience and management ability to assist the director in his daily work and promote the implementation and implementation of various policies. At the same time, the deputy director will also be responsible for the supervision and management of specific projects to ensure that the project can be promoted smoothly as planned.

The Innovation and Entrepreneurship Management Office is the daily working organization and management center of the innovation and entrepreneurship department. The office will undertake a lot of organization, coordination and management work. The director of the office is a middle-level leading cadre with rich management experience and coordination ability, and also the secretary general of the Innovation and Entrepreneurship Committee. The office will establish the relevant system of management development system to achieve the smooth progress of the work. At the same time, strengthen communication and coordination with various departments to ensure that mutual information exchange can be carried out smoothly.

Table 2.3 - Personnel Information Form of Innovation and Entrepreneurship Management Department of Yantai Nanshan College

	Basic Information	Number of persons
Gender	Boys	31
	girls	56
Age	Under 30 years old	43
	31-40	26
	41-50	11
	50-	7
Level of position	Subject level	5
	Deputy section level	21
	Staff member level	61
Education background	Doctoral candidate	9
	Master's Degree	66
	Undergraduate degree	12
Professional title	Advanced level	6
	Intermediate level	63
	Primary and below	18
Length of service	0-5 years	52
	6-10 years	17
	11-15years	10
	Over 16 years	8

Source: systematized by the author

According to Table 2.2, it can be seen that the majority of the innovation and entrepreneurship management departments at Yantai Nanshan College are composed of new employees, with 59.7% having worked for less than five years. The majority of innovation and entrepreneurship teachers are young, and 89.7% of teachers hold intermediate or lower professional titles. The number of female employees is slightly higher than that of male employees.

Institutions responsible for innovation and entrepreneurship guidance, such as committees responsible for work guidance, are the executive institutions of the innovation and entrepreneurship departments of educational institutions. These

institutions are generally composed of industry experts, scholars and entrepreneurs to provide scientific guidance and top-level design for the innovation and entrepreneurship teams. They provide professional opinions and suggestions to the project team by holding regular meetings and conducting seminars. It should also understand the development trends and trends of international and domestic innovation and entrepreneurship, and provide reference for various departments to formulate strategic plans, policies and measures.

The executive agencies of the Innovation and Entrepreneurship Management Department include the Management Service Center, the Teaching and Research Division, and other specific administrative departments. These departments are responsible for the formulation of specific work objectives, teacher team building, project incubation and other work. They provide comprehensive support and services for the project team by integrating resources and create a platform for innovative development and entrepreneurial development. It will also strengthen the cooperation and exchanges with government departments, industry associations, enterprises and other external institutions, broaden the resource channels and promote the market-oriented application of project results.

Yantai Nanshan College has relatively weak resources in innovation and entrepreneurship guidance. Although many universities in China already have the organizational structure mentioned above, Yantai Nanshan College started relatively late in this area and lacks guidance experts and management talents, resulting in insufficient guidance for innovation and entrepreneurship.

This study also hopes to promote the innovation and entrepreneurship department

of Yantai Nanshan University to better integrate resources and combine its own advantages through continuous improvement of management mechanisms and organizational structures, in order to enhance to a certain extent.

2.2 Main responsibilities and activity contents of the innovation and entrepreneurship departments of educational institutions

The main job responsibilities of the Innovation and Entrepreneurship College at Yantai Nanshan University are relatively clear, and the division of labor is also very reasonable. In Table 2.3, we will specifically study and analyze the relevant situation.

Table 2.3 - Main job responsibilities of the Innovation and Entrepreneurship College of Yantai Nanshan University

NO	Operating duty
1	2
1	Responsible for the construction of demonstration courses for mass entrepreneurship and innovation; the selection and assessment of teachers inside and outside the school.
2	To be responsible for the project release, review and acceptance of the innovation and Entrepreneurship Education Research Center.
3	To be responsible for the application and management, implementation monitoring and fund management of college students' innovation and entrepreneurship training programs.
4	To be responsible for the organization, implementation and management of the "Internet +" competition for college students and various innovation and entrepreneurship competitions at all levels

1	2
5	Responsible for the daily management and maintenance of college students' innovation and entrepreneurship incubator and N base, and responsible for the business service guidance of settled projects.
6	Responsible for the project docking and management of off-campus bases; carry out school-local and school-enterprise cooperation, and strive for social resources.
7	Responsible for teacher teaching workshops; organize and participate in provincial innovation and entrepreneurship teaching competitions.
8	Responsible for the guidance, training and supervision of college students' innovation and entrepreneurship club.

Source: own research

Innovation and Entrepreneurship Department of Yantai Nanshan University is responsible for the policy propaganda and implementation, in management, not only stay on the surface of the information transmission, but will in-depth analysis of policy, extract the core points and has a direct impact on student's innovation entrepreneurship, through multiple channels, many forms (such as policy interpretation, online seminars, etc.) to accurate communication.

The Innovation and Entrepreneurship Department of Yantai Nanshan University has established a feedback mechanism for the effectiveness of policy implementation , regularly collect the opinions and suggestions of students and teachers on the innovation and entrepreneurship policies, and timely adjust and optimize the publicity and implementation strategies of the policies.

The Innovation and Entrepreneurship Management Department of Yantai Nanshan College is responsible for the teaching and management of innovation and

entrepreneurship, continuously optimizing and updating the curriculum system of innovation and entrepreneurship education, introducing advanced concepts and methods, and ensuring timely and visionary course content.

In terms of teaching, it provides students with some practical possibilities, and creates some innovative practical positions through cooperation with local or some companies. Through innovation training, entrepreneurship simulation and practical education, students can effectively improve their innovation and entrepreneurship ability. It is necessary to establish a more reasonable education management evaluation system, establish diversified evaluation content methods (such as project presentation, business plan, market research report, etc.), and conduct comprehensive evaluation of students.

At present, the education management department of Yantai Nanshan College tends to increase the introduction of teachers, especially outstanding talents with rich entrepreneurial practice experience and industry background. At the same time, through joint enterprise training, we aim to enhance the educational and practical abilities of existing teachers.

The relevant management departments will also regularly organize teachers to participate in domestic and foreign education, training and exchange activities to broaden teachers' horizons and improve their quality. In addition, teachers should also be mobilized to participate in enterprise practice projects to enrich their own practical experience.

Innovation and entrepreneurship departments will also establish and improve incentive policies and job security for teachers, Commend and reward teachers who

have made outstanding achievements in their work, and stimulate their enthusiasm for work.

Many educational institutions have established diversified practice bases, including training centers, school-enterprise cooperation bases, business incubators, etc., to meet the educational needs of different students. Yantai Nanshan University is no exception, such as the college student entrepreneurship incubation base of Yantai Nanshan University, a platform specializing in cultivating college students' innovation and entrepreneurship ability.

After the establishment of the student time base, refined management will be carried out, and detailed management systems and operating procedures will be formulated to ensure that the base can be used and studied by students normally. In addition, it is also necessary to strengthen the guidance and supervision of students' practical activities to ensure that the required effects of education are achieved.

The relevant management departments will also strengthen the sharing and cooperation of resources among the practice bases to promote the maximum use of teaching resources. It is necessary to actively establish cooperative relations with industry associations and enterprises, so that more resources and support will be obtained.

The results achieved by innovation and entrepreneurship projects are the embodiment of the work performance of relevant management departments. The management department will establish a scientific project screening mechanism , and conduct strict evaluation and screening of the projects to ensure the feasibility and innovation of the project. It will focus on the market potential and social value of the

project, and provide more targeted guidance and support for students.

Every year, the innovation and entrepreneurship department will absorb some projects to join the entrepreneurship practice base, and provide whole-process support services for the selected projects, including fund raising, market analysis, business model design, market promotion and other aspects.

After the successful cultivation of innovation and entrepreneurship projects, project achievement exhibition or road show will be held regularly, inviting investors, Successful people and other people to participate, and build a platform for student projects to display and connect resources. At the same time, by means of media publicity to expand the influence of the project to attract more attention and support.

The Innovation and Entrepreneurship Department will often hold some related activities such as activity months, work exhibitions, and creative corners to create a good atmosphere for activities. Based on the characteristics of the school and the concerns of students, a variety of activities will be carried out to enhance students' investment in innovation and entrepreneurship.

At present, Yantai Nanshan College is also strengthening the construction of campus culture and integrating this spirit into the daily teaching and management of the school. Train students in innovative thinking through excellent behaviors and successful cases in the form of billboards, posters, banners, etc.

Yantai Nanshan University has established a number of clubs, such as the Yantai Nanshan University Innovative Ideas Association. Through these student associations, providing some support and assistance for students to participate in innovation and entrepreneurship will mobilize the enthusiasm of students and enable them to carry out

Table 2.4 - List of innovation and entrepreneurship clubs established by Yantai Nanshan University

order number	Club name	founding time
1	Information service innovation platform for college students	2019
2	College student vocational innovation Association	2021
3	College students' innovative thought community	2020
4	College students' competition and hobby club	2017

Source: own research

some work independently. The authorities will also provide guidance and management to community-based organizations to enable them to function normally.

Through the in-depth and specific expansion of the responsibilities and activities of the innovation and entrepreneurship departments of educational institutions, the development of management can be better promoted.

2.3 Curriculum and training system construction and implementation strategies

Curriculum system construction. When setting course objectives, the Innovation and Entrepreneurship Department of Yantai Nanshan University needs to balance theoretical depth and practical breadth. The targeted curriculum is designed to cultivate

students' scientific literacy and innovation ability, critical thinking and problem-solving, encouraging them to challenge tradition and explore unknown areas. By introducing interdisciplinary learning content, such as psychology, design thinking, etc., Help students to develop and innovate and improve their understanding of innovation. The relevant departments will pay more attention to the entrepreneurial spirit of students, so that they can understand the whole process of entrepreneurship, from project planning, market research to product promotion, and strive to accurately grasp each step to lay a solid foundation for the future entrepreneurial path.

The Innovation and Entrepreneurship College of Yantai Nanshan University fully considers the different needs and backgrounds of students when setting course content. The basic theory course provides students with the basic theoretical knowledge and tools and methods needed for innovation and entrepreneurship, and helps them to establish a systematic knowledge framework. Professional practice courses allow students to experience the hardships and fun of entrepreneurship by simulating the real business environment. Relevant departments will pay more attention to the application of case analysis in teaching. By introducing excellent entrepreneurial cases, students can gain an in-depth understanding of the successful experiences and failures in the entrepreneurial process, and develop their analytical and decision-making skills.

At present, Yantai Nanshan University has opened a total of four innovation and entrepreneurship courses, which is a small number among educational institutions of the same category. To compensate for this, Yantai Nanshan College has adopted a different teaching strategy. The use of project learning, case teaching, simulated entrepreneurship and other strategies not only improves students' practical ability, but also cultivates

Table 2.5 - Innovation and entrepreneurship courses offered by Yantai Nanshan University

Order number	Course title	Course nature
1	innovative thinking	obligatory
2	Entrepreneurship Affairs	obligatory
3	Entrepreneurship Simulation Training	take as an elective course
4	The Innovation Methodology,	take as an elective course

Source: own research

students' team spirit and communication and coordination skills. In addition, constructive interaction between teachers and students and cooperation between students are encouraged. Through group discussions, role-plays, etc., students can learn and grow in a relaxed and happy atmosphere.

Construction of training system. To build up the ranks of teachers is the key to building the training system. The innovation and entrepreneurship department give attention to the introduction of experts with rich entrepreneurial experience and industry background as part-time teachers or mentors to offer students with more practice instruction. Meanwhile, it also attaches importance to the training and development of existing teachers, and improves their teaching ability and ability of practical guidance by organizing and participating in innovation and entrepreneurship education and training, and enterprise field visits.

Practice platform is an important section of the training system. Many innovation and entrepreneurship management departments will actively have cooperation with

enterprises and industry associations to build practice bases both inside and outside the school, so as to provide students with a genuine working environment and practice opportunities. In addition, we also use modern information technology means to build a virtual simulation platform, to offer students with online innovation and entrepreneurship practice opportunities. Through the construction of these practice platforms, we strive to achieve the deep integration of Internal and external resources of the school, to provide students with all-round and multi-level practice support.

Project incubation and guidance are the key links of the training system. The innovation and entrepreneurship department will provide students with accompanying guidance throughout the whole process of project topic selection, team formation, planning, implementation and evaluation. By regularly organizing project review, mentor consultation and other activities, to assist students to unlock the problems and difficulties encountered in the process of entrepreneurship. At the same time, we will actively cooperate with investors and enterprises to offer financial support and market opportunities for excellent projects. Through the implementation of these measures, we aim to increase the chances of entrepreneurial success and social influence of students.

Evaluation and feedback mechanism. Innovation and entrepreneurship departments will generally establish a comprehensive student evaluation system, including process evaluation, outcome evaluation, comprehensive evaluation and other dimensions.



Figure 2.3- Flowchart of innovation and entrepreneurship project cultivation of Yantai Nanshan University

Source: own research

By collecting students' learning results, project works, classroom performance and other data, students' ability of innovation and entrepreneurship is objectively evaluated. At the same time, we also stimulate students to actively take part in the evaluation process and put forward their own opinions and suggestions. Through regular student seminars, questionnaires and other activities, students' feedback is collected to provide a basis for the continuous improvement and optimization of the curriculum system.

The Innovation and Entrepreneurship Department will regularly evaluate and give feedback on the teaching quality of teachers, including content, methods, effects, etc. The Innovation and Entrepreneurship Department also provides continuous training and development opportunities for teachers to help them continuously improve their teaching and practical guidance skills. Through organizing and participating in innovation and entrepreneurship education and training, enterprise field trips and other activities, promote exchanges and cooperation among teachers.

2.4 Problems and challenges faced in management of innovation and entrepreneurship departments of educational institutions

At present, Yantai Nanshan University, like other universities, has many profound and complex problems and challenges in the management process. This is not only related to the normal operation and development of management, but also has a direct impact on the transformation of student training results. Details are as follows:

Insufficient construction of management system and system. The innovation and entrepreneurship management department of Yantai Nanshan University does not

cooperate closely with other management departments, and the existing management system lacks an efficient and clear cross-departmental cooperation mechanism. Therefore, problems such as information asymmetry and transmission may occur in key links such as project declaration, resource allocation and progress tracking, which affect the overall speed and quality of the project.

The management system of the innovation and entrepreneurship department of Yantai Nanshan University is relatively backward, and it is difficult to adapt to new needs and challenges. On the one hand, the existing system does not cover all aspects of innovation and entrepreneurship activities, resulting in loopholes in project management and fund management, and even some relevant institutional regulations may be difficult to implement due to lack of flexibility and operability.

Insufficient teacher strength and professional ability. Today, innovative education is constantly evolving, and the demand for teachers with experience and expertise is increasing. However, the number of teachers in this area in many educational institutions is insufficient to meet the growing needs of students.

While many teachers have a lot of knowledge in the profession, they lack practical experience. This makes it often difficult to provide targeted and practical advice and guidance when guiding students in innovative and entrepreneurial practice.

Through Table 2.6, we can see that the innovation and entrepreneurship faculty of Shandong University is very high, while the proportion of innovation and entrepreneurship faculty in Yantai Nanshan University is half of that of Shandong University, and the proportion of faculty in many universities is less than 10%, which shows that the shortage of innovation and entrepreneurship faculty is a common

problem faced by many universities.

Table 2.6 - The proportion of innovation and entrepreneurship teachers in some universities

NO	Organization name	Teachers of innovation and entrepreneurship teaching	Number of school teachers	percentage
1	Shandong University	183	1726	10.60%
2	University Of Qingdao	156	1653	9.44%
3	University Of Ji'nan	133	1529	8.70%
4	Shandong Talent College	112	1458	7.68%
5	Yantai Nanshan College	78	1577	4.94%

Source: systematized by the author

Existing teacher training in innovation and entrepreneurship tends to focus on professional theory. However, lack of experience and awareness of the latest industry trends. As a result, teachers still find it difficult to adapt to the rapidly changing innovation and entrepreneurship environment after receiving the training.

Traditional teaching and lecture training methods are difficult to stimulate teachers' interest and enthusiasm in learning. The lack of interactive and practical training methods makes the effect of teacher training greatly reduced.

Insufficient educational resources. In terms of educational resources, first, capital investment is limited, and innovation and entrepreneurship activities need a large amount of financial support, including project research and development, marketing, team building and other aspects. However, at present, many educational institutions have limited capital investment in this area, making it difficult to meet the demand for innovation and development.

Second, the site equipment is insufficient. Innovation and entrepreneurship practices require specialized sites and equipment support, but many educational institutions are shortcomings in this regard. As a result, students are often limited by the site and equipment.

The platform construction of many innovative practices is lagging behind. While many educational institutions have begun to build platforms of practice, they are still lagging behind overall. Due to the lack of a well-developed practice platform, students lack the necessary support conditions when carrying out practice.

Now the online platform of this industry is not perfect. With the rapid development of information technology, online platforms are becoming more and more indispensable in education. However, some educational institutions still have shortcomings in the construction of network platforms, such as single function and poor user experience.

Insufficient cultural atmosphere and incentive mechanism. In Yantai Nanshan University, as well as in some educational institutions, traditional teaching concepts and academic evaluation systems are still dominant. Therefore, there is a lack of understanding and attention to innovation and entrepreneurship education, and it is difficult to achieve work results.

The promotion of this work in educational institutions is not good enough and not in-depth enough, resulting in a lack of a comprehensive and comprehensive understanding of the activities among students and teachers. Educational institutions do not publicize this work well enough, and do not go deep enough, resulting in a lack of comprehensive and thorough understanding of the activities by students and teachers.

Many of these authorities do not have an adequate evaluation system. At present, the evaluation system of many educational institutions is still within the traditional framework, and it is difficult to comprehensively and objectively evaluate students' abilities and achievements. This has led to a lack of sufficient motivation and enthusiasm among students to participate in these activities.

SECTION 3

STRATEGIES FOR ENHANCING THE MANAGEMENT OF INNOVATION AND ENTREPRENEURIAL DEPARTMENTS IN EDUCATION INSTITUTIONS

3.1 Improvement of management procedures and methods in educational institutions

The process of strengthening the management framework and working methods of educational institutions includes a detailed and thorough approach that focuses on the establishment of an effective, revolutionary and progressive work management system at Yantai Nanshan College. The following is an in-depth explanation and extension of the program:

Elaborate on the underlying management principles and goals. Yantai Nanshan University should revise its teaching methods. Learning centers need to profoundly acknowledge the crucial role of innovative and entrepreneurial learning in fostering students' creative thinking, innovative mindset, and responsibility. It's essential to move away from traditional education's focus on spreading knowledge and overlooking nurturing capabilities, and instead consider innovation and managing entrepreneurship as pivotal elements in educational transformation. Educational bodies must incorporate innovation and entrepreneurial management into the comprehensive educational planning at an upper-level level, establish clear strategic standing in the progression of

schools, and develop related policies and strategies for their effective execution.



Figure 3.1- Yantai Nanshan University strategic planning elements composition

Source: systematized by the author

In Figure 3.1, we can clearly understand that educational institutions should take the goal of innovation and entrepreneurship education as the core and design the relevant work composition. Departments of innovation and entrepreneurship need to strategize thoroughly.

For Yantai Nanshan University, Crafting an intricate plan for educational

management development is essential for maintaining systematic workflow. The strategy must elucidate the general objective, step-by-step assignments, the route of execution, and the assessment standards for innovation and entrepreneurial learning. When establishing objectives, our focus shouldn't solely be on immediate success achievements, like triumphing in innovation and entrepreneurship contests and nurturing entrepreneurial endeavors, but also on enduring impacts such as enhancing student innovation quality and fostering the development of educational brands. Moreover, the planning process must consider aligning and harmonizing with external factors, like regional economic growth and industrial infrastructure enhancement, to align the education objectives closely with social requirements.

Enhance the administrative procedures for fostering innovation and entrepreneurship. Although Yantai Nanshan University already has a management and organizational structure, it is not perfect enough. Creating a dedicated, well-established startup management department or team is essential to strengthen the management process. The responsibilities of this unit or group include strategic planning, allocating resources, overseeing project execution, and overseeing the quality of innovation and entrepreneurship mentoring. At the same time, close cooperation with other educational, scientific and administrative departments is essential to establish a unified innovation and entrepreneurship education network across the school. In order to achieve the effective functioning of our department or team, it is essential to define internal responsibilities and a collaborative system for the systematic progress of all tasks.

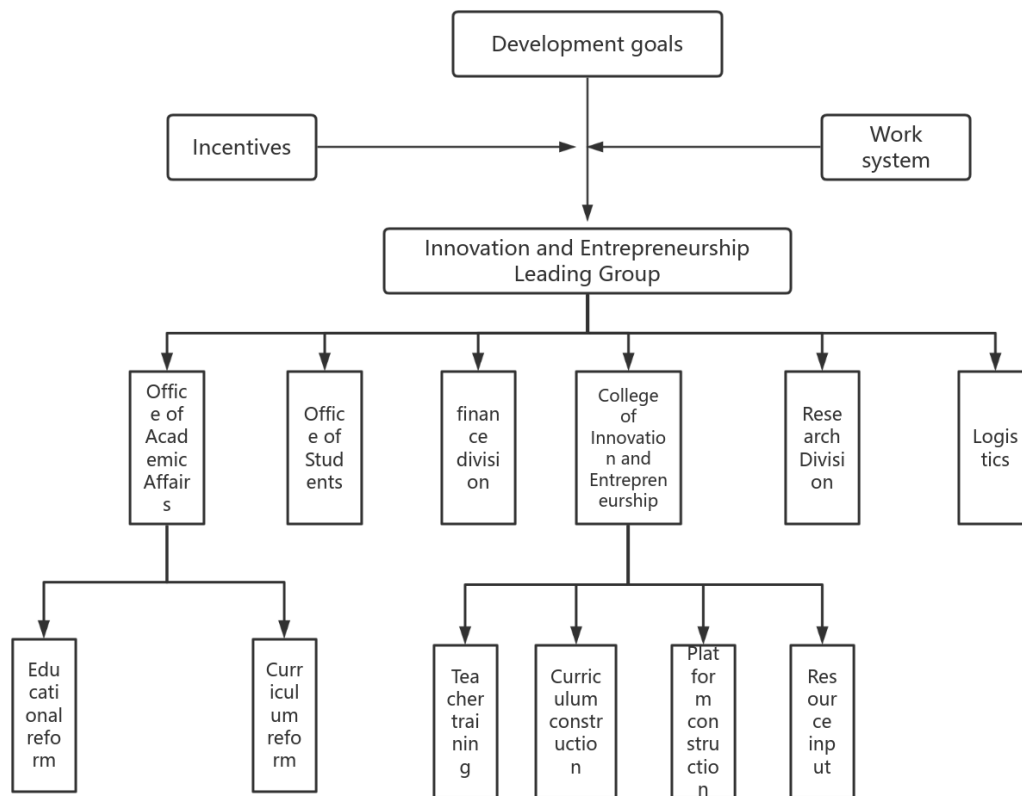


Figure 3.2- Organizational structure designed for innovation and entrepreneurship at Yantai Nanshan University

Source: own research

Figure 3.2 shows the organizational structure designed for innovation and entrepreneurship in Yantai Nanshan University. Departments of innovation and entrepreneurship must acknowledge that educational promotion requires collaborative action and backing from every department within the school. Schools need to set up and enhance interdepartmental collaboration systems to bolster dialogue and cooperation between departments dealing with innovation, entrepreneurship management, and others. By consistently collaborating in meetings and pooling information resources, we aim to enhance information exchange and resource amalgamation across different

departments, creating a unified entity to foster comprehensive growth in innovation and entrepreneurship training.

