

Article

Research on the Establishment of an Interdisciplinary Collaborative Education Mechanism under the Background of New Liberal Arts Development

Kai Kou^{1,*}
¹ Hainan Vocational University of Science and Technology, Haikou, China

* Correspondence: Kai Kou, Hainan Vocational University of Science and Technology, Haikou, China

Abstract: The New Liberal Arts initiative represents a pivotal strategic endeavor within China's higher education system, designed to proactively adapt to the unprecedented wave of technological advancement and industrial transformation. Its core focus lies in fostering deep interdisciplinary integration and innovating contemporary talent cultivation models. Against the backdrop of rapidly evolving knowledge production paradigms and continuous shifts in global industrial landscapes, the traditional talent development framework, which is largely characterized by rigid disciplinary segregation, increasingly fails to meet complex societal demands for versatile, highly skilled, and innovative professionals. Consequently, the interdisciplinary collaborative education mechanism serves as a fundamental approach within this modern initiative. It actively breaks down entrenched disciplinary barriers, integrates diverse multidisciplinary resources, and restructures educational systems to achieve unified knowledge synthesis, coordinated competencies, and shared value cultivation. Building upon a comprehensive analysis of the New Liberal Arts framework and the theoretical foundations of interdisciplinary collaboration, this study systematically identifies the current structural and pedagogical challenges prevalent in university-based interdisciplinary education. To address these issues, it proposes a robust collaborative education model comprising multi-stakeholder coordination, curriculum system redesign, platform-driven integration, and evaluation system optimization, accompanied by highly practical implementation strategies. The research conclusively demonstrates that such integrated mechanisms effectively enhance students' comprehensive academic literacy, innovation capabilities, and practical skills, thereby providing essential institutional safeguards and actionable references for the high-quality advancement of higher education under the New Liberal Arts paradigm.

Keywords: new liberal arts; interdisciplinary collaboration; collaborative education; talent development; educational innovation

Received: 18 December 2025

Revised: 11 February 2026

Accepted: 21 February 2026

Published: 28 February 2026



Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

As technological advancements and industrial transformations continue to accelerate globally, the methods of knowledge production are undergoing profound changes. Emerging technologies, including artificial intelligence, big data, the digital economy, and smart manufacturing, are increasingly breaking down traditional disciplinary boundaries [1]. This has led to a growing emphasis on interdisciplinary integration, which has become a defining trend in the evolution of higher education. In response to these developments, initiatives have been introduced to promote a shift in liberal arts education, focusing on fostering interdisciplinary and versatile talents capable of addressing complex challenges in a rapidly changing world. Central to this transformation is the emphasis on collaborative innovation, which seeks to bridge gaps between disciplines and encourage the development of new frameworks for knowledge creation and application.

The conventional talent cultivation system in universities has traditionally been centered around distinct disciplines, characterized by a relatively rigid curriculum

structure and significant barriers between fields of study. This approach has often resulted in graduates with a narrow scope of knowledge, limited innovative thinking, and inadequate practical skills to adapt to the demands of a dynamic and complex society. As societal needs continue to evolve, this traditional model has increasingly shown its limitations in meeting the requirements for high-quality development. To address these challenges, there is a growing need to establish mechanisms for interdisciplinary collaboration in education. Such mechanisms aim to integrate resources across multiple disciplines and restructure the educational framework to foster a more holistic and adaptable approach to learning. This shift is essential for equipping students with the skills and knowledge necessary to thrive in an interconnected and rapidly advancing world.

Within the context of interdisciplinary education, this paper explores the theoretical underpinnings, practical obstacles, and actionable strategies for implementing collaborative education mechanisms [2]. The objective is to provide a comprehensive analysis that supports the transformation of talent cultivation models in higher education institutions. By examining these aspects, the paper seeks to offer both theoretical insights and practical recommendations to guide the development of educational frameworks that align with contemporary demands. This approach underscores the importance of fostering innovation and adaptability in academic environments, ensuring that graduates are well-prepared to contribute effectively to a knowledge-driven and technologically advanced society.

