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Innovation and Entrepreneurship Education in China—An Overview of the Current Landscape

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Abstract

In the context of global economic transformation and industrial upgrading, innovation and entrepreneurship education (IEE) has emerged as a focal point in the reform of higher education. Drawing on CNKI literature data (2000-2024) obtained via the Library of Lanzhou University of Technology, this study systematically examines the scale and development trajectory of research on IEE, its thematic structures, disciplinary integration and crossover features, the distribution of research entities, and its quality and support systems. Findings reveal that the scale of research exhibits clear stage-based patterns, dominated by "developmental research". The core academic domains are higher and vocational education, with a research focus on vocational institutions and college students. Major themes include talent development, disciplinary integration, and system construction. Institutions such as Jiamusi University serve as key contributors, and funding support from the Jiangsu Education Department is notable. As policies shift and technologies like AI increasingly integrate with education, the innovation and entrepreneurship education system is moving toward sustainable and long-term development.

Keywords

Innovation and Entrepreneurship Education, Research Evolution Trajectory, Curriculum System

1. Current Status Overview

Against the backdrop of global economic transformation and industrial upgrading, innovation and entrepreneurship education (hereinafter referred to as "IEE") has become a central focus of higher education reform in many countries (Xu et al., 2025; Chen & Huang, 2024; Xu, 2023). Since China proposed the "Mass Entrepreneurship and Innovation" strategy in 2014 (Qian, 2016), related research

has grown at an exponential rate. Based on literature data from 2000 to 2024 in CNKI, accessed via the Library of Lanzhou University of Technology, this paper systematically reviews research trends in the field of IEE, highlighting its developmental features and existing challenges.

2. Current Situation Analysis

2.1. Research Scale and Evolutionary Trajectory

(1) Phased Characteristics of Research Scale

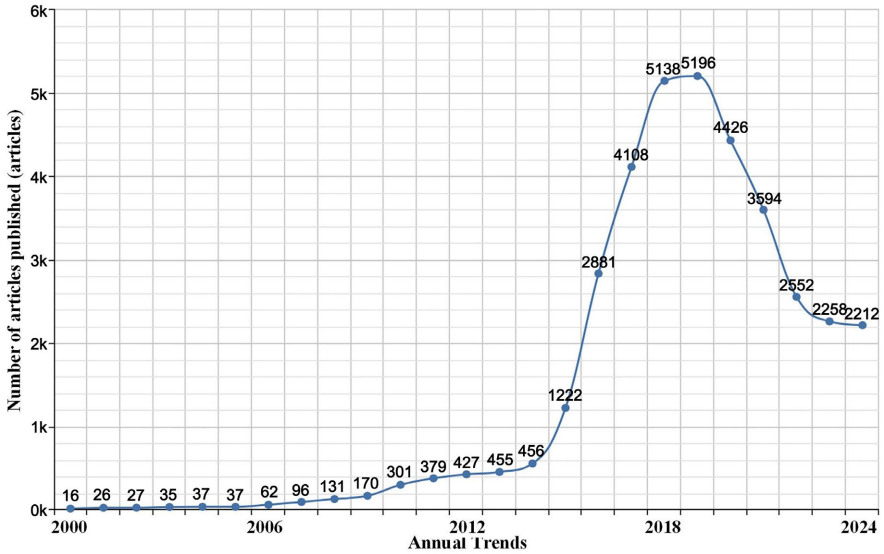

Figure 1. Trends in publication volume.

According to Figure 1, the publication volume between 2000 and 2014 increased gradually, representing the formative stage of innovation and entrepreneurship education development. In the early phase, policies were primarily implemented through local pilot projects, with little comprehensive planning. Loose cooperation between universities and industry and delayed curriculum development led to fragmented research findings (Xu & Lan, 2014). As early market demand surfaced, the innovation needs of SMEs grew, encouraging universities to launch foundational courses in entrepreneurship theory. Between 2015 and 2018, publication output in the IEE field increased at an exponential rate. The rollout of national strategies centralized resources and led to a rapid expansion of practice-based programs. Venture capital flowed in, increasingly targeting university entrepreneurship projects, fueling academic interest. The acceleration of technological empowerment advanced digital education research (Liu, 2018; Wang & Wang, 2018). During 2019-2021, publication output in the field of IEE dropped significantly. As policy momentum declined cyclically, IEE policy evaluation metrics were adjusted, and local subsidies were reduced, leading to a sharp fall in applied research. Barriers in tech translation and challenges in blending AI, blockchain, and other innovations with education redirected research priorities (Zhang, 2021).

Between 2022 and 2024, the number of IEE-related publications experienced a gradual decline. As policies transitioned toward sustainability, low-efficiency programs were systematically eliminated (Li et al., 2024).

(2) The Internal Logic of the Evolutionary Trajectory

Three driving forces underpin the data fluctuations: firstly, the policy-driven effect resulting in pronounced cyclical variations in resource distribution (Gui & Zheng, 2022; Tian, 2018); secondly, adaptation to market demand, indicating a shift in higher education from "expanding quantity" to "selecting quality" (Li, 2025; Liang & Wang, 2025); thirdly, iterative technological empowerment fostering the adoption of digital education platforms, enhancing cooperation efficiency, but short-term fluctuations occur due to technology maturation cycles (Zhou & Cai, 2024; Wang et al., 2024).

2.2. Analysis of Research Topic Hierarchies

According to **Figure 2**, an in-depth analysis of the hierarchical distribution of research themes on "innovation and entrepreneurship education" was performed using the given bar chart data. Initially, the data underwent hierarchical classification and mapping. Findings show that the "development research" tier holds a dominant position, comprising 2687 publications, significantly surpassing other categories. This indicates that contemporary IEE research places great emphasis on developing educational approaches, models, tools, and platforms, embodying a practice-driven and innovation-led nature. The "applied research" level ranks second with 1615 papers, underscoring the significance of translating IEE theory into practical application. The "discipline education and teaching" category comprises 1130 publications, demonstrating that the fusion of IEE with subject teaching constitutes a key research area, focusing on embedding innovation and entrepreneurship concepts within established academic disciplines.

A more detailed analysis shows that "development research-policy research" and "discipline education and teaching research" have 330 and 549 papers respectively, suggesting that policy elements play a crucial role in both the development and practical application of innovation and entrepreneurship education, and that innovative studies within disciplinary education are becoming increasingly valued. By comparison, levels including "technical research" "technology development" and "applied basic research" have relatively fewer publications, possibly indicating a current research focus on application and innovation in models, with comparatively limited investment in foundational technological support and basic theoretical studies. Additionally, the "advanced science popularization" and "practice development" categories contain the least number of publications, reflecting a need for further efforts in the dissemination and practical exploration of innovation and entrepreneurship education.

Analysis of proportions shows that the "development research" tier accounts for the largest portion, emphasizing its core position within innovation and entrepreneurship education studies. A comparison between "development research"

and "applied research" publication counts reveals that the former is almost double the latter, possibly suggesting that present research emphasizes the creation of innovative tools and platforms, with less attention given to assessing and optimizing practical outcomes.

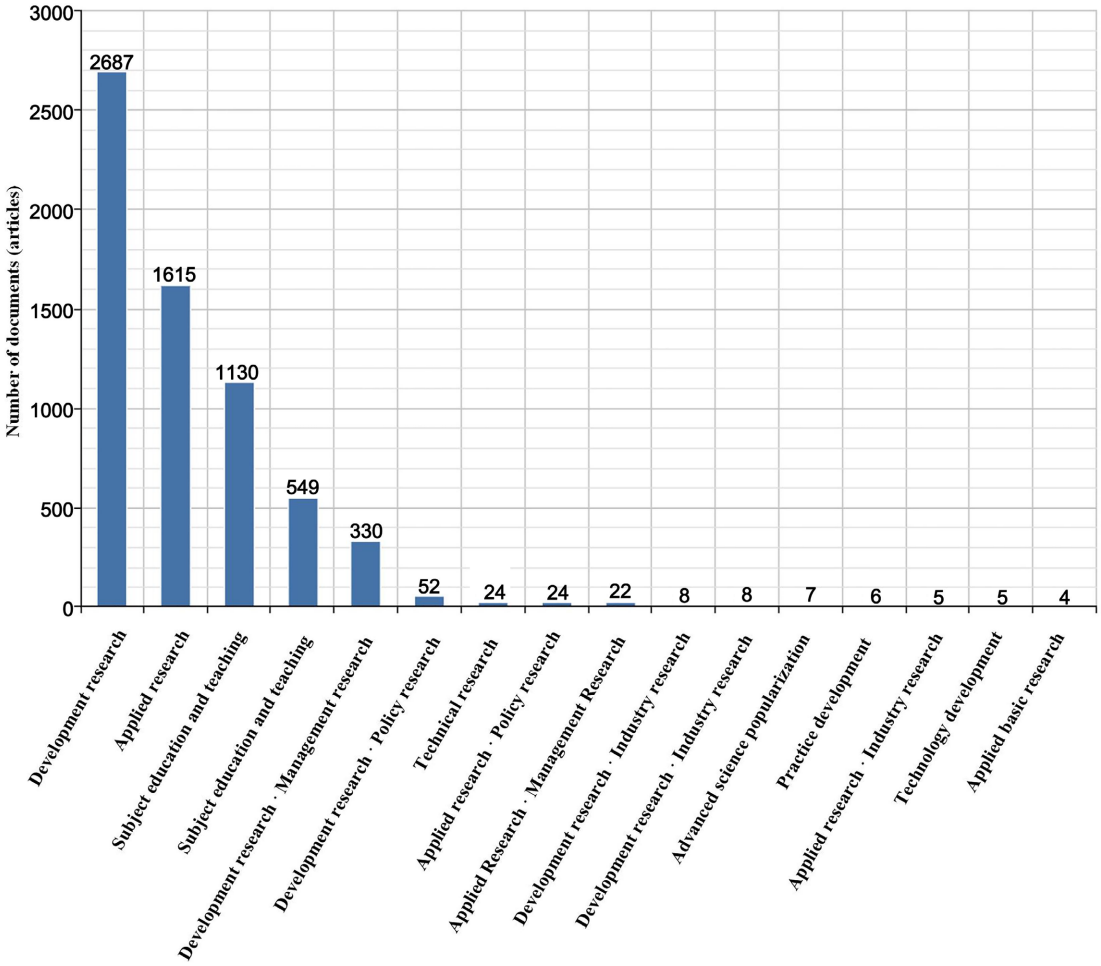

Figure 2. Distribution of research hierarchies.

To conclude, research on "innovation and entrepreneurship education" is primarily led by "development research" while "applied research" and "disciplinary education and teaching research" are equally emphasized, whereas "technical research" "basic research" and "science popularization and practice" appear relatively underdeveloped. Future research should aim to balance the development of all tiers, enhancing technical research, fundamental theory, and science popularization efforts, to establish a more robust and comprehensive innovation and entrepreneurship education framework.

2.3. Features of Disciplinary Penetration and Cross-Disciplinary Interaction

According to Figure 3, an in-depth analysis of the research theme distribution for

"innovation and entrepreneurship education" was performed using the "primary theme distribution" data. Initially, thematic clustering and statistical processing were applied to the data. Findings show that the core theme "innovation and entrepreneurship education" holds an absolute dominant position, with publication counts of 14,136 and 9094 respectively, greatly surpassing other topics. This indicates that contemporary studies focus heavily on innovation and entrepreneurship education itself, broadly discussing its connotations, meaning, and value.

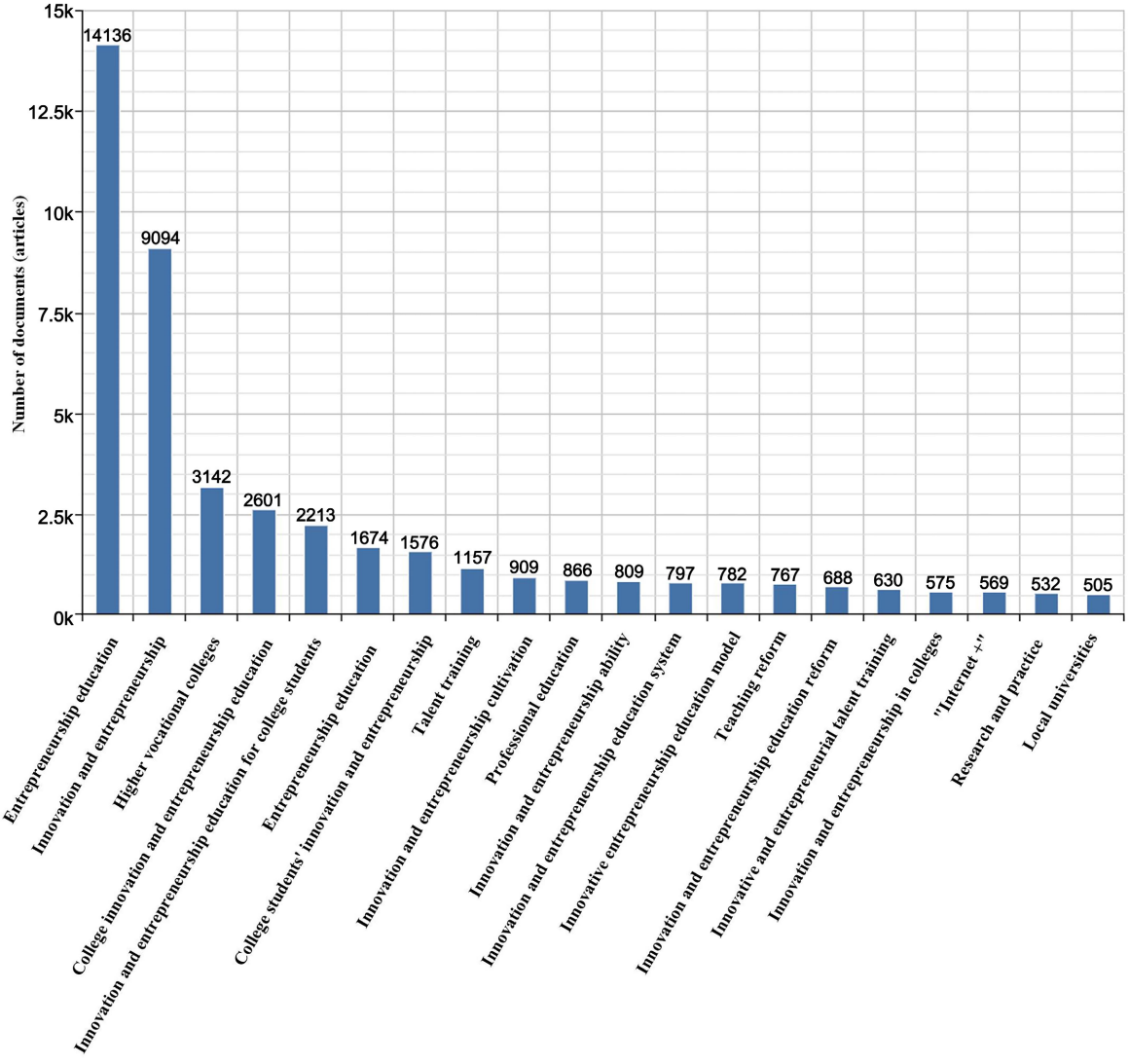

Figure 3. Major theme distribution.

Next is the theme of "vocational colleges" which accounts for 3142 publications, indicating that vocational colleges, as important grounds for innovation and entrepreneurship education, are widely emphasized in research. Additionally, "university innovation and entrepreneurship education" comprises 3142 papers, demonstrating that innovation and entrepreneurship education at the university level is a key research focus, particularly closely linked to "college student's inno-

vation and entrepreneurship education," with 2601 publications, highlighting that college students are a primary focus within university innovation and entrepreneurship education.

As broader topics, "innovation and entrepreneurship" and "entrepreneurship education" have 2213 and 1674 papers respectively, showing that research in these areas is closely connected with the "innovation and entrepreneurship education" theme. Moreover, analysis shows that the "talent development" theme also contains over 1000 papers, suggesting that a key objective of innovation and entrepreneurship education is to nurture innovative and entrepreneurial talents and improve their competencies.

A considerable number of publications address themes including "professional education" "innovation and entrepreneurship capability cultivation" "innovation and entrepreneurship education systems" "education models" and "teaching reforms," reflecting that current studies focus not only on innovation and entrepreneurship education itself, but also delve into its integration with professional education, pathways for capability development, construction of educational frameworks, innovations in teaching models, and progress in teaching reform. Publications on topics like "vocational college innovation and entrepreneurship" "'Internet Plus" and "research and practice" are relatively fewer, yet these also demonstrate that research has extended into innovation and entrepreneurship education within vocational colleges, the "Internet Plus" context, and the combination of theory and practice.

To conclude, research on "innovation and entrepreneurship education" is primarily led by the core theme, with balanced focus on vocational colleges and universities, and delves into the hierarchical distribution features of specific dimensions including talent development, capability improvement, system building, and model innovation. Future studies should further enhance differentiated research on innovation and entrepreneurship education targeting diverse educational groups, stages, and contexts, to establish a more complete theoretical and practical framework for innovation and entrepreneurship education.

Figure 4 presents a detailed analysis of the "annual intersection of major themes" under the topic of "innovation and entrepreneurship education" from 2021 to 2024, based on the chart data. The dataset includes yearly publication volumes for five primary themes: "vocational colleges," "college student innovation and entrepreneurship education," "university-level innovation and entrepreneurship education," "innovation and entrepreneurship," and "innovation and entrepreneurship education."

In terms of yearly trends, "innovation and entrepreneurship education" and "innovation and entrepreneurship" have consistently had the highest publication counts over the four-year period, despite both showing a declining trend year by year, they have remained markedly ahead of other themes. This suggests that these two, as core topics, continue to draw substantial academic interest and have served as sustained research hotspots in the field. However, the decreasing volume of

literature may indicate that these themes are approaching research maturity, or that academic interest is beginning to shift toward new focal areas.

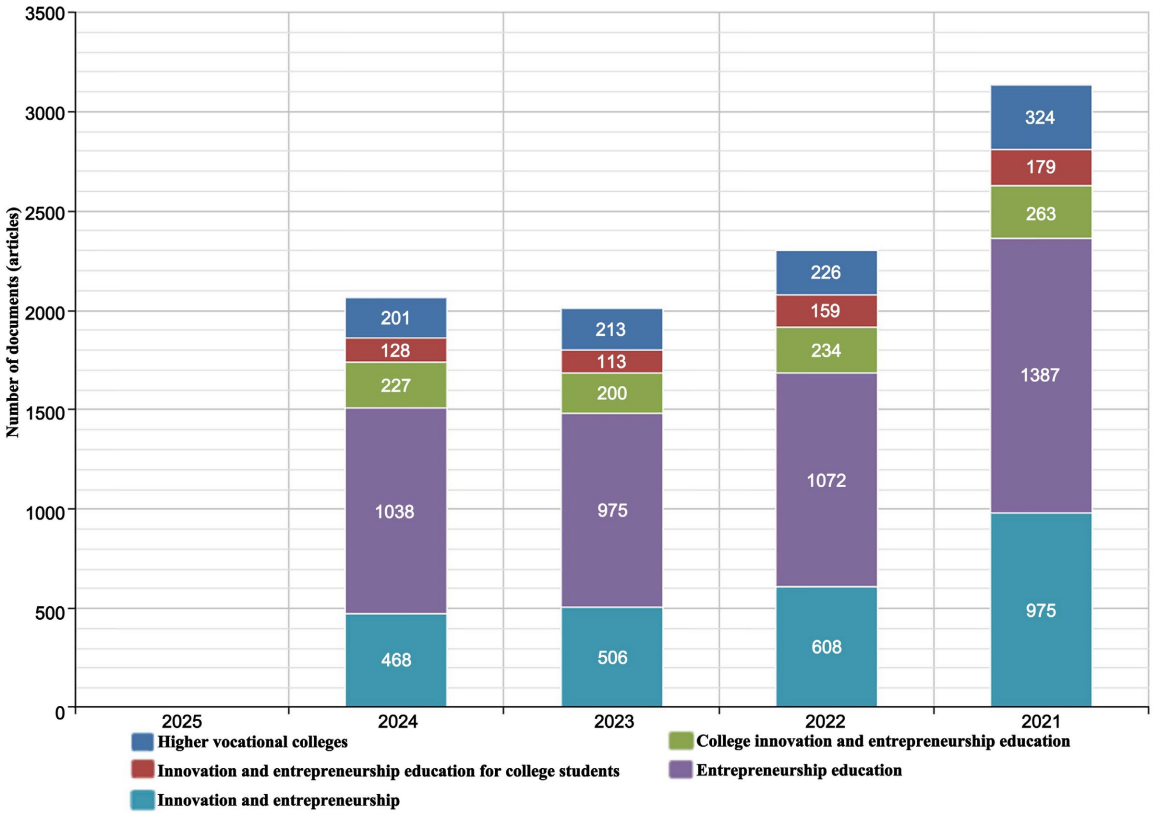

Figure 4. Annual cross-analysis of major themes.

The publication volume for the themes "vocational colleges" and "university innovation and entrepreneurship education" also reveals a gradual year-by-year decrease, although the decline has been relatively slight. This indicates that while interest in innovation and entrepreneurship education at vocational and higher education levels has somewhat cooled, a stable level of academic output is still being maintained. Notably, the theme of "university innovation and entrepreneurship education" saw a modest increase in publication volume in 2024, possibly signaling the emergence of new areas of interest or renewed momentum in this line of research. The number of studies on "college student innovation and entrepreneurship education" showed notable fluctuations during the four-year period, with a steady decrease from 2021 to 2023, but a recovery was observed in 2024. These fluctuations may suggest that the research interests and hot topics within college student innovation and entrepreneurship education have shifted from year to year.

Based on the thematic cross-analysis, from 2021 to 2024, "innovation and entrepreneurship education" and "innovation and entrepreneurship" were consistently the top two themes in terms of publication volume, holding a dominant position. In comparison, the themes "vocational colleges" "higher education inno-

vation and entrepreneurship" and "college student innovation and entrepreneurship education" had relatively fewer publications, yet they still reflect the extent of involvement of different educational institutions in the research on innovation and entrepreneurship education.

The analysis of the "major annual thematic intersections" in "innovation and entrepreneurship education" from 2021 to 2024 shows how the popularity of different research themes has evolved over time. Although interest in the core themes of "innovation and entrepreneurship education" and "innovation and entrepreneurship" has somewhat declined, they still hold a leading position in the field. Research on other themes has followed different trajectories, indicating the diversity and evolving nature of the innovation and entrepreneurship education field. Future studies should further explore emerging topics and new research hotspots, while also examining the intersections and synergies among different themes, to drive deeper progress in innovation and entrepreneurship education research.

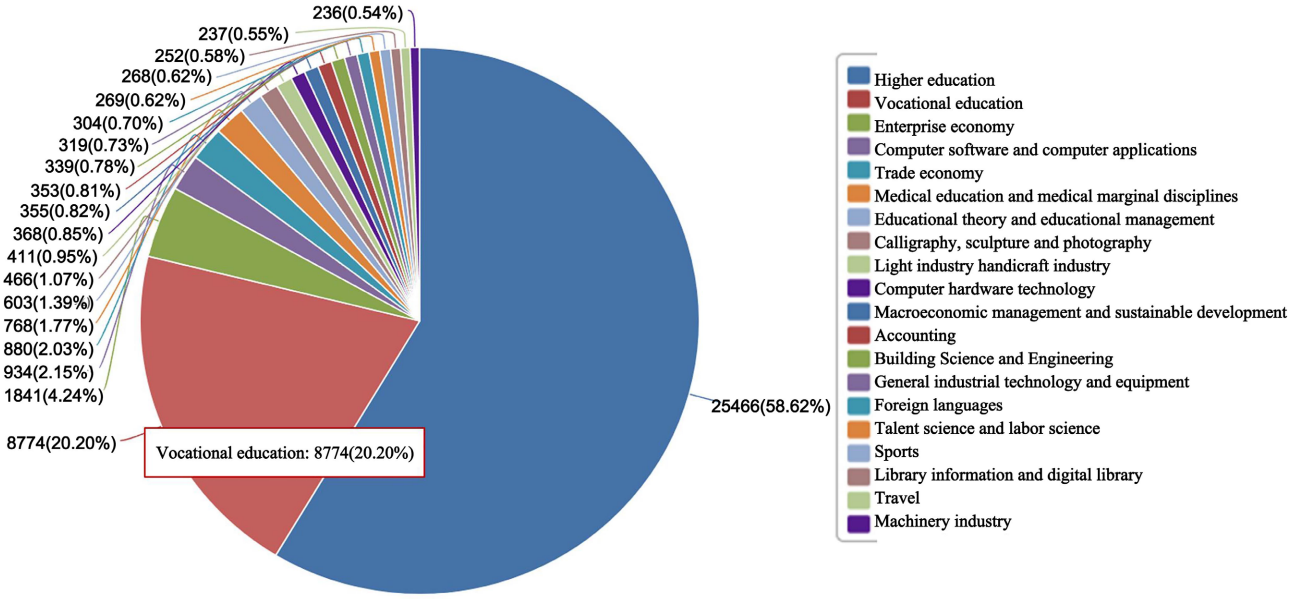

Figure 5. Disciplinary distribution.

Figure 5 presents a detailed breakdown of the disciplinary distribution related to the topic of "innovation and entrepreneurship education" using the chart data provided. According to the data, "Higher Education" dominates the field, representing 58.62% of the total, with 25,466 articles. This highlights the leading position of higher education within the broader research field. "Vocational Education" makes up 20.20% of the total, contributing 8774 papers to the field. This shows that vocational education is a key field of study drawing significant scholarly attention. The proportion of vocational education suggests that innovation and entrepreneurship education, as an integral part of this field, has likewise received notable academic focus. Vocational education focuses on training individuals with practical skills and professionalism, whereas innovation and entrepreneur-

ship education seeks to nurture creativity, entrepreneurial awareness, and related competencies. Their objectives in talent cultivation are highly aligned. As such, embedding innovation and entrepreneurship education within the vocational education framework is vital for enhancing educational quality and fostering students' holistic development.

Figure 6 illustrates a detailed analysis of the source distribution of literature related to "innovation and entrepreneurship education," derived from the provided chart. It is evident from the chart that the journal Innovation and Entrepreneurship Theory Research and Practice dominates the literature in this field, contributing 1474 articles and representing 16.82% of the total, significantly ahead of other journals. This suggests that the journal has a strong academic presence in innovation and entrepreneurship education and plays a central role in disseminating scholarly work in the field. Journals such as Modern Vocational Education, Education and Teaching Forum, Education Modernization, and Innovation and Entrepreneurship Education fall into the second tier, with each contributing between 500 and 700 articles, making up 5.87% to 7.45% of the total. These journals are also key contributors to research in this area, highlighting their relevance and standing in the innovation and entrepreneurship education landscape. Although other sources contribute fewer publications and hold smaller shares, they collectively represent the diversity of publication venues and highlight the broad academic interest and contributions to innovation and entrepreneurship education research.

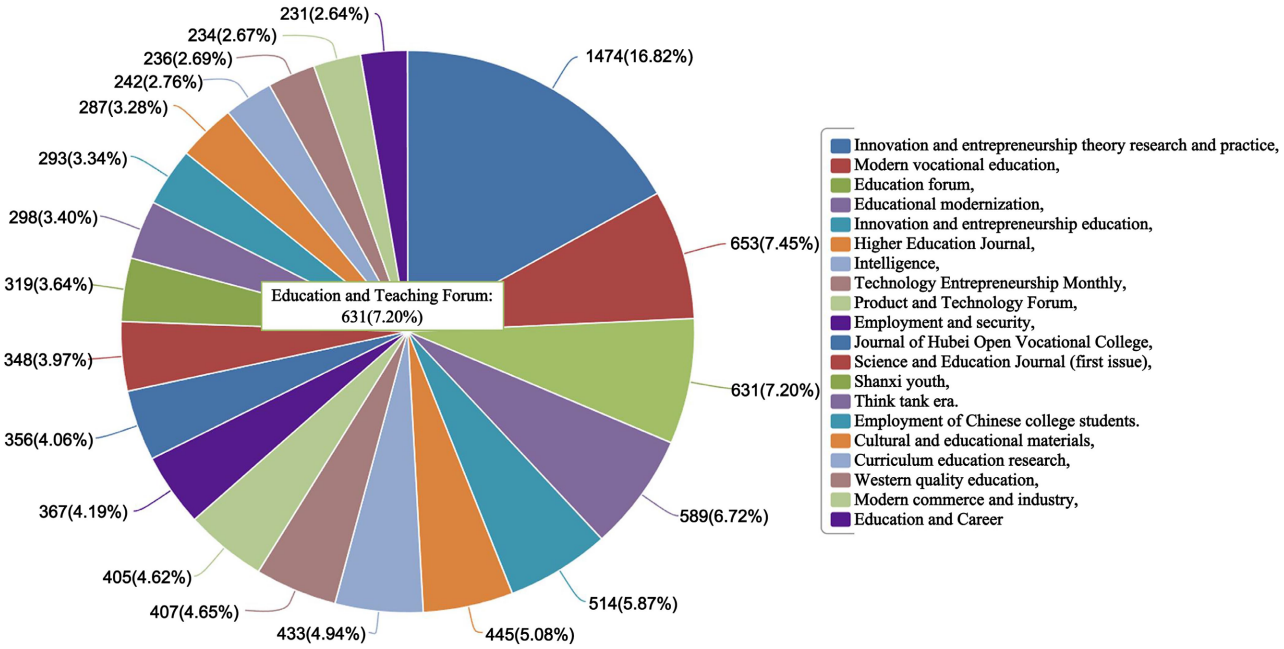

Figure 6. Distribution of literature sources.

2.4. Distribution Pattern of Research Forces

Figure 7 presents a detailed analysis of the institutional distribution of research

on "innovation and entrepreneurship education," based on the provided chart data. It is evident from the chart that Jiamusi University leads in publications on "innovation and entrepreneurship education," with 165 articles—substantially more than other institutions—highlighting its prominent position and significance as a research hub in this domain. Guilin University of Technology ranks second with 148 publications, marking it as another key contributor in the field of innovation and entrepreneurship education research. Shandong Management University holds the third position with 146 articles, reflecting its notable academic impact in the field. Other notable institutions include Northeastern University, Hebei Agricultural University, Guangxi Normal University, and Guilin University of Electronic Technology, each publishing between 113 and 130 papers, representing key contributors that collectively promote the progress of research in innovation and entrepreneurship education.

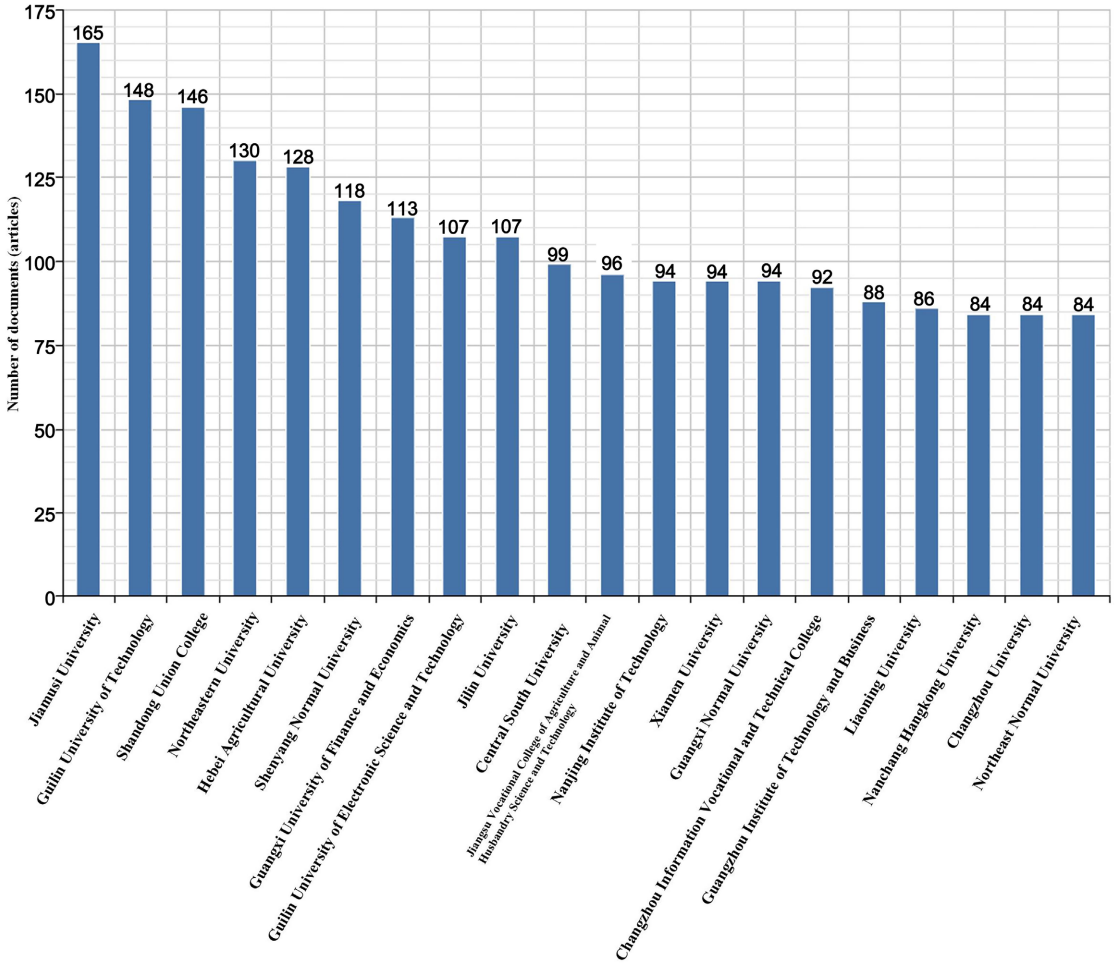

Figure 7. Institutional distribution.

Regarding institutional types, the ranked universities span comprehensive universities, science and technology universities, teacher training universities, medical schools, finance and economics colleges, and agricultural universities. This di-

versity reflects broad interest in innovation and entrepreneurship education research across university types, each actively utilizing its unique strengths to advance research in this field. Geographically, these universities are distributed across numerous provinces in China such as Heilongjiang, Guangxi, Shandong, Hebei, Jiangxi, Chongqing, Fujian, Henan, Liaoning, and Jilin. This demonstrates the extensive nationwide engagement in innovation and entrepreneurship education research, with active involvement from institutions in various regions.

2.5. Research Quality and Support Systems

Figure 8 presents an in-depth analysis of the "source category distribution" for the "innovation and entrepreneurship education" theme, based on the provided chart data. The chart clearly shows that the "Peking University Core" category is the leading source of literature for this theme, with 2863 documents, significantly surpassing other categories. This demonstrates that the "Peking University Core" category dominates the innovation and entrepreneurship education research field and represents the central source of literature output.

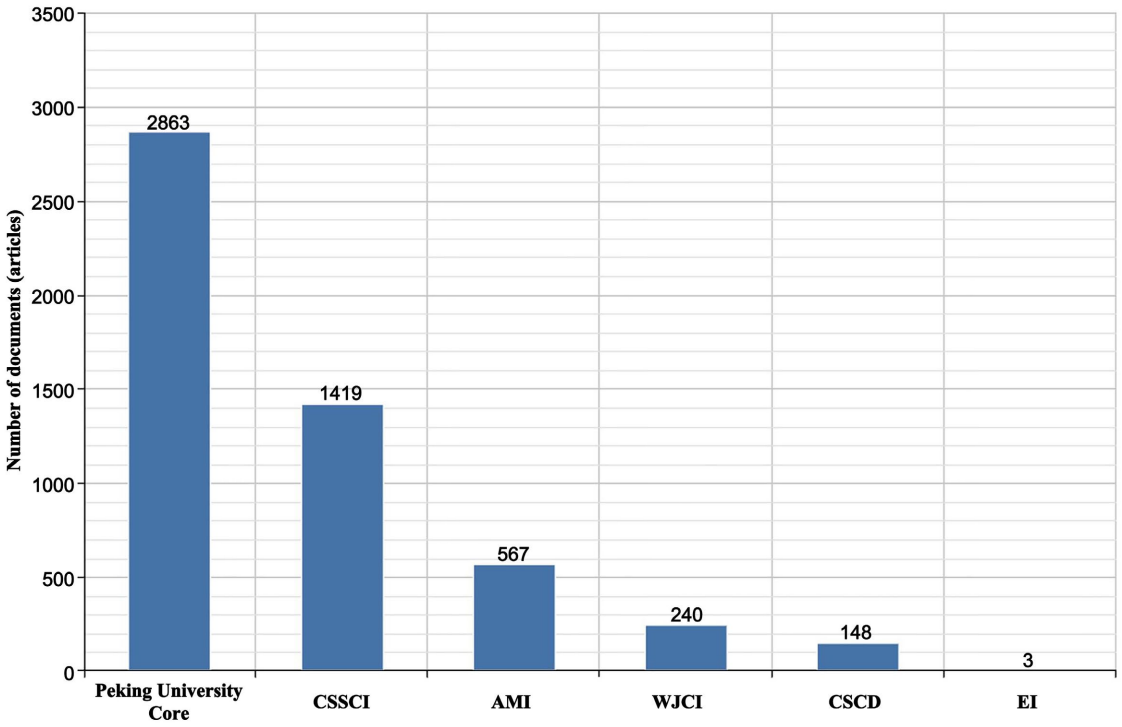

Figure 8. Distribution of source categories.

Analyzing the "source categories" within the "innovation and entrepreneurship education" theme reveals the differing levels of research activity and contributions from various sources. The "Peking University Core" category, due to its substantial number of publications, stands as the key driving force in this field, significantly influencing and advancing the development of innovation and entrepreneurship education.

Figure 9 presents an in-depth analysis of the "fund distribution" for the "innovation and entrepreneurship education" theme, based on the provided chart data. It is evident from the chart that the Higher Education Fund of the Jiangsu Provincial Department of Education is the most prominent funding source, with 585 grants awarded, far surpassing other funds. This demonstrates Jiangsu Province's strong commitment to supporting innovation and entrepreneurship education research in regular higher education institutions and highlights its significant role in driving the field's research development. These funds offer financial backing at various levels and from different perspectives, establishing a multi-layered and diversified support system that jointly fosters the advancement of innovation and entrepreneurship education research.

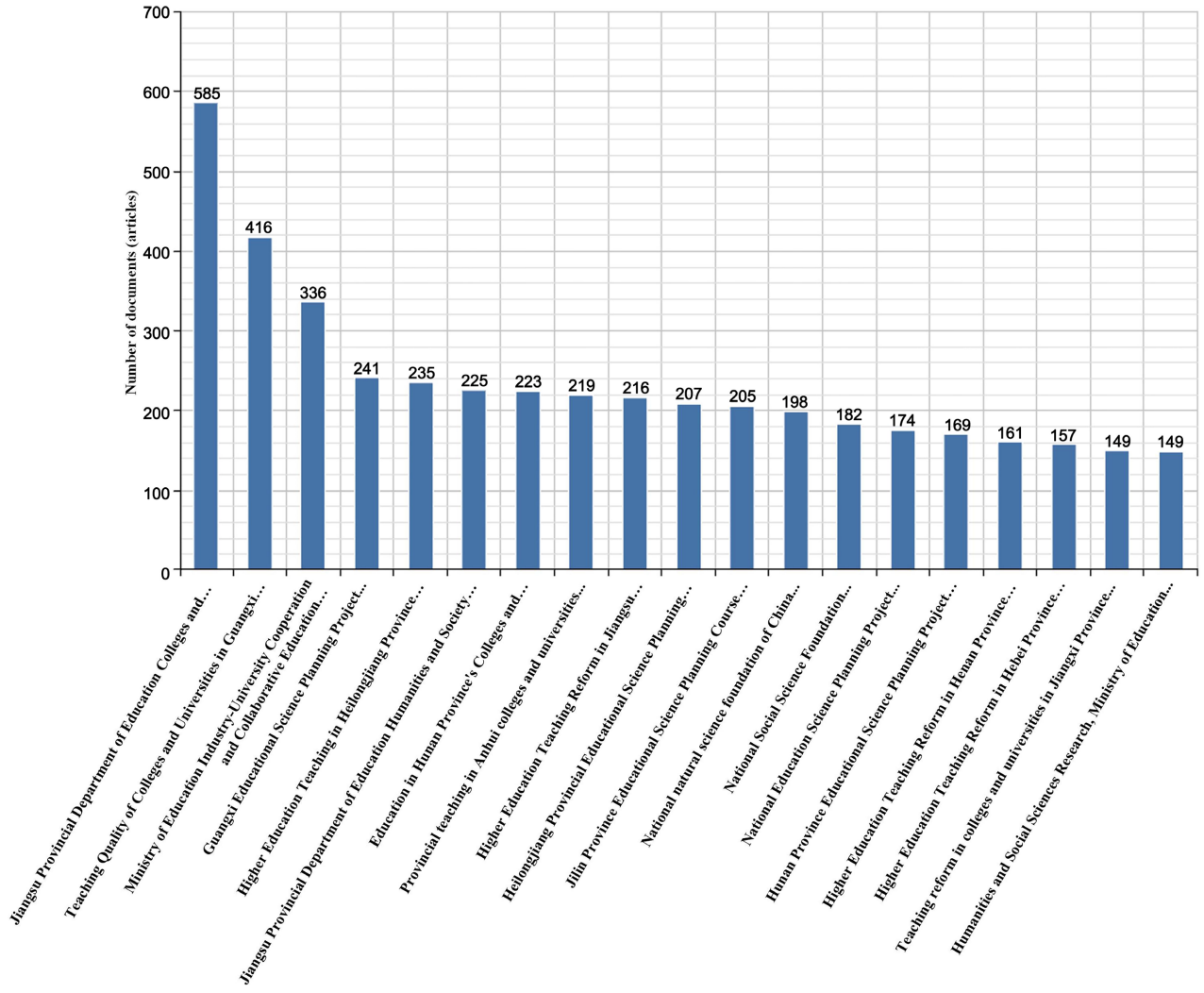

Figure 9. Fund distribution.

In terms of funding types, support for innovation and entrepreneurship education research comes from national institutions such as the Ministry of Education and the National Natural Science Foundation, provincial bodies like provincial

Departments of Education and higher education associations, as well as some teaching reform project grants. This indicates that innovation and entrepreneurship education research has attracted broad attention and support across various levels—from national to local and spanning education to research. Such funding provides essential financial backing, playing a crucial role in advancing research development in this field.

3. Conclusion

This study, based on the CNKI literature database of Lanzhou University of Technology (from 2000 to 2024), conducted a multi-dimensional dynamic framework analysis, quantitative verification of the theme hierarchy and identification of latent driving forces. It systematically revealed the scale evolution, theme structure, disciplinary penetration characteristics, and research force distribution of China's entrepreneurship and innovation education research. The study found:

(1) The scale fluctuates in stages: Driven by three factors—policy (such as the "mass entrepreneurship and innovation" strategy in 2014), changes in market demand, and technological iteration (such as AI empowering education), the research scale has followed an evolution trajectory of "slow growth (2000-2014), explosive growth (2015-2018), correction (2019-2021), steady transformation (2022-2024)".

(2) Unbalanced thematic structure: "Development Research" (accounting for the highest proportion, 2687 articles) takes the lead, focusing on educational models and platform construction. "Applied Research" and "Disciplinary Teaching and Education" follow, while the basic fields such as "Technical Research" and "Popular Science Practice" are relatively weak.

(3) Research subject concentration: Higher vocational colleges and ordinary universities are the main bases (accounting for 78.82%), among which Jiamusi University and Guilin University of Technology have outstanding achievements. Local funds such as the Jiangsu Provincial Department of Education have become the key supporting force (with 585 projects funded).

(4) Future directions and limitations: The limitation of the research lies in the lack of in-depth exploration of the specific obstacles of technological integration (such as AI). In the future, it is necessary to strengthen basic research, deepen differential exploration, and promote sustainable mechanisms.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Chen, C. R., & Huang, C. F. (2024). Discussion on Hot Spots and Trends in Innovation and

Entrepreneurship Education Research in Chinese Academic Circles since the 21st Century-Knowledge Graph Analysis Based on CiteSpace. *Chinese University Science and Technology, 8,* 1-7.

Gui, L., & Zheng, L. L. (2022). Research on the Guarantee Mechanism of Innovation and Entrepreneurship of College Students in Higher Vocational Colleges—Taking Anhui Province as an Example. *Shanxi Youth, 23,* 145-147.

Li, J. (2025). Research on the Iterative Upgrading of Innovation and Entrepreneurship Education in Colleges and Universities from the Perspective of New Quality Productivity. *Science and Technology and Innovation, 6,* 169-175.

Li, S. Q., Chang, K., & Liu, X. Y. (2024). Empowering High-Quality Training of Graduate Students with Innovation and Entrepreneurship Education. *Chinese Graduate Students, 11,* 34-39.

Liang, Z. H., & Wang, J. Y. (2025). Research on the Quality Evaluation System of Innovation and Entrepreneurship Education in Local Universities in Guangxi Based on CIPP Model and AHP. *Science and Technology and Innovation, 6,* 158-161.

Liu, K. (2018). Research on the Cultivation Mode of Innovation and Entrepreneurship Ability of Higher Vocational Students under the Background of "Internet plus". *Journal of Changsha Civil Affairs Vocational and Technical College, 25,* 76-78.

Qian, J. (2016). A Summary of Research on Innovation and Entrepreneurship Education in Colleges and Universities. *Journal of Zhangjiakou Vocational and Technical College, 29,* 25-28.

Tian, Y. P. (2018). Research on Incentive Mechanism and Policy of Innovation and Entrepreneurship Education. *Tianjin, Civil Aviation University of China, 6,* 25.

Wang, B., Zhao, X. Y., Cao, M. L. et al. (2024). The Generation Mechanism and Promotion Path of the "Professional-Technology-Industry" Dual-Cycle Innovation and Entrepreneurship Model-Systematic Thinking on Building a National Innovation and Entrepreneurship College in Applied Universities. *Journal of High Teaching, 10,* 67-72.

Wang, Y., & Wang, X. (2018). Research on Innovation and Entrepreneurship Education in Colleges and Universities in the Internet Era. *Journal of Changchun University, 28,* 82-86.

Xu, M. L., Zhou, Y. Z., Yang, L. et al. (2025). Research Hotspots and Trend Analysis of Innovation and Entrepreneurship Education in Colleges and Universities Based on Bibliometrics. *Traditional Chinese Medicine Education, 44,* 42-47.

Xu, S. Y. (2023). Research Status and Prospects of Innovation and Entrepreneurship Education in the Past 20 Years. *Innovation and Entrepreneurship Education, 14,* 18-27.

Xu, X. H., & Lan, C. (2014). Exploration of Experimental Teaching Mode of Innovation and Entrepreneurship Education in Colleges and Universities. *Experimental Science and Technology, 12,* 161-164.

Zhang, Y. (2021). Thoughts on the Construction of Innovation and Entrepreneurship Education Model in Colleges and Universities. *Industry and Science and Technology Forum, 20,* 121-122.

Zhou, D., & Cai, F. (2024). Digital Transformation of Innovation and Entrepreneurship Education for College Students under the Background of the Internet. *China Science and Technology Papers, 19,* 1345.