An efficient incentive system is crucial for encouraging both teachers and students to engage in education on innovation and entrepreneurship. Schools ought to develop appealing incentives, like establishing scholarships for innovation and entrepreneurship, offering venture capital assistance, and selectively advising on top-notch projects for participation in diverse contests. Concurrently, it's crucial to address teachers' career growth, offer them training and chances for communication, and enhance both their proficiency and capacity to teach innovation and entrepreneurship. Establishing an ideal reward system aims to create a conducive environment for teacher and student engagement in reciprocal advancement.

Enhance the development of the educational team. Research reveals a significant number of educational establishments lack sufficient teacher recruitment. Educators ensure the standard of education in innovation and entrepreneurship. It is imperative for academic bodies to proactively engage specialists and corporate guides with substantial expertise in innovation, entrepreneurship, and industrial knowledge to furnish learners with more actionable and specific advice. Concurrently, enhancing teacher training and interchange at the school and bolstering their professional standards and teaching skills through various specialized lectures, workshops, and other methods is imperative. Furthermore, it's advisable to motivate teachers to engage in innovative and entrepreneurial practices and gain hands-on experience to more effectively mentor their students.

Innovative educational techniques and methods. Yantai Nanshan University should

implement complex teaching methods, and they should diligently investigate and test these methods, including project-based learning and inverted classroom approaches. Such educational approaches focus on the individuality and engagement of students, fostering their independent exploration and cooperative study, and nurturing their inventive reasoning and problem-solving skills. Concurrently, it's crucial to create stimulating and creative educational assignments and endeavors that align with the essence of innovative and entrepreneurial learning, enabling students to practically acquire the understanding and skills related to innovation and entrepreneurial pursuits.

Practical education in schools ought to be bolstered as well. The essence of innovation and the instruction in entrepreneurship lies in hands-on teaching methods. It is advisable for academic facilities to create and enhance their innovation and entrepreneurship training centers and lab environments to furnish students with authentic learning experiences and practical chances for entrepreneurial ventures. Collaborating with companies, industry groups, and various institutions can lead to resource distribution and synergies, collectively fostering comprehensive growth in innovation and entrepreneurial learning. Moreover, it's advisable to motivate students to engage in diverse innovation and entrepreneurship contests and practical project exercises, thereby enhancing their capacity for innovation and entrepreneurship and overall excellence via hands-on exercises.

Yantai Nanshan University should master the application of information technology in management. As information technology evolves swiftly, schools must fully leverage big data, cloud computing, and contemporary tech to enhance resource distribution and management in the realm of innovation and entrepreneurship

instruction. By building an online educational platform, a virtual simulation lab, and other virtual educational settings, students can enjoy a more user-friendly, effective, and tailored learning journey. Simultaneously, data analysis technology serves as a tool to oversee and assess students' innovative and entrepreneurial conduct, aiding in the prompt fine-tuning and enhancement of educational and teaching initiatives.

Enhance the process flow. It's essential for the innovation and entrepreneurship sectors in educational bodies to define the operational procedure. Meticulously categorizing and managing innovation and entrepreneurship education effectively enhances work productivity and minimizes superfluous wastage. Educational bodies ought to elucidate the duties and procedures at each juncture to guarantee the systematic and effective functioning of every task. A comprehensive schedule or flow chart, for instance, might be developed to specify the exact phases and timelines for each task, ensuring timely and high-quality completion by pertinent staff.

The process of workflow optimization heavily relies on the feedback mechanism. Academic bodies need to set up an effective system for promptly gathering insights and proposals from teachers and learners about innovative and entrepreneurship learning. Utilizing survey questionnaires, seminars, personal interviews, and various methods, to grasp the requirements and anticipations of educators and pupils, thereby robustly bolstering and fine-tuning the realms of education and teaching. Concurrently, it's crucial to focus on analyzing and processing feedback data, promptly modifying and enhancing the workflow and teaching strategies to more effectively cater to both teachers and students, thereby elevating educational quality.

Construct a varied assessment system. The current educational scenario

demonstrates the inadequacy of conventional evaluation criteria in fulfilling the demands of innovation and entrepreneurship education. Educational bodies ought to implement a variety of assessment standards, emphasizing not just the academic achievements, innovation, and entrepreneurial successes of students, but also their quality, inventive spirit, and real-world utility. Concurrently, it's crucial to focus on evaluating students' innovative and entrepreneurial skills, including teamwork and problem-solving competencies, to thoroughly assess their innovation, entrepreneurial competence, and skill level.

Self-assessment plays a crucial role in elevating educational quality, yet the significance of external evaluation cannot be overstated, allowing innovation and entrepreneurship departments to address issues in a fairer and more impartial manner. Learning establishments ought to engage with sector specialists, business advisors, and various outside parties in the assessment process to gauge the impact and quality of innovative and entrepreneurial teaching. External assessment helps identify educational and teaching shortcomings and issues, enabling enhancement and optimization.

3.2 Developing a hybrid curriculum and practice platform for innovation and entrepreneurship, both online and offline

Since a singular curriculum system for innovation and entrepreneurship is insufficient for student learning, establishing a combined online and offline system and platform for this curriculum is crucial. Building this system involves a complicated and intricate process. The goal is to foster a thorough and engaging educational setting

focused on fostering innovation and entrepreneurial spirit among students by deeply incorporating both digital resources and in-person practices. What comes next is an expanded analysis and elaboration on the preceding techniques:

Clarify the goals behind constructing the curriculum system. When building the curriculum system, it's imperative to precisely delineate and hone the goals for confirming the relevance and impact of the curriculum's content. The aim is not just the enhancement of students' creative and business-oriented abilities, but also to foster their creativity, market understanding, collaborative capabilities, and sensitivity towards risk and reactions.

Table 3.1 Satisfaction survey of innovation and Entrepreneurship courses in Universities

Title	Classification	Number of people (people)	Number of people (people)
1	2	3	4
Whether the university has set up courses on innovation and entrepreneurship	yes	331	97.35
	no	9	2.65
Number of innovation and entrepreneurship courses in the university	1 Door	16	4.70
	2 Door	195	57.35
	More than 2 doors	129	37.94
Teaching mode of innovation and entrepreneurship courses in the university	on-line	24	7.05
	offline	256	75.29
	mixing	60	17.64

1	2	3	4
Do you think the curriculum of innovation and entrepreneurship in your university is reasonable	rational	123	36.17
	same as	93	27.35
	unreasonable	124	36.47
Do you think the innovation and entrepreneurship curriculum of your university can meet your learning needs	ability	194	57.05
	cannot	146	42.95
Do you think it is necessary to set up a mixed teaching mode for innovation and entrepreneurship courses	have	272	80
	not have	68	20

Source: own research

In the satisfaction survey of innovation and entrepreneurship courses of Yantai Nanshan University, it was found that more than 97% of the students 'universities set up courses related to innovation and entrepreneurship, while only 37.94% of the number of innovation and entrepreneurship courses exceeded 2, and only 17.64% of the students' innovation and entrepreneurship courses adopt mixed teaching mode.36.17% of the students think that the innovation and entrepreneurship courses in their universities are reasonable, while most others think that they are general or unreasonable. Nearly half of the students believe that the innovation and entrepreneurship courses in their universities cannot meet their learning needs, and 80% believe that it is necessary to set up a mixed teaching mode of innovation and entrepreneurship courses.

Our expectation is that, by developing the curriculum system, students will be able

to:

For a thorough comprehension of the fundamental ideas and key principles in innovation and entrepreneurship;

Master crucial competencies including market analysis, product creation, and designing business models;

Develop skills to address real-world challenges, such as adapting to market shifts and modifying tactics;

Cultivate team cohesion and leadership, harness personal team strengths, and collaborate effectively;

Encourage a passion for innovation and business ventures, and nurture the bravery to take risks.

Construct a web-based theoretical educational system. Building an online theoretical curriculum should focus on enhancing resource richness, interactivity, and individualizing them. Specifically, for the amalgamation of globally acclaimed resources, it's vital to employ domestic educational materials alongside the introduction of international-caliber online courses, research papers, and case studies to broaden students' perspective and enhance their knowledge.

Plus, your goal is to improve the level of interactivity. Via interactive techniques like live broadcasting, online conversations, Q&A, and group collaboration, traditional classroom boundaries are dismantled, enabling communication and cooperation among teachers, students, students, and students anytime, anywhere, thereby fostering student interest and proactive learning.

Tabl. 3.2 - Survey form of specific functions and advantages and disadvantages of different types of platforms

Type/ function	Platform name	Superiority	Shortcoming
1	2	3	4
Synchronous live broadcast software (Support for audio and video live broadcast)	DingTalk	Monitoring learning duration Show the number of people online, the time in and out of class Text barrage interaction Live playback There are many teaching methods to choose from	It is not suitable for teaching courseware on mobile phone
	Enterprise WeChat	Upload the data as an alternative Shared desktop There are multiple ways of interact	No playback there is a murmur In-class tests cannot be published
	Tencent conference	colonization Provide the cloud storage space Support for "voice to text" to take notes Provides the graphic editor function	The interactive form is single Can't post a test Do not support the class to look back
	Excellent college	Rich in learning resources and background supervision There are many means of teaching Real-time understanding of the student participation dynamics Teaching tools are multifunctional	Can't take notes Video picture quality is not high-definition
	Zoom	Support the sharing screen function Teaching tools are multifunctional interaction	No class and homework management functions

	Blue ink cloud class	management function Teaching tools are multifunctional Generate evaluation results	Have higher requirements for the network Classroom management is difficult to grasp Cheats on online attendance
Professional online course platform (Support for recording and teaching)	Tencent classroom	PPT The picture and the explanation sound can be synchronized Join the class is convenient and quick There are multiple ways of interact Online exam There are many ways to teach	The effect varies in different time periods There is a lag phenomenon Cannot upload Word documents and pictures
	Rain class	interaction Classroom exercises response system, "mobile phone courseware" push "Bullet-screen-style" classroom discussion Data acquisition and analysis	prematuration Too many people, the network congestion, Congestion during rush hours, and the platform will collapse No voice conversation is possible
	MOOC	More resources Certificate in study courses Exercise response system DA	Learning status could not be monitored The teaching mode is single
	Umo class	Rich information Multi-mode teaching Curriculum construction Study statistical analysis	Can't interact with each other
	tree of good and evil; tree of knowledge	abound resources playback Online exam	The length of learning time is limited

	Super star learning	There are many teaching tools and ways monitor Students can watch their own study records	Study frequency is limited, and will occasionally will occur Network crowding phenomenon
	CCTalk	Complete teaching functions Supports multiple audio and video files screen sharing There are multiple teaching tools	Fees vary, and you need to see the actual demand Choose the live broadcast function
Instant messaging social software (Audio or video live streaming)	QQ, wechat group	Easy to use Can clock in, upload the homework QQ group can be banned Group function is powerful, real-time communication	Operational problems may cause The live broadcast broke down Can't play back Do not use mobile phone courseware teaching Teaching function is limited

Source: systematized by the author

As can be seen from the questionnaire, there are many public service platforms for online open courses, and these online teaching platforms have quite perfect application functions. Open courses are welcomed by well-known universities, and the teachers are also experts in various fields. These courses are usually composed of a number of prominent, short and interactive micro-courses. In addition to online learning, discussing questions and expressing opinions, students can also answer questions and test online. The platform provides multi-terminal technical support such as computer and mobile phone, and students can use any device at any place at any time.

Construct tailored educational routes. Large datasets and AI solutions analyze student learning actions, preferences, and offer tailored educational routes and resource

suggestions. Concurrently, students are motivated to select educational materials and advancement based on their personal interests and objectives.

Construct a real-world curriculum system. Building an offline practice curriculum ought to emphasize the real aspects of combat, experience, and feedback. To specifically examine these multiple dimensions:

Emulating actual surroundings: Through our practice base and innovation and entrepreneurship platform, we aim to mimic real business scenarios, such as the market and competitive arenas, policy contexts, etc., enabling students to experience the challenges and joys of entrepreneurial work firsthand.

Enhancing hands-on advice: We encourage experienced and resource-rich mentors to offer personalized assistance to students, guiding them through the complexities and issues they face when initiating a business. Concurrently, consistent entrepreneurship salons and interactive meetings are scheduled to enable students to engage directly with accomplished entrepreneurs.

Strengthening the building of the teaching personnel. Educational personnel are crucial in establishing a combined online and offline system for innovation and entrepreneurship education. It's necessary to commence from these specific points:

Initially, it's essential to showcase remarkable abilities: by integrating pioneering and enterprising individuals endowed with extensive hands-on expertise and industrial assets into our part-time teaching or mentoring roles, we aim to give students insights more closely aligned with market dynamics. Concurrently, our educators are motivated to engage in business practices, sector communications, and various endeavors to expand their understanding and insight.

Furthermore, fortify educator training by consistently arranging teachers for the execution of innovative and entrepreneurial education, along with teaching methods training, to enhance their professional standards and instructional skills. Concurrently, educators are motivated to engage in scholarly interactions and research endeavors both domestically and overseas to enhance their educational performance and impact.

The third goal is to develop a motivational framework, including scientific incentives like teaching rewards and professional title promotions, to foster enthusiasm and inventiveness among teachers. Concurrently, focus on the career advancement and personal development necessities of teachers, offering essential assistance and aid.

Enhance the methods of assessment and evaluation. Employing an evaluative mechanism serves as a crucial method for assessing the impact on the curriculum system. It's essential to establish a varied and ongoing assessment and evaluation system:

A variety of evaluation techniques such as online testing, classroom dialogue, case studies, project analyses, and other methods are utilized to thoroughly assess students' educational achievements, and their capacity for innovation and entrepreneurship. Concurrently, it focuses on integrating process and outcome assessment, while observing student development and educational approaches.

Ongoing feedback: Utilizing the online platform's data analysis feature, students' educational progress is monitored and assessed instantaneously, offering ongoing feedback and advice. Concurrently, students are motivated to engage in both self-evaluation and peer review to hone their skills in reflection and collaboration.

Bolster the collaborative efforts of schools and companies in resource allocation.

Collaboration between educational institutions and businesses, as well as the exchange of resources, plays a crucial role in fostering the growth of innovation and entrepreneurship education. Our initiation point should be these elements:

Enhancing collaboration between schools and firms: Foster enduring, consistent partnerships with businesses and collectively create courses in innovation and entrepreneurship, along with hands-on projects. Entrepreneurial mentors joining the classroom and students joining the enterprise for internships contribute to the realization of resource sharing and additional benefits. Concurrently, companies are motivated to engage in educational and entrepreneurial school activities, fostering a profound blend of industry, education, and research.

Create a platform for exchanging resources: develop a platform for sharing innovation and entrepreneurship resources both online and in person, and amalgamate various innovation and entrepreneurship tools and services. Aimed at offering students services like policy advisory, business leadership advice, financial docking, and various extensive support services. Concurrently, schools, businesses, and every societal segment are urged to engage in creating and applying innovation and entrepreneurial resources, collaborating to foster the growth of education in these areas.

3.3 Innovations in the management of human resources in universities: building a system of indices for evaluating scientific research activity based on the Delphi method

With the acceleration of economic globalization, the international competition is

increasingly reflected in the competition of scientific and technological strength, and scientific and technological innovation has become the focus of attention of all countries. Innovation is the manifestation of scientific research activities, and the scientific research activities of colleges and universities provide scientific and technological support for the reform of various industries. The accumulation of the achievements of scientific research projects in colleges and universities finally forms the output of innovative achievements, and the performance evaluation of teachers in colleges and universities is an important means to guarantee the output of scientific research projects. At present, the project performance evaluation of university teachers is still dominated by peer review, which is mainly isolated evaluation based on the project content and lacks a set of effective index system as guidance, which makes the performance evaluation of university teachers inevitably affected by subjective factors to a certain extent. Therefore, how to construct a set of operable index system is an urgent problem to be solved in the current performance evaluation of college teachers. Based on the review of relevant literature, this paper analyzes the principles of scientific research project performance evaluation, and uses Delphi method and analytic hierarchy process to explore the construction of performance evaluation index system for different types of university teachers, in order to provide enlightenment for the practice of university teachers' performance evaluation.

Search the official websites of the Ministry of Human Resources and Social Security of China and the Department of Human Resources and Social Security of Henan Province from 2014 to 2020, consult relevant policies, regulations, research reports and other materials on performance evaluation, and understand the current requirements on

performance evaluation of university teachers from the policy level. The databases including PubMed, CNKI, Wanfang, and VIP were searched from January 2014 to December 2020. Using «university teachers» and «performance» and «evaluation index», «teacher» and «Scientific research» and «evaluation», «university» or «performance» and «Scientific research evaluation» as the search terms, subject word retrieval and free word retrieval were carried out. Literature screening and data extraction: read the title and abstract, exclude the less relevant literature, and further read the full text to extract effective information. The contents include: basic information of literature publication, management of scientific research in universities, elements of evaluation index, weight distribution, advantages and disadvantages, current situation of scientific research of teachers in universities and so on. The members of the research group collected, sorted out, analyzed and summarized the effective information, which laid a solid data foundation for this study.

Comb through expert interviews, panel meeting key factors, using the decomposition of the elements of the target step by step, considering the importance of the evaluation index, practicability, maneuverability, combined with the basic conditions and the connotation of hospital pharmacy personnel requirements, the preliminary set up index system of the item pool, form the first round of the questionnaire.

A total of 32 persons are selected from the personnel departments of the Chinese government and the persons in charge of scientific research management and human resources management of undergraduate universities and associate professors with a master's degree or above (Table 3.3).

Table 3.3– Compositions of experts for Delphi methods

Item	Classification	Number of people	Constituent ratio (%)
Sex	Male	18	56.25
	Female	14	43.75
Degree	Master	10	31.25
	Doctor	22	68.75
Academic title	Associate professor	15	46.88
	Professor	17	53.12
Years of working	10~15 years	12	37.5
	More than 15 years	20	62.5

Source: formed by the author

An expert advisory group was formed to conduct two rounds of questionnaire survey, and the expert opinions of each round were sorted out and analyzed. After two rounds of information feedback, the scattered opinions were gradually concentrated, and the framework of the performance evaluation system for university teachers was determined.

Analytic Hierarchy Process (AHP) Establishment of Hierarchy Structure Model

According to the framework of the evaluation system, the hierarchy structure model is established, with the first-level index as the target layer and the second-level index as the indicator layer. A judgment matrix was constructed to design the third round of survey table, and experts were invited to compare the importance of each element at the same level in pairs. The comparative judgment is quantified and the judgment matrix is constructed. The relative weight calculation and consistency test of hierarchical single sorting. When the relative weight of each level factor is determined, then according to

the correlation of each level, the weight calculation and consistency test of the total ranking combination of the level are carried out.

Statistical Methods SPSS 20.0 software was used to input data, calculate Kendall harmony coefficient and conduct statistical test to determine the degree of coordination of expert opinions. SPSS 20.0 software was used to input data, and the comprehensive evaluation of the application evaluation index system was carried out.

Because the performance evaluation system of university teachers is a complex, comprehensive, multi-level comprehensive index system, so in the index Delphi method and analytic hierarchy process are used to construct a scientific and effective performance evaluation system for teachers in colleges and universities, so as to guide the performance evaluation of colleges and universities.

Questionnaire design. The questionnaire of scientific research project performance evaluation system is mainly designed based on literature review and field research. Literature review is an important basis for questionnaire design. Many scholars have carried out abundant research on the performance evaluation system of colleges and universities from different points of view. The index evaluation system applied to colleges and universities is designed. Reading, combing and summarizing a large number of literature and fully drawing on previous research experience can provide ideas and guidance for the design of this questionnaire. Field research is an important supplement to the questionnaire design. Through field research and interviews with the scientific research project management department and the research team, we can have a deeper understanding of the actual situation and needs of the performance evaluation of scientific research projects, and supplement and improve the questionnaire. Through

interviews, teachers in colleges and universities were asked for their opinions and suggestions on the design of performance evaluation indicators in the questionnaire. On the basis of literature review and field research, the questionnaire for expert consultation was determined, and three options were set for each question: «appropriate», «inappropriate» and «suitable after modification».

In this paper, the Delphi method is used for expert consultation. Delphi method is also called expert survey method, its procedure is the research group through the network communication. The problems to be solved are sent to experts, who make independent judgments on the investigated problems in the form of anonymity and fully express their opinions. After repeated questioning and modification of the questionnaire through several rounds of expert surveys, gradually convergent expert opinions are finally obtained. Usually panelists generally 15 to 50, considering this subject mainly study of scientific research project, the team finally chose to 32 experts from government personnel management departments, universities, the preliminary design of the questionnaire in the form of an email sent to each expert, through three rounds of feedback and revision, experts made a relatively consistent opinion, evaluation indexes for basic identified the university teachers' performance. Evaluation index system, a total of 6 first-level indicators, 20 second-level indicators.

The weight of college teachers' performance appraisal index is determined by Delphi method and analytic hierarchy process. The main steps are as follows. Constructing the hierarchical structure of the target level, middle level and bottom level of the performance appraisal index system of university teachers.

Establish the judgment matrix. After establishing the hierarchical structure model of

the performance appraisal index of college teachers, the judgment matrix of the downward index to the upper index is determined. In the third round of consultation, experts conducted pair comparison on the weight of each index of the evaluation system, and pair comparison scale was carried out with the scaling method of 1-9 to obtain the consensus judgment matrix A-B.

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} \quad (3.1)$$

Where a_{ij} is the value of the comparison between the two importance of item and factor j . When $i=j$, $a_{ij} = 1$ means that factors are as important as themselves. $a_{ij} = 1 / a_{ji}$, the same principle can be used to get other judgment matrices.

For judgment matrix A, sum product method is used to calculate the weight of each factor. The comparison matrix A can be obtained by two comparison method, and the consistency index test is needed. The consistency ratio (CR) is the ratio of the consistency index and the random consistency index R.I. When Cr is less than 0.10, it is considered that judgment matrix A has satisfactory consistency.

According to the unified opinions of experts and the analytic hierarchy process, the weights of the first-level and second-level indicators for the performance evaluation of college teachers are determined, as shown in Table 3.4.

By summing up all the second-level indicators subordinated to each first-level indicator, the index weight ratio of the six first-level indicators, namely basic quality, teaching

technology, academic technology and scientific research achievements, social service and honor award, can be obtained. Among them, the weights of first-level indicators of teaching-oriented teachers are 0.12, 0.46, 0.15, 0.11, 0.02, 0.14; The weights of first-level indexes of scientific teachers were 0.12, 0.09, 0.17, 0.37, 0.06, 0.19; The first-level index weights of application-development teachers were 0.12, 0.11, 0.19, 0.05, 0.48 and 0.05. In conclusion, we can draw teaching subject in colleges and universities teachers' work performance evaluation index system, weight first of educational technology, the second and the third scientific research achievements, academic technology teaching technology the highest weight, two, three were similar, instructions for teachers in teaching oriented college, from processing to do a good job of teaching at the same time, also should balance degree, the title promotion, continuously updated professional knowledge, but also should pay attention to complete the corresponding research. Scientific research is a fine college teachers performance evaluation index system of the most important part of academic technology and social service separated two, three, focus on scientific research and discipline construction, innovation team and talent of tilt and key talents, achievements and contribution, to encourage outstanding teachers in scientific research, disciplines the breakthrough. Applied university teachers of social service is the performance evaluation index system of the most important part of academic technology, basic quality separated two, three, proportion of teaching and scientific research work, compared with other two kinds of teachers, therefore, can be summed up in the application development of university teachers is given priority to with social services, basic quality, academic technology is complementary, should pay attention to the improvement of social approval.

Table 3.4 – Performance evaluation index system of college teachers

The evaluation index		The teacher type					
		The teaching model		Scientific research type		Application development type	
Level indicators	The secondary indicators	First level index weight	Second-level index weight	First level index weight	Second-level index weight	First level index weight	Second-level index weight
Basic quality B1	Comprehensive ability C11	0.12	0.4	0.12	0.4	0.12	0.4
	Information literacy C12		0.3		0.3		0.3
	The scientific spirit C13		0.3		0.3		0.3
Educational technology B2	The teaching effect C21	0.46	0.39	0.09	0.39	0.11	0.39
	Teaching workload C22		0.23		0.19		0.20
	Teaching and research C23		0.21		0.20		0.21
	To guide the students C24		0.17		0.22		0.20
Academic technology B3	Society Journals C31	0.15	0.07	0.17	0.11	0.19	0.09
	The title is C32		0.22		0.24		0.27
	Degree in a C33		0.36		0.41		0.23
	The knowledge structure C34		0.35		0.24		0.41
Scientific research achievements B4	Subject project C41	0.14	0.29	0.37	0.25	0.05	0.24
	Subject to complete C42		0.23		0.25		0.24
	The paper C43		0.21		0.27		0.25
	Academic work C44		0.27		0.23		0.27
Social services B5	Patent C51	0.02	0.35	0.16	0.24	0.48	0.18
	The new technology C52		0.25		0.25		0.27
	Achievements transformation C53		0.40		0.51		0.55
Honor rewards B6	Teaching awards C61	0.11	0.81	0.09	0.17	0.05	0.11
	Scientific research awards C62		0.19		0.83		0.89

Source: formed by the author

At the same time, through a survey of the weights of the three first-level indexes, it

can be found that the weight of basic quality is 0.12, which accounts for the same proportion but is not high. Therefore, it indicates that basic quality is also a relatively basic index for the evaluation of college teachers and plays a supporting role for other indexes. Therefore, teachers of the three types of colleges and universities should pay attention to it.

University selection and evaluation object selection. According to the types of colleges and universities, this paper selects applied colleges and universities that undertake the main undergraduate teaching under the background of higher education popularization. As application-oriented universities undertake less postgraduate education, their teacher classification evaluation is relatively simple and easy to operate. In the existing teacher evaluation system, both year-end evaluation and promotion of professional title take scientific research as the primary factor, so scientific research and teaching scientific research teachers like a duck to water. However, in the existing evaluation system, the achievements of teaching-oriented and application-oriented teachers are often not recognized and cannot get due rewards. Therefore, this study selects the teaching-oriented and application-oriented teachers who are at a disadvantage in the traditional evaluation system as the main object of the case study, and adds teachers with strong scientific research ability as a reference.

Taking an application-oriented undergraduate college in Henan Province of China as an example, the teacher classification has changed from one management mode to classified management, and the teacher position is divided into teaching type, scientific research type and application development type, and different evaluation index system and career development path are designed. We have selected 3 typical teachers as cases,

and their data are as follows:

Teaching-oriented teacher A:A, born in 1980, graduated from A famous University in China as A master student in 2007, and worked as A professional course teacher in an undergraduate college. He was employed as A lecturer in 2009. A takes an active part in the construction of disciplines, majors and laboratories of the School, and is extremely devoted to teaching. Although there is little change in specialized courses, he insists on preparing lessons for each class. He is particularly good at bringing events in life into class, telling them to students as cases, and publishing academic papers on his teaching experience. She often answers students' questions in her spare time. She has set up a wechat group for underachiever students to ask questions at any time. He is strict with his students, but he is loved by his students. He has been named «the most beautiful Teacher» for many times and won the first prize in the school's lecture competition in 2018. Although teacher A invested a lot of energy in teaching, but also made some achievements, but because of the lack of high-quality longitudinal subjects, the quality of scientific research papers is not high, so the year-end assessment is very difficult to excellent, the title has been a lecturer. Compared with peers, some teachers are already professors.

Scientific research teacher B:B, male, born in 1985. After graduation from a Chinese university in 2012, HE entered an undergraduate college to teach food courses as a professional course teacher and was employed as a lecturer in 2016. B has strong scientific research ability and is the backbone of the laboratory construction of the college. During the teaching period, he published 5 academic papers in SCI journals. In terms of teaching, B takes up a lot of energy by experiments and thesis writing, and only

completes the minimum teaching workload with average teaching effect. B's scientific research achievements A number of scientific research achievements have cooperated with food enterprises and been widely applied in the province. 2 provincial projects have won the provincial first prize and 1 provincial project has won the provincial second prize. Due to high-level vertical scientific research projects and high-level academic papers since the entry of B, the year-end assessment has been excellent.

Application-oriented teacher C:C, male, born in 1976, graduated from a university in China in 2003 and then entered an undergraduate college to teach courses in the field of computer as a professional course teacher. He was employed as a lecturer in 2003. With strong hands-on ability, C is the backbone of the laboratory construction of the college and also participates in the construction of disciplines and majors. His application development level is well-known in the school, and he is invited to develop the software of some functional departments in the school, which has a good running effect. Ding is also good at transferring small products developed by himself to the classroom as cases and incorporating them into his teaching content, which has been well received by students. Ding has good communication skills and often cooperates with enterprises to develop software systems. In recent years, the annual horizontal funds received are about 700,000 yuan, and he has also obtained 5 software Copyrights and 3 national invention patents. Although Mr. Ding has obtained some horizontal projects and invention patents, he has lacked high-level vertical scientific research projects and high-level academic papers in recent years, so it is difficult to get an excellent year-end assessment. At present, he is only a lecturer. According to the materials of the above two teachers, the department assessment Committee will evaluate

their performance in 2020 according to the new assessment system.

The evaluation scores and results are shown in Table 3.5.

Delphi method has the characteristics of anonymity, information feedback and statistical analysis of results, which can effectively avoid the tendency of agreeing with and blindly following authority that may appear in the consultation of expert meeting. The shortcoming lies in that experts' understanding of indicators is inevitably restricted by subjectivity, so the selection of experts is a crucial link, which is directly related to the quality of research. In this study, the influence factor was fully considered in the selection of experts. The results of expert enthusiasm, expert authority coefficient and Kendall harmony coefficient show that the reliability is ideal. Analytic Hierarchy Process (AHP) is a semi-quantitative decision-making analysis method proposed by Saaty, an American operations researcher, in the 1970s. It is a method to model and quantify the decision-making thinking process of decision-makers in complex systems.

The basic principle is to decompose the various elements of the alternative scheme of the evaluation system into several levels, and take the various elements of the same level as the criteria of the elements of the upper level to judge and compare pairwise and calculate the weight of each element.

From the above research, we can draw the following conclusions.

1. Traditional college teacher performance assessment methods are relatively single, the assessment index system is difficult to quantify, operability is poor, static assessment is mainly, the lack of dynamic grasp of the whole process of work and other deficiencies. According to the variability and complexity of the work content of university teachers,

Table 3.5 - The evaluation scores and results

The evaluation index		Evaluation of teachers'											
		Teaching teacher A				Research teacher B				Application development teacher C			
Level indicators	The secondary indicators	W2	B score	W2i	C score	W2	B score	W2i	C score	W2	B score	W2i	C score
Basic quality B1	Comprehensive ability C11	0.12	98.3	0.4	98	0.12	98.5	0.4	97	0.12	97	0.4	97
	Information literacy C12			0.3	100			0.3	100			0.3	96
	The scientific spirit C13			0.3	97			0.3	99			0.3	98
Educational technology B2	The teaching effect C21	0.45	97.66	0.39	98	0.09	55.8	0.39	60	0.11	85.29	0.39	96
	Teaching workload C22			0.23	100			0.19	60			0.20	50
	Teaching and research C23			0.21	95			0.20	50			0.21	85
	To guide the students C24			0.17	97			0.22	50			0.20	100
Academic technology B3	Society Journals C31	0.15	84.3	0.07	0	0.17	88.66	0.11	80	0.19	81.66	0.09	0
	The title is C32			0.22	80			0.24	80			0.27	80
	Degree in a C33			0.36	90			0.41	90			0.23	90
	The knowledge structure C34			0.35	98			0.24	99			0.41	96
Scientific research achievementsB4	Subject project C41	0.11	54.3	0.29	50	0.37	98.29	0.25	95	0.05	38.4	0.24	60
	Subject to completeC42			0.23	100			0.27	100			0.24	100
	The paper C43			0.21	80			0.27	100			0.25	0
	Academic work C44			0.27	0			0.23	98			0.27	0
Social services B5	Patent C51	0.02	0	0.35	0	0.06	57.6	0.24	50	0.48	98.65	0.18	100
	The new technology C52			0.25	0			0.25	60			0.27	95
	Achievements transformationC53			0.40	0			0.51	60			0.55	100
Honor rewards B6	Teaching awards C61	0.15	88.88	0.81	98	0.19	91.5	0.17	50	0.05	50	0.11	50
	Scientific research awards C62			0.19	50			0.83	100			0.89	50
The evaluation results		86.74				85.73				88.31			

Source: formed by the author

the performance evaluation system based on the classified development of university teachers can make the performance evaluation index system of university have a scientific standard and a relatively objective evaluation standard.

2. In the classified evaluation of colleges and universities, the evaluation indicators and weights can be adjusted flexibly according to the actual situation of the school and the actual work of different types of teachers (including research teachers, teaching teachers, application and development teachers, etc.), so as to achieve a comprehensive and accurate evaluation of the performance of various teachers and promote the sustainable development of colleges and universities and teachers.

3. The performance evaluation system based on the classified development of college teachers can realize the realization of «giving full play to talents» and fully stimulate the enthusiasm of different types of teachers. The personnel department of the school can set up relevant institutions to help teachers rationally understand themselves and position themselves, so that teachers can correctly understand their strengths and weaknesses.

The shortcomings of this study are that there are many items in the evaluation index system constructed, the scoring is complicated, and the assignment of individual indexes is not reasonable, which affects the weight coefficient and the comprehensive scoring results to a certain extent. This evaluation system needs to be verified by more examples, and further optimized and improved, in order to reflect the real situation of the evaluated more comprehensively and objectively, and provide data support for the construction of university teachers' talent echelon and discipline development.

CONCLUSIONS

Following a comprehensive study of how innovation and entrepreneurship departments in schools manage themselves, this paper's findings highlight not just the essential aspects of present management tactics but also offer crucial understanding for their future advancement and refinement. The paper leads to these determinations:

1. Innovation within institutions: a key factor in forging the future landscape of educational ecology

Institutional innovation, being the fundamental motivator for enhancing the education innovation and entrepreneurship department, is evidently clear. The modification goes beyond merely altering the current management structure; it necessitates a visionary approach to anticipate and react to upcoming educational shifts. Our developed management and policy frameworks ought to offer ample adaptability to rapidly adjust to external environmental shifts and the evolution of internal requirements. Moreover, it's essential for institutional advancements to focus on varied co-governance strategies, foster engagement from all participants, and collaboratively establish an open, inclusive, and cooperative educational environment.

2. Integrating resources and allocating them ideally are crucial for unleashing the capabilities of innovation and entrepreneurial spirit

The integration of resources and their efficient distribution encompass both the basic aggregation of resource numbers and the amplification of resource efficiency. Within the realms of innovation and entrepreneurship at educational establishments, it's crucial to create an effective resource distribution system to guarantee that resources are

precisely allocated towards projects with high potential and value. Concurrently, it's crucial to focus on dynamically adapting and optimizing resources to tackle the myriad of challenges and opportunities emerging during the journey of innovation and entrepreneurship. Furthermore, reinforcing the connection and collaborative efforts of resources both within and beyond the school boundaries plays a crucial role in effectively integrating resources. Developing a collaborative platform and exchanging resource details can foster logical resource management and efficiency.

3. Innovative Management and Information Utilization: A Tool for Enhancing Management Efficiency

During the era of information, the innovation in management and the application of information have emerged as critical tools for boosting management efficiency. Introducing sophisticated information technology and management strategies enables us to monitor, analyze, and anticipate educational data in real-time, while offering robust data assistance for decision-making in management. Concurrently, building the information platform can enhance managerial procedures, heighten work productivity, and decrease managerial expenses. Regarding innovative leadership practices, it's crucial to foster creative thought and skills, while motivating both managers and workers to explore novel management techniques and approaches. By relentlessly innovating and applying our practices, we have the capacity to enhance both the management system and overall management level, fostering the sustainable growth of education.

4. Expanding the scope of the evaluation system acts as a driving force to ignite a zeal for creativity and entrepreneurial ventures.

Broadening the scope of evaluation methods is crucial for igniting students' passion in innovation and entrepreneurial ventures. Conventional methods of assessment frequently lack the rigor and focus needed to accurately gauge students' capabilities and potential. The varied assessment system focuses intensively on the distinct personality traits of students and their comprehensive growth. Through the adoption of varied assessment standards and methods, the evaluation of students' innovative and entrepreneurial skills and achievements can be done more thoroughly and impartially. This approach not only motivates students to engage in creative and entrepreneurial tasks, harnessing their creativity and imagination but also offers them tailor-made guidance and assistance to enhance their self-perception and societal significance.

5. Educator instruction and motivational system: ensuring the creation of a superior innovation and entrepreneurial mentorship group

Given their crucial role in guiding and aiding innovative and entrepreneurial endeavors, the caliber of teachers' professional and instructional skills are closely connected to their effectiveness and impact. Consequently, enhancing the development of teacher training schemes and incentives is crucial for elevating the managerial standards in innovation and entrepreneurship departments. Regarding training teachers, it's imperative to focus on enhancing their innovative skills and practical capabilities, and assisting them in reevaluating and perfecting sophisticated teaching approaches through structured training sessions, exchanges, and dialogues. Regarding motivational strategies, it's crucial to create a robust reward system and reward system, ignite their passion and inventiveness through acknowledging outstanding teachers and offering advancement chances; motivate their active engagement in innovative and

entrepreneurial pursuits and furnish them with guidance and support for students.

In conclusion, Yantai Nanshan University needs to supervise innovation and entrepreneurship in an academic environment, and needs to carry out continuous exploration in the fields of system innovation, resource integration, management innovation, broadening assessment methods, and educating teachers. Through this approach, management skills can be continuously improved, sustainable growth and creative progress in education can be promoted, and more knowledge and dynamism can be added to the school's progress.

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