2. Theoretical Foundations of New Liberal Arts Development and Interdisciplinary Collaborative Education

2.1. The Connotation and Characteristics of the New Liberal Arts Initiative

The New Liberal Arts Initiative signifies a transformative reconfiguration of the traditional liberal arts education system, driven by the rapid advancements in technology and the evolving demands of modern industries. This initiative seeks to move beyond established educational paradigms by fostering a deep and dynamic integration between liberal arts disciplines and emerging technological innovations, diverse industrial sectors, and the multifaceted needs of contemporary society [3, 4]. Central to this initiative is the emphasis on interdisciplinary convergence, which aims to dissolve traditional academic silos and promote the organic integration of knowledge across various fields. By doing so, it aspires to systematically update and restructure conventional knowledge frameworks while simultaneously exploring novel approaches to talent cultivation, including the redefinition of educational objectives, content, and methodologies. The New Liberal Arts is characterized by four distinct attributes: openness, interdisciplinarity, practicality, and innovation. Openness is reflected in the active incorporation of cross-disciplinary knowledge, enabling a broader and more inclusive educational scope. Interdisciplinarity facilitates the synthesis of expertise from multiple domains, fostering a holistic understanding of complex issues. Practicality emphasizes the application of theoretical knowledge to real-world challenges, bridging the gap between academic learning and societal needs. Innovation drives the development of new thinking frameworks and methodologies, encouraging creative problem-solving and adaptability in an ever-changing global landscape.

The educational philosophy underpinning the New Liberal Arts extends beyond the traditional focus on knowledge transmission and theoretical instruction. It prioritizes the cultivation of comprehensive competencies and the integration of effective values, ensuring that these elements develop synergistically during the educational process. This philosophy underscores the importance of transcending disciplinary boundaries to achieve profound interdisciplinary integration, which is essential for addressing the complexities of modern society [5]. By fostering such integration, the initiative aims to nurture versatile professionals who possess a global perspective, a strong innovative spirit, and practical skills that are directly applicable to real-world scenarios. These professionals

are envisioned as being capable of navigating and addressing the diverse challenges posed by future societal transformations. The approach also emphasizes the development of critical thinking, adaptability, and creativity, ensuring that learners are equipped to contribute meaningfully to a rapidly evolving world. Furthermore, the initiative advocates for the alignment of educational practices with societal and industrial needs, thereby enhancing the relevance and impact of liberal arts education in addressing contemporary and future challenges.

2.2. Theoretical Foundations of Interdisciplinary Collaborative Education

Interdisciplinary collaborative education represents an advanced educational philosophy and model that is underpinned by several foundational theories, including systems theory, collaboration theory, and constructivist learning theory. Systems theory provides a macro-level perspective by conceptualizing education as an interconnected and dynamic system. This framework emphasizes the organic relationships among various elements, such as disciplines, teaching entities, and resources, highlighting the importance of holistic integration and synergistic interactions to enhance overall educational effectiveness. Collaboration theory further refines this perspective by focusing on the cooperative processes necessary for interdisciplinary education. It underscores the significance of active engagement and resource sharing among universities, academic departments, educators, and industry stakeholders, aiming to achieve outcomes that surpass the sum of individual contributions. This approach fosters innovation and maximizes the value of collaborative efforts. Constructivist learning theory complements these frameworks by emphasizing the learner's active role in the educational process [6, 7]. It posits that learning is not a passive activity but rather an interactive and dynamic process where learners construct knowledge through exploration, negotiation, and engagement within diverse and authentic contexts. Interdisciplinary approaches create these contexts, enabling learners to develop deeper understanding and critical thinking skills. Together, these theories establish a comprehensive foundation for interdisciplinary collaborative education, offering a structured yet flexible model that integrates theoretical insights with practical applications to enhance talent cultivation and foster creativity.

The integration of systems theory, collaboration theory, and constructivist learning theory forms a cohesive and multidimensional framework for interdisciplinary collaborative education. This model transcends traditional teaching methodologies and curriculum design, evolving into a systematic philosophy that prioritizes interconnectedness and innovation. By leveraging the principles of systems theory, interdisciplinary education is positioned as a holistic approach that aligns diverse elements to achieve greater efficacy and synergy [8, 9]. Collaboration theory further enriches this model by emphasizing the importance of cooperative interactions and resource integration among various stakeholders, including academic institutions, educators, and industry partners. This collaborative dynamic not only enhances educational outcomes but also fosters a culture of shared responsibility and mutual growth. Constructivist learning theory adds depth to this framework by focusing on the learner's active engagement in constructing knowledge. It highlights the importance of creating authentic or simulated interdisciplinary contexts that encourage learners to explore, analyze, and synthesize information, thereby promoting critical thinking and problem-solving skills. Collectively, these theories provide a robust foundation for interdisciplinary collaborative education, transforming it into a forward-thinking approach to talent cultivation. This model emphasizes creativity, adaptability, and the ability to navigate complex, interconnected systems, preparing learners to address multifaceted challenges in an increasingly interdisciplinary world.

2.3. The Intrinsic Connection between the New Liberal Arts and Interdisciplinary Education

The fundamental goals of the New Liberal Arts initiative center on overcoming entrenched disciplinary boundaries and addressing the fragmentation of knowledge systems. This approach aims to restructure, refine, and broaden the scope of humanities

and social sciences. Interdisciplinary collaborative education emerges as the key mechanism for achieving these objectives, serving as both the operational framework and the practical pathway. The relationship between these two aspects is deeply interconnected, characterized by mutual reinforcement and practical alignment. Specifically, interdisciplinary curricula are designed to integrate diverse academic perspectives, supported by coordinated teaching efforts that bring together faculty from various fields. Additionally, the creation of multifaceted practical education platforms, such as partnerships between universities and industries or collaborations with community organizations, facilitates meaningful interaction and integration between traditional humanities disciplines—such as literature, history, philosophy, and art—and fields like information science, engineering, and business management. This dynamic process not only expands students' intellectual scope and cognitive capabilities but also equips them with the skills needed to address complex, real-world challenges. By fostering innovative thinking and interdisciplinary expertise, the initiative aims to cultivate versatile talents who are well-prepared to meet the evolving demands of contemporary society. This holistic approach underscores the importance of bridging disciplinary divides to achieve a more integrated and impactful educational framework.

3. Practical Challenges in Interdisciplinary Collaborative Education at Universities

3.1. The Phenomenon of Disciplinary Barriers Remains Pronounced, and Cross-Disciplinary Obstacles Urgently Need to Be Overcome.

At present, universities in China continue to rely on traditional management frameworks that are predominantly structured around colleges and specific disciplines. This approach has resulted in the establishment of distinct boundaries between academic fields, with each discipline developing its own relatively isolated and self-contained curriculum system. The lack of interaction and collaboration across disciplines is further exacerbated by the absence of institutionalized platforms and mechanisms for regular communication and resource sharing. Consequently, opportunities for interdisciplinary exchange and integration remain limited. In the context of curriculum design, the incorporation of cross-disciplinary knowledge is insufficient, as most courses are narrowly confined to their respective fields of study. This rigid structure prevents the dismantling of disciplinary silos, thereby restricting the ability of students to cultivate a comprehensive and innovative knowledge base that spans multiple fields. Addressing these challenges requires a systematic effort to foster interdisciplinary collaboration, enhance resource-sharing frameworks, and promote the development of curricula that encourage the synthesis of diverse academic perspectives.

3.2. The Integration Level of the Curriculum System Is Relatively Low, with Weak Internal Logical Connections.

Although some universities have introduced interdisciplinary courses or cross-disciplinary modules, their integration often remains superficial, characterized by a simple combination of elements rather than a cohesive and well-structured system. This lack of a systematic top-level design and coordinated planning results in weak connections between courses from different disciplines. The content arrangements are often fragmented and fail to establish a consistent internal logical framework or a coherent knowledge structure. Such deficiencies hinder the creation of meaningful links and a hierarchical progression among interdisciplinary courses. Consequently, students face challenges in developing a comprehensive and integrated cross-domain knowledge system. Without a robust framework, the potential for interdisciplinary learning to foster critical thinking and innovative problem-solving is significantly diminished. Addressing these issues requires a more deliberate and strategic approach to curriculum design, ensuring that interdisciplinary courses are interconnected and aligned to support a seamless and progressive learning experience [10].

3.3. The Multi-Party Collaborative Education Mechanism Remains Inadequate, with Insufficient Stability in Cooperation.

Collaborative talent development initiatives involving universities, industry enterprises, and research institutions are still in the early stages of exploration, with significant challenges in achieving effective coordination among the various stakeholders. The lack of a well-defined, long-term, and institutionalized framework for partnerships has resulted in fragmented efforts that fail to deliver sustainable outcomes. Key obstacles include the absence of mechanisms for resource sharing, unclear allocation of responsibilities, and insufficient strategies for aligning and distributing interests among participants. These deficiencies have hindered the establishment of robust interdisciplinary and cross-sector programs, which are essential for addressing complex educational and professional demands. Furthermore, many collaborative efforts tend to remain superficial, lacking the depth and continuity required to bridge the gap between intended educational objectives and actual results. Addressing these issues requires a systematic approach to fostering stable and mutually beneficial partnerships.

3.4. The Evaluation System Exhibits Relatively Limited Dimensions, and Its Guiding Function Has Not Been Fully Utilized.

The evaluation systems currently implemented in universities predominantly emphasize assessing students' understanding of knowledge and academic achievements within a single disciplinary framework. These systems often rely on traditional content and methods, which limits their scope and effectiveness. A notable shortcoming is the insufficient focus on evaluating interdisciplinary thinking, the ability to apply knowledge comprehensively, innovative practical skills, and the capacity to address complex, real-world problems. This limitation is frequently attributed to the lack of appropriate evaluation indicators or the inadequate weighting of these critical aspects. Consequently, such a narrow evaluation approach fails to provide a holistic representation of students' overall competencies and developmental potential. Furthermore, it does not adequately encourage or guide the cultivation of interdisciplinary talents, which are increasingly essential in addressing modern challenges. This deficiency also restricts the innovation and optimization of talent development models, thereby hindering the broader goal of fostering well-rounded, adaptable individuals capable of contributing to diverse fields and industries.

4. The Logical Framework for Establishing an Interdisciplinary Collaborative Education Mechanism

(1) The multi-stakeholder collaboration mechanism within the interdisciplinary collaborative education system is designed to create a highly efficient and systematically organized model of cooperation among various parties. This mechanism integrates a diverse array of participants, including higher education institutions, enterprises, research institutes, and social organizations. By fostering the development of a stable yet adaptable collaborative education community, it facilitates the comprehensive sharing of high-quality educational resources among stakeholders. This approach enhances complementary strengths in areas such as technological innovation, talent development, and information exchange, ultimately improving the overall effectiveness and adaptability of talent cultivation processes. Furthermore, the mechanism encourages dynamic interactions and partnerships that address the evolving demands of interdisciplinary education, ensuring that all participants contribute to and benefit from the collective advancement of educational goals.

(2) The restructuring mechanism of the curriculum system is founded on the principles of strengthening foundational knowledge through general education, integrating interdisciplinary knowledge deeply, and promoting innovation via practical applications. This approach seeks to dismantle traditional disciplinary boundaries, enabling the systematic and organic integration of knowledge across diverse academic fields [11, 12]. The mechanism emphasizes the creation of a modular curriculum structure with a clear design that incorporates project-based learning as a central component. This ensures that course content maintains the integrity of the knowledge framework while

remaining flexible enough to adapt to the changing requirements of interdisciplinary talent cultivation. Additionally, the modular design allows for targeted learning pathways that align with specific academic and professional objectives, fostering a more personalized and effective educational experience for students.

(3) To effectively implement interdisciplinary education concepts, it is essential to establish a practical support mechanism that provides robust infrastructure and opportunities for experiential learning [13]. This mechanism focuses on the development of three interconnected platforms. The first is a high-standard, open, and shared on-campus experimental and training platform that offers students access to advanced resources and facilities. The second is a university-industry collaboration platform that promotes deep interaction and mutual benefits between academic institutions and enterprises, facilitating real-world applications of theoretical knowledge. The third consists of diverse off-campus social practice platforms that align closely with societal needs, enabling students to engage in meaningful activities that transcend single-discipline boundaries. Together, these platforms create a rich and dynamic learning environment that integrates theoretical understanding with practical skills, fostering the holistic development of interdisciplinary competencies.

(4) A scientifically optimized evaluation system is critical for assessing the effectiveness of interdisciplinary education. This mechanism aims to establish a comprehensive framework that evaluates multiple dimensions of student performance, including traditional knowledge acquisition, interdisciplinary problem-solving abilities, innovation capabilities, and practical application skills. The evaluation system integrates formative assessments conducted during the learning process with summative assessments of final outcomes, ensuring a balanced and holistic perspective [14, 15]. By providing precise feedback, this mechanism supports continuous improvement in teaching and learning practices. Additionally, the evaluation framework is designed to adapt to the evolving demands of interdisciplinary education, ensuring that assessment criteria remain relevant and aligned with the objectives of cultivating versatile and innovative talents.

5. Practical Approaches to the Interdisciplinary Collaborative Education Mechanism

5.1. Vigorously Promote the Interdisciplinary and In-Depth Integration of the Curriculum System

To effectively transcend the traditional boundaries between established academic disciplines, it is essential to systematically promote the organic integration and deep convergence of diverse course contents. This approach involves rethinking and redesigning curricula to incorporate elements that bridge the gap between humanities, social sciences, natural sciences, and engineering. For instance, humanities and social sciences courses can be enriched by integrating modern technological concepts, such as foundational principles of data analysis and introductory knowledge of artificial intelligence, which can significantly expand students' intellectual horizons and equip them with tools relevant to contemporary challenges [16]. Conversely, natural sciences and engineering courses should emphasize the cultivation of humanistic values, ethical reasoning, and social responsibility, ensuring that students develop a balanced perspective that aligns technical expertise with societal needs. This bidirectional integration fosters a holistic educational framework that optimizes students' knowledge structures and enhances their interdisciplinary problem-solving capabilities. By equipping students with the ability to address multifaceted challenges, this approach aims to meet the growing societal demand for innovative and versatile talents capable of driving progress in an increasingly complex world.

5.2. Comprehensively Strengthen the Innovation of a Project-Driven Teaching Model

This teaching approach emphasizes the use of real-world problems and projects as the central framework for instructional activities, systematically integrating various educational processes to enhance learning outcomes. By forming interdisciplinary project

teams, students are guided through a structured sequence of activities, including defining problems, designing solutions, conducting practical explorations, and evaluating outcomes. This model is designed to actively engage students, encouraging them to take initiative in their learning while fostering creativity and innovation. Furthermore, it provides a platform for students to develop critical skills such as the ability to apply knowledge in a comprehensive manner, address complex challenges, and collaborate effectively within diverse teams. Through authentic project experiences, students also refine their communication abilities, which are essential for professional and academic success. The holistic nature of this approach ensures that learners are better prepared to meet the demands of dynamic and multifaceted environments.

5.3. Focus on Building a Diversified and Collaborative Support Platform for Practical Education.

Strengthening and deepening collaborative partnerships among universities, enterprises, and research institutions is essential for advancing practical education [17]. By pooling resources and expertise, these entities can jointly establish high-level interdisciplinary practical teaching bases and innovation platforms. Such platforms are designed to simulate real-world industry practices and align with the latest research developments, offering students immersive application scenarios. These environments provide invaluable opportunities for hands-on experience, internships, and exposure to authentic engineering processes, research and development activities, or social service initiatives. By engaging in these realistic settings, students can bridge the gap between theoretical knowledge and practical application, fostering the development of critical skills required in their future professions. Furthermore, the collaborative education ecosystem being cultivated is characterized by its stability, openness, and shared nature, ensuring that resources are accessible to a broad range of participants. This approach not only enhances the quality of education but also equips students to adapt effectively to the dynamic demands of modern industries and societal needs.

5.4. Further Advance the Intelligent Application of Digital Technologies Throughout the Entire Educational Process.

By utilizing advanced digital technologies such as big data analytics, artificial intelligence algorithms, virtual simulation, and augmented reality, the development of intelligent and interactive smart teaching environments and management systems can be systematically promoted. These technologies enable comprehensive digital recording and intelligent analysis of the teaching process, facilitating a more precise understanding of student learning needs [8]. This, in turn, allows for the personalized delivery of educational resources and the creation of adaptive learning pathways tailored to individual requirements. Virtual simulation technology, in particular, offers significant advantages by addressing limitations related to space, time, and resource availability. It provides immersive and practical scenarios that are especially beneficial for activities that involve high levels of risk or cost, thereby enhancing experiential learning opportunities. The overarching objective is to transition the entire teaching process toward a model characterized by digitalization, interconnectedness, and intelligence. This transformation aims to improve educational efficiency and quality through the integration of technological advancements, ultimately contributing to the establishment of a forward-looking educational paradigm that meets the evolving demands of the future.

6. Implementation Outcomes of the Interdisciplinary Collaborative Education Mechanism

Through the optimization of mechanisms and the continuous exploration of practical applications, interdisciplinary collaborative education has achieved notable success in fostering comprehensive student development. This approach has significantly enhanced students' abilities in innovation, practical application, and the integration of knowledge across multiple disciplines. These improvements equip students with the skills necessary to navigate and address the complexities of an ever-changing societal landscape. Furthermore, teaching methodologies have undergone systematic refinement, ensuring

that instructional practices remain effective and relevant. The curriculum system has been progressively strengthened to provide a more cohesive and comprehensive educational framework. Additionally, partnerships between universities and industries have been deepened, facilitating a more dynamic exchange of knowledge and resources. Collectively, these advancements have contributed to a substantial improvement in the overall quality of talent cultivation, aligning educational outcomes with societal and professional demands.

7. Optimization Strategies and Development Recommendations

To further enhance the interdisciplinary collaborative education mechanism, continuous improvements should be made in several critical areas. First, there is a need to deepen the integration of interdisciplinary fields by systematically redesigning and refining the curriculum structure to ensure it aligns with evolving academic and industry demands. Second, the collaborative education framework should be further developed by fostering stronger partnerships among diverse stakeholders, including academic institutions, industry leaders, and policymakers, to create a more cohesive and effective ecosystem. Third, the evaluation system must be optimized to emphasize competency-based assessments that accurately measure students' practical skills and knowledge application. Fourth, the adoption of advanced digital technologies should be prioritized to enhance the intelligence and adaptability of teaching methodologies, enabling more personalized and efficient learning experiences [4]. Finally, robust institutional safeguards must be established to ensure the sustainability and long-term success of these mechanisms, including clear policies, resource allocation strategies, and continuous monitoring systems to address emerging challenges and opportunities.

8. Conclusion

Within the framework of New Liberal Arts Development, interdisciplinary collaborative education mechanisms constitute an important approach to improving higher education and renewing talent cultivation models. By constructing a systematic structure that combines multi-stakeholder coordination, cross-disciplinary curriculum integration, platform-based resource support, and continuous evaluation improvement, institutions can strengthen students' knowledge integration, practical competence, innovative thinking, and capacity to address complex real-world problems. Such a framework also helps promote closer alignment among teaching objectives, disciplinary development, and social needs, thereby enhancing the overall effectiveness and sustainability of educational practice. In future implementation, greater attention should be given to deepening interdisciplinary convergence, refining collaborative operating mechanisms, expanding digital and institutional support platforms, and improving quality assurance systems. Through sustained optimization in these areas, higher education can achieve more coordinated, inclusive, and high-quality development while providing stronger talent support for long-term societal and economic advancement.

Funding: This study is a research outcome of the 2025 Ministry of Education's Industry-Academia Collaboration Program for Coordinated Talent Development. Project Title: Exploring a New Liberal Arts Education Model Through Three-Dimensional Integration of Music, Ideological Education, and Emerging Fields -- An Innovation in Immersive Educational Approaches Based on Industry-Academia Collaboration; Project Number: 251200234221244.

References

1. J. Chen, "Research on the Construction of Talent Cultivation Mode of Finance Majors in Applied Undergraduate University under the Background of New Liberal Arts," 2024.
2. F. Zhang, "The reform of journalism education driven by digital technology in the era of media integration," *Wireless Communications and Mobile Computing*, vol. 2022, no. 1, p. 2144718, 2022.
3. T. Zamenopoulos and K. Alexiou, *Co-design as collaborative research*, Bristol University/AHRC Connected Communities Programme, 2018.

4. L. Guo and C. Jia, "Research on the Reconstruction of the 'Chinese Paradigm' for the Deep Integration of New Liberal Arts and Economics and Management Majors Education," *iEducation*, vol. 1, no. 3, pp. 16–29, 2025.
5. R. Malina, C. Strohecker, C. LaFayette, and A. Ione, "Steps to an Ecology of Networked Knowledge and Innovation: Enabling new forms of collaboration among sciences, engineering, arts, and design," 2013.
6. C. Lobman, S. Ryan, and J. McLaughlin, "Reconstructing teacher education to prepare qualified preschool teachers: Lessons from New Jersey," *Early Childhood Research & Practice*, vol. 7, no. 2, p. n2, 2005.
7. D. Rhoten, V. Boix Mansilla, M. Chun, and J. T. Klein, "Interdisciplinary education at liberal arts institutions," *Teagle Foundation white paper*, vol. 13, 2007.
8. Y. Liu, "From Interdisciplinary Approach to Interdisciplines: The New Liberal Arts Development Road of Legal Education Mechanism for Civil and Commercial Disputes in China," *Frontiers of Law in China*, vol. 19, no. 2, p. 191, 2024.
9. R. Frodeman, J. T. Klein, and R. C. D. S. Pacheco, Eds., *The Oxford handbook of interdisciplinarity*. Oxford University Press, 2017.
10. J. C. Davis, "The Liberal Arts Paradigm for Interdisciplinary Studies," *Journal of Interdisciplinary Studies*, vol. 31, 2019.
11. J. T. Klein, "A taxonomy of interdisciplinarity," *The Oxford handbook of interdisciplinarity*, vol. 15, no. 6, p. 15, 2010.
12. B. K. Iverson, T. Prados-Torreira, and L. Education, "Liberal Ed meets High Tech: Interdisciