

Exploring the Pathways for Cultivating Innovation and Entrepreneurship Talent in Statistics under Interdisciplinary Integration

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Abstract: Against the backdrop of deepening mass entrepreneurship and innovation, innovation and entrepreneurship education has become a key strategy for universities to enhance the quality of talent cultivation and serve the national innovation-driven development strategy. As a highly methodological discipline with broad applications, statistics is facing the practical challenge of increasingly deepening interdisciplinary integration; traditional training models are no longer sufficient to meet society's urgent demand for multidisciplinary talent. This paper takes statistics as its subject of study and draws on outcome-based education principles to systematically explore reform pathways and practical mechanisms for cultivating innovative and entrepreneurial talents in the context of interdisciplinary integration. In terms of pathway construction, it discusses five aspects: revising educational objectives and programs, optimizing course systems, strengthening faculty development, reforming teaching methods, and enhancing experiential education. At the level of mechanisms and approaches, it elaborates on the educational functions and synergistic effects of five dimensions—disciplinary competitions, scientific research, case-based teaching, ideological and political education, and social practice. Regarding supporting measures, the analysis addresses teaching management, faculty incentives, mentor teams, diversified evaluation, and employment services. This study will contribute to the coordinated development of innovation, entrepreneurial awareness, and practical skills among statistics majors, and provide a reference framework for reforming talent development in the field of statistics within the context of the “New Liberal Arts” and “New Economics and Management” initiatives.

Keywords: Statistics; Talent Development for Innovation and Entrepreneurship; Interdisciplinary Integration; OBE Philosophy; Practice-Based Education.

1. Introduction

Against the backdrop of “Mass Entrepreneurship and Innovation” being elevated to a national strategy, innovation and entrepreneurship education has been entrusted with multiple missions. As early as 1990, the state launched pilot programs for employment and entrepreneurship education at the basic education level. Subsequently, the ‘National Medium- and Long-Term Education Reform and Development Plan (2010–2020)’ explicitly called for the first time for the promotion of interdisciplinary integration and the expansion of applied and multidisciplinary talent cultivation, providing a policy basis for universities to adjust their educational focus. With the comprehensive implementation of the innovation-driven development strategy, the concept of “Mass Entrepreneurship and Innovation” has become deeply embedded in all aspects of economic and social development, playing an increasingly critical role in stimulating market vitality and expanding employment opportunities. The undergraduate stage is a critical period for the formation of students’ knowledge structures, ways of thinking, and value systems. However, the continuous expansion of higher education has posed greater challenges to universities in ensuring teaching quality and enhancing practical skills. At the same time, societal employment demands are shifting from a focus on knowledge reserves to an emphasis on competencies and qualities, placing increasing importance on graduates’ hands-on abilities, cross-disciplinary collaboration skills, and comprehensive capabilities for solving complex

problems. This requires universities to re-examine their talent development objectives and systematically adjust their curriculum systems and teaching methods. Based on this, this paper will focus on the statistics major to conduct an in-depth exploration of pathways for cultivating innovation and entrepreneurship talent within the context of interdisciplinary integration. Given that this discipline naturally intersects with fields such as economics, management, and computer science, it possesses unique advantages for interdisciplinary education; however, it also faces challenges such as lagging curriculum updates, insufficient practical training platforms, and a lack of faculty with cross-disciplinary capabilities. Therefore, thoroughly exploring effective pathways in this area holds significant practical importance.

To date, numerous scholars and frontline university faculty members have conducted in-depth research on the cultivation of talent for mass entrepreneurship and innovation, yielding significant results. Building on a review of traditional models and research findings on “AI+” enabled education, Guo Lifang(2025) identified several existing issues, including students’ insufficient innovation and application capabilities, a loose connection between data modeling and practical decision-making, and the limited integration of intelligent technologies into the curriculum. The author proposed a “four-stage, three-step” progressive training system centered on “Knowledge—Data and Skills —Intelligent Applications—Innovation Capabilities,” and explored a dual-track model comprising “AI-assisted competitions—practical courses” and “AI-driven projects—university-industry

alliances”, thereby promoting the synergistic enhancement of students’ professional understanding, interdisciplinary integration, and innovation and entrepreneurship capabilities[1]. Gong Shanshan (2021) proposed a “three-new” teaching reform approach for statistics programs in the era of big data, focusing on new teaching content, methods, and objectives. This approach involved adjusting the course structure within the classroom to introduce project-driven learning and optimize teaching content; and incorporating practical platforms outside the classroom to systematically cultivate students’ statistical thinking skills, equipping them with data analysis capabilities suited to the big data era and transforming them into a new generation of application-oriented statisticians proficient in big data processing[2]. He Tao (2026) took innovation and entrepreneurship competitions as the driving vehicle and aimed to cultivate innovative and entrepreneurial talents capable of solving complex problems. By integrating constructivist theory, situational learning theory, engineering education accreditation, and the “Excellence in Engineering Education” accreditation philosophy to establish a collaborative interdisciplinary talent development system for innovation and entrepreneurship at a provincial undergraduate institution, based on “five-category integrated training + four-stage competency enhancement + synergistic development of scientific research and ideological and political education”[3]. Wang Yinling (2021) leveraged the engineering practice and innovation-entrepreneurship education platform at the Engineering Training Center to build a cross-university collaborative and shared innovation-entrepreneurship practice platform. Starting with key educational components such as course instruction, innovation and entrepreneurship training camps, science and technology competitions, and graduation projects, she established a four-year, continuous, multi-university collaborative talent development system spanning the entire undergraduate curriculum [4]. Yang Wenjie (2025) proposed a talent development model based on “One Core, Two Dimensions, Three Entities, and Four Evaluations.” With “enhancing innovative practical abilities” as the core of education, this model designed a two-dimensional driving mechanism of “cognitive development—behavioral cultivation” through the interdisciplinary restructuring of the curriculum system; Relying on three types of supporting platforms: interdisciplinary science and technology innovation platforms, virtual simulation experiment platforms, and university-industry joint training bases, we aim to achieve collaborative education, practice-oriented education, while simultaneously implementing a four-dimensional dynamic evaluation system comprising dynamic course adaptation evaluation, double-helix teaching effectiveness evaluation, evaluation of innovation outcomes, and multi-stakeholder feedback evaluation, thereby forming a closed-loop talent development system characterized by “goal-driven—process regulation—outcome feedback.”[5]. Zhou Lijuan (2025) conducted an in-depth exploration of the development pathways for statistics courses within an interdisciplinary context. She first analyzed the current state of statistics course instruction and then proposed a course development framework based on four dimensions: optimizing teaching content, innovating teaching models, strengthening formative assessment, and enhancing ideological and political education within the curriculum[6]. Wen Yuzhen (2025) took the School of Statistics and Data Science at Qufu Normal University as a

case study. Taking “fostering virtue and nurturing talent” as the foundation and multidimensional collaboration and integration as the support, she integrated ideological and political education into every stage of talent development. By establishing a three-in-one curriculum system, a blended online-offline teaching approach, and a diversified evaluation system, she developed a model for cultivating interdisciplinary talent in statistics characterized by “ideological and political guidance and the integration of professional expertise and innovation.” [7]. Zhou Li (2024) drew on an interdisciplinary perspective to analyze how to revise the talent development program for statistics; how to improve existing teaching methods in statistics programs; how to integrate practical training into the teaching process; and how to achieve the integrated development of statistics and other disciplines. Based on the actual circumstances of statistics course instruction at this institution, the author proposed targeted policy recommendations[8]. Liu Chao (2023) proposed a “Five-in-One” collaborative teaching model, which specifically involved using professional competitions as a starting point to organically integrate teaching, learning, research, practice, and professional competitions into a unified whole. This approach aimed to achieve interdisciplinary convergence between statistics and other disciplines, cultivate statistical professionals with diverse knowledge systems, and develop their ability to integrate interdisciplinary knowledge and apply it in practice. The study pointed out that universities must first fulfill the fundamental task of fostering virtue through education by elevating students’ ideological awareness, moral standards, and cultural literacy; second, they must develop distinctive interdisciplinary talent development programs for the statistics major, assemble interdisciplinary faculty teams, and establish cross-disciplinary statistics laboratories; and finally, they must strengthen the interdisciplinary knowledge training of statistics faculty members[9]. From an interdisciplinary perspective, Hu Yuhan(2017) emphasized the importance of cultivating talent for innovation and entrepreneurship and proposed several measures for this purpose, specifically including: establishing a talent development philosophy characterized by “a solid foundation, broad adaptability, and distinctive features”; building a corresponding curriculum system with “interdisciplinarity” as its breakthrough and defining characteristic; building distinctive platforms for cultivating applied talent in innovation and entrepreneurship; establishing a theoretical and practical teaching system suited to the cultivation of such talent; and establishing and refining corresponding management systems with a focus on promoting “interdisciplinary collaboration” [10].

Based on existing literature and social surveys, drawing on effective methods from other universities, and taking into account the specific circumstances of Anhui University of Finance and Economics, this paper will conduct a scientific analysis focused on the statistics major. Against the backdrop of interdisciplinary integration and from the perspective of outcomes-based education, it will explore the cultivation of talent for innovation and entrepreneurship. In line with the university’s “New Economics and Management” strategy, this study adheres to the principles of linking theory with practice and adopting a problem-oriented approach. It focuses on four dimensions: ideological and political education, competition-based education, research-based education, and case-based education. These four dimensions are intended to address the prominent issue of weak innovation capabilities,

entrepreneurial competencies, and practical skills among undergraduate students in the Statistics program. The study aims to explore practical and scalable pathways for talent development reform, thereby providing valuable insights for deepening educational reforms in the Statistics undergraduate program.

2. Developing Pathways for Cultivating Innovation and Entrepreneurship Talent in Statistics Programs Through Interdisciplinary Integration

2.1. Revise the Educational Objectives and Curriculum for Innovation and Entrepreneurship Talent

In response to the practical needs of socioeconomic development and industry transformation, and grounded in the university's educational mission and disciplinary strengths, we have comprehensively revised the talent development objectives and curriculum for the Statistics program within the overarching framework of interdisciplinary integration and based on the outcomes-based education approach, while ensuring alignment with the "New Liberal Arts" development philosophy and the university's "New Economics and Management" initiative. By clearly defining the knowledge structure, competencies, and values that graduates should possess, we ensure that the quality of talent development effectively meets the diverse needs of society and earns widespread recognition from both the industry and society at large.

2.2. Optimizing the Curriculum for Majors

The curriculum system serves as the core vehicle for talent development. It should be centered on outcomes-based education, with optimized course offerings and instructional content. By placing student development at the center and providing students with greater autonomy in their choices and opportunities for personalized growth, the system can effectively enhance their innovation and entrepreneurship capabilities while building a solid foundation in statistical expertise.

(1) Building on the core courses of the statistics major, the program extensively integrates key content from interdisciplinary fields such as mathematics, computer science, business and management, and the social sciences, thereby organically combining the humanities, sciences, and engineering. It strives to achieve an interdisciplinary approach of "statistics + mathematics + computer science + applied disciplines," offering relevant required and elective courses to broaden students' horizons and expand their knowledge base, thereby laying a solid foundation for enhancing their innovative capabilities.

(2) Increase the proportion of cutting-edge courses, such as those on modern information technology and big data analytics tools, and strengthen practical training components. While ensuring a solid foundation in basic theory, we must also emphasize the development of hands-on skills and problem-solving abilities, so that the curriculum and course content better align with the practical needs of economic and social development, and strive to enhance the basic theoretical proficiency of students majoring in statistics.

(3) Establish a target-based management system for the

development of model courses. Use the development of model courses to drive the development of teaching teams; share high-quality teaching resources through online platforms to promote the achievements of model course development; and form teaching teams for core courses in each major to systematically develop a series of model courses.

(4) Optimize the curriculum structure by preserving distinctive features within the general curriculum while ensuring that the general curriculum is integrated into the distinctive features. On the one hand, carefully design foundational major courses to ensure that graduates possess basic employability skills; on the other hand, emphasize distinctive courses to enhance students' competitive edge in specific fields and broaden their employment opportunities.

2.3. Strengthening the Development of a High-Caliber Faculty

Faculty members are the fundamental guarantee of the quality of talent development. Against the backdrop of interdisciplinary studies and centered on outcomes-based education, we should build a faculty team with a well-balanced structure, high academic standards, and strong teaching capabilities.

(1) Advance the development of the course director system. Clarify the selection and appointment criteria, responsibilities, and authority of course directors, as well as the evaluation framework; establish a systematic curriculum that spans from teaching content to teaching methods and from textbook development to competency development; and build a teaching team that integrates knowledge transfer, competency development, and character development.

(2) Strengthen the development of academic teams. With a view to the sustainable development of the discipline, we will strive to establish an open, inclusive, collaborative, and efficient system for building academic teams. On the one hand, we will form innovative teams that combine physical and virtual elements, linked by research directions and major projects, and implement a peer-review-based academic evaluation system. This approach will clarify goal-oriented objectives while stimulating faculty members' intrinsic motivation and spirit of collaboration. On the other hand, we will prioritize the recruitment and cultivation of high-caliber talent as a key breakthrough. By leveraging international academic collaboration and the integration of interdisciplinary resources, we will attract outstanding researchers from both domestic and international sources and focus on cultivating a group of academic leaders capable of driving the discipline's development. At the same time, by improving support mechanisms that ensure faculty participation in research activities and academic exchanges, we will encourage researchers to delve deeper into interdisciplinary fields, thereby continuously enhancing the team's overall academic influence and capacity to foster student development.

(3) Improve the training system for middle-aged and young faculty members. Support young faculty members in pursuing visiting scholar programs at renowned universities both domestically and internationally; invite renowned scholars in the relevant disciplines from home and abroad to serve as visiting or adjunct professors and provide academic guidance to young faculty members, thereby enabling them to produce more high-quality research outcomes; and enhance young faculty members' teaching skills and teaching research

capabilities through various methods, such as collective lesson planning, model classes, and classroom teaching competitions.

(4) Strengthen the development of faculty members' practical skills. Establish a mechanism for faculty members to undertake temporary assignments in government agencies, enterprises, and public institutions; implement a dual-advisor system for undergraduate statistics students during their graduation internships to strengthen ties between faculty and internship sites; to meet students' training needs for various employment certification exams, send faculty members for external training to acquire relevant theoretical and practical knowledge; and encourage the undertaking of industry-sponsored research projects, while providing support for project operations and financial management.

2.4. Reforming Traditional Educational Models

(1) At the level of educational philosophy, we adhere to an approach that places equal emphasis on "knowledge accumulation, skill refinement, and character development," integrating professional ethics education with specialized skills training throughout the entire teaching process. In practice, we fully leverage the educational potential of both on-campus and off-campus practical platforms. By opening up laboratory resources and introducing more comprehensive and design-oriented experimental projects, we focus on strengthening students' hands-on skills. Practical training adopts a model that organically integrates teaching, research, and hands-on practice. Following a progressive pathway of "departmental foundational training—university-wide comprehensive enhancement—practical testing at training bases," we guide students to cultivate an interest in research and hone their professional skills in real-world contexts, thereby continuously solidifying their core statistical competencies and expanding the boundaries of their knowledge. By introducing an evaluation mechanism that involves collaboration between employers and the university, and by assessing students' ability to solve real-world problems through multidimensional evaluation methods, the program strives to enhance their innovative thinking while simultaneously strengthening their professional adaptability and overall competitiveness.

(2) Implement interactive and mobile teaching approaches, with an emphasis on the application of multimedia technology. Through lecture-based instruction, case studies, discussions, role-playing, and exercises, we will foster a multi-directional, interactive learning environment that stimulates initiative and a spirit of inquiry in both instructors and students, thereby enhancing undergraduate statistics students' engagement in classroom activities. We will fully leverage the abundant educational resources available on the Internet to conduct mobile teaching and enhance students' practical and innovative capabilities. To ensure that information technology effectively empowers talent development, we will focus on promoting the deep integration of information technology with teaching activities and systematically plan and develop a set of high-quality digital teaching resources. Specific measures include: developing multiple MOOC courses and establishing an online self-directed learning platform for college students that integrates online learning, resource retrieval, and self-assessment. This will provide students with a flexible and convenient ubiquitous learning environment, thereby expanding the boundaries of traditional

classroom instruction and enhancing students' independent study skills and information literacy.

2.5. Strengthening Teaching That Fosters Student Development Through Practical Experience

(1) Advance reforms in practice-based education from three dimensions: resource optimization, project-driven initiatives, and platform upgrades. Regarding resource optimization, specialized laboratories will be opened to all undergraduate students, and new comprehensive, application-oriented and self-designed experimental tasks will be introduced to address the current overreliance on traditional verification-based experiments, thereby strengthening students' active participation and hands-on experience. In terms of project-driven approaches, we will leverage flagship competitions such as the China International College Students Innovation Competition and the "Challenge Cup" National College Students Science and Technology Academic Competition, in conjunction with applications for the Undergraduate Research and Innovation Fund and the Undergraduate Innovation and Entrepreneurship Training Program, to provide students with a comprehensive training pathway from the inception of an idea to the commercialization of results. In terms of platform upgrades, the university actively applies for laboratory projects jointly established by national ministries and local governments. It encourages research teams to purchase specialized software and instruments based on their research needs and to develop innovative experiments that reflect the cutting edge of their disciplines, thereby transforming research platforms into practical training grounds for cultivating innovation and entrepreneurship capabilities.

(2) Promote the development of off-campus practical training bases. Establish internship and practical training bases in various government departments and organize college students to participate in large-scale national socioeconomic surveys; establish internship and practical training bases within the Supply and Marketing Cooperative system and organize college students to participate in business activities such as the procurement of agricultural products and the sale of agricultural inputs; Develop internship and training bases in the financial and investment sectors to organize college students to participate in real-world simulation exercises; establish industry-academia-research collaboration bases to strengthen ties with enterprises and engage in in-depth cooperation regarding joint project applications, student internship guidance, and faculty secondments; and establish project-based internship and training bases that operate under a project-contract cooperation model.

3. Mechanisms and Methods for Cultivating Innovation and Entrepreneurship Talent in Statistics Programs Through Interdisciplinary Integration

(1) Using academic competitions as a key tool, we focus on cultivating innovative thinking and collaborative skills among undergraduate students in statistics. We have incorporated academic competitions into the statistics curriculum, established guidelines for awarding academic

credits for competition participation, and integrated competition performance into the scholarship evaluation system to optimize incentive mechanisms and stimulate students' enthusiasm for participating in academic competitions. Emphasis is placed on training students' competition skills through pre-competition professional guidance, which has effectively enhanced their performance; post-competition extension research is conducted with a focus on solving real-world problems, organically integrating specialized knowledge with practical applications to fully leverage the educational value of competitions.

(2) Using scientific research as a vehicle, we focus on cultivating a spirit of exploration and innovative capabilities among undergraduate students in statistics. We emphasize interdisciplinary integration and invite renowned scholars and industry leaders to the university to deliver academic lectures, discuss cutting-edge developments in their fields, and share their personal research journeys. We will form research teams to enhance the professional competence of undergraduate advisors, use research to drive teaching, and integrate scientific research throughout the entire course instruction process. We will guide students in applying for research and innovation grants, projects under the Undergraduate Innovation and Entrepreneurship Training Program, and the China International College Students Innovation Competition, thereby promoting the continuous improvement of their research and innovation capabilities.

(3) Using case-based teaching as a tool, we will focus on developing a new approach to undergraduate statistics education. We will establish and improve mechanisms for case development, incentives, and implementation, using case development, case-based teaching, case repository construction, and case competitions as key drivers to advance the development of case-based teaching. By incorporating the latest research findings into case studies, we will facilitate case-based discussions, promote the exchange and sharing of research outcomes between faculty and students, and help students better understand and flexibly apply course content. This approach will closely integrate theory with practice, enhance students' problem-analysis and problem-solving skills, foster the organic integration of teaching with practical applications, and leverage the educational value of case studies.

(4) Guided by ideological and political education, we focus on helping undergraduate students in statistics develop core values and fine character, with the goal of achieving well-rounded development. We will exert concerted efforts from two dimensions: curriculum-based education and organization-based education. On the one hand, we will strengthen the systematic integration of various courses with ideological and political courses. By restructuring teaching objectives and deeply exploring ideological and political elements, we will ensure that knowledge transmission, skill development, and value formation are organically integrated into every course, using the solid achievements of ideological and political education in the curriculum to support the overall advancement of ideological and political education within the discipline. On the other hand, we leverage the political and academic strengths of faculty members who are Party members to explore an integrated education model combining "Party building + innovation and entrepreneurship." Through the "Red Mentor System," we closely integrate education on ideals and convictions with guidance on innovative practices. At the same time, we

emphasize the unity of learning, thinking, practice, and insight, highlighting the intrinsic connection between theoretical study and practical application, and strive to promote students' comprehensive growth through the unity of knowledge and action.

(5) Building on social practice, we will focus on cultivating undergraduate students in statistics' applied practical skills and innovation and entrepreneurship capabilities. We will establish and improve a long-term support mechanism for social practice, adopting a model of "inter-university cooperation, university-enterprise collaboration, comprehensive development, and skill enhancement" to bridge the gap between the university's talent development and the practical needs of society. We will integrate social practice with major-specific instruction to strengthen students' mastery of professional skills; combine social practice with scientific research to enhance the translation and implementation of research outcomes; and link social practice with entrepreneurship and employment to boost students' competitiveness in the job market. We will actively implement cooperative initiatives and fully carry out the strategic measures of "going out, building platforms, and raising standards" to improve the quality of undergraduate education.

4. Measures to Ensure the Cultivation of Innovation and Entrepreneurship Talent in the Statistics Major Amid Interdisciplinary Integration

(1) Focus on promoting the systematic development and routine use of case resources. Specific measures include: establishing a case repository and promotion center; building a case information-sharing network open to the entire university; and regularly organizing activities such as case-based teaching demonstrations, case development workshops, and exchanges on case study experiences. Through these measures, we will gradually establish a complete chain for case resources that extends from development and sharing to their integration into teaching, closely linking case development with the cultivation of students' innovative and practical abilities, thereby forming a mutually reinforcing, virtuous cycle in case-based education.

(2) Focus on using institutional incentives to stimulate teachers' enthusiasm and creativity in participating in "Mass Entrepreneurship and Innovation" education. Centered on objectives such as improving the quality of talent cultivation, enhancing scientific research capabilities, and optimizing the effectiveness of social services, we will formulate and refine targeted incentive policies tailored to different categories. We will coordinate efforts to recruit high-caliber academic leaders and cultivate existing core faculty members. Priority will be given to expanding talent recruitment channels, supporting faculty professional development and advanced studies, and ensuring access to domestic and international academic exchange resources, thereby providing an adequate talent pool and institutional safeguards for the sustained advancement of projects and the smooth implementation of reform measures.

(3) Using institutional development as a lever, systematically advance the standardized operation of the undergraduate mentor team guidance model. First, establish a competency standards system; based on industry research and disciplinary characteristics, refine the talent development

objectives and graduation requirements for the major, break down these goals by semester or academic year, and create a clear roadmap for competency progression. Second, establish a team operational framework. Allocate responsibilities by category based on advisors' areas of expertise, clearly define each member's specific duties in academic guidance, research training, and career planning, and build a collaborative and coordinated work structure. Third, establish a process management system. Issue guidelines for advisor supervision, clearly specifying timelines, content requirements, and expected outcomes for each stage of the guidance process. Fourth, establish an assessment and feedback system that links faculty performance to students' achievement of competencies. Develop quantitative assessment metrics and concurrently establish social feedback channels, such as graduate career tracking and employer satisfaction surveys. Based on this data, conduct periodic evaluations of the faculty team's work and implement targeted improvements to ensure continuous enhancement of educational outcomes.

(4) Move away from the traditional, single-dimensional evaluation method based solely on exam scores and establish a diversified evaluation system that measures undergraduate academic performance through fair and varied assessment methods and criteria. Emphasize evaluation methods that focus on hands-on practical skills, and encourage undergraduates to participate in corporate operations through exchanges and internships. Academic scholarships for college students are not solely tied to course exam scores but are also assessed in conjunction with their performance in various competitions and practical activities. This approach enriches and gives meaning to students' learning activities, applying an outcomes-based approach to every aspect of their academic pursuits.

(5) In the area of career services, we will strive to build a comprehensive platform that integrates guidance, management, and services. We will stimulate students' intrinsic motivation and faculty members' enthusiasm for mentoring through multiple measures, including financial support and incentives, mentor incentives, and the cultivation of innovative capabilities. By establishing sound management systems and clarifying mentor responsibilities, we will ensure that career services are carried out in a standardized and orderly manner. At the same time, we will prioritize feedback mechanisms, regularly review the effectiveness of our work based on indicators such as graduate employment satisfaction surveys and employment quality assessments, and flexibly adjust our strategies accordingly. By comprehensively utilizing a variety of approaches, we aim to cover the entire cycle from enrollment to graduation in terms of time. These approaches include the integration of online and offline resources, the linkage of competitions and training, the combination of specialized lectures and workshops, and corporate campus clubs, integrate on- and off-campus resources in terms of space, and balance individualized guidance with group-based services to build a multidimensional and personalized career support network.

5. Conclusion

Based on the current trend toward ever-deepening interdisciplinary integration and guided by the theory of outcomes-based education, this paper focuses on the core issue of cultivating talent for innovation and entrepreneurship in the field of statistics. It systematically explores the coordinated development of reform pathways, educational

mechanisms, and supporting conditions. The research reveals that cultivating talent in innovation and entrepreneurship within the statistics major is a systematic endeavor involving multiple factors and stages. It cannot rely on localized improvements in a single course or stage; rather, efforts should be directed toward building a comprehensive, closed-loop system encompassing "goal setting—curricular support—faculty support—teaching implementation—practical testing—diverse evaluation—feedback and improvement." Only when all stages are seamlessly integrated and engage in positive interaction can we truly achieve the synergistic enhancement of students' innovative spirit, entrepreneurial awareness, and practical abilities, ensuring that the quality of talent cultivation stands up to industry scrutiny and societal evaluation. Looking ahead, with the rapid evolution of emerging technologies such as data science, artificial intelligence, and blockchain, the field of statistics will face new opportunities and challenges arising from interdisciplinary convergence. This urgently requires us to respond more proactively by updating our philosophy of talent development, designing forward-looking curriculum content, and iteratively upgrading practical training platforms.

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References

- [1] Guo, L. F. (2025). Research on the training model of top innovative and entrepreneurial talents in economic statistics under the background of "AI+". *Philosophy and Social Science*, 2(7). <https://doi.org/10.62381/P253709>.
- [2] Gong, S. S. (2021). Educational reform for cultivating innovation and entrepreneurship talent in statistics in the context of big data. *Science and Technology Wind*, (27), 67-69.
- [3] He, T., Yang, H. T., Wang, C. L., et al. (2026). A study on the construction of a collaborative training system for interdisciplinary innovation and entrepreneurship talent in provincial undergraduate institutions. *Journal of Anhui University of Science and Technology (Social Sciences Edition)*, 28(4), 91-99.
- [4] Wang, Y. L., & Yin, X. M. (2021). Research and practice on multi-university collaborative talent development for innovation and entrepreneurship. *Journal of Southwest University of Science and Technology (Philosophy and Social Sciences Edition)*, 38(5), 92-96.
- [5] Yang, W. J., Mo, X. Y., & Zhang, X. L. (2025). Constructing a talent development model for innovation and practice competencies in statistics majors from an interdisciplinary perspective. *Financial Theory and Teaching*, 43(5), 112-118.
- [6] Zhou, L. J., Zhou, Y. Q., & Zhou, H. (2025). An analysis of pathways for developing statistics-related courses at non-key universities in the context of interdisciplinary studies. *Modern Commerce and Industry*, (19), 155-158.
- [7] Wen, Y. Z., Zhao, X. H., Zhao, S. L., et al. (2025). An exploration of a "ideological and political guidance, integration of specialized knowledge and innovation" talent development model for multidisciplinary statistics professionals: A case study of the School of Statistics and Data Science at Qufu Normal University. *Journal of Qufu Normal University (Natural Science Edition)*, 51(3), 117-122.

- [8] Zhou, L., He, S. F., & Ning, Z. L. (2024). A study on the reform of statistics course instruction in an interdisciplinary context. *Science and Technology Trends*, (30), 39-41.
- [9] Liu, C., Qiu, W. S., Fang, S. J., et al. (2023). Cultivating multidisciplinary statistical talent based on the "Five-in-One" collaborative teaching model in the context of the new liberal arts. *Journal of Higher Education*, 9(29), 169-172.
- [10] Hu, Y. H., & Tu, L. P. (2017). A study on the cultivation of innovative and entrepreneurial talent from an interdisciplinary perspective. *Journal of Mudanjiang Institute of Education*, (9), 48-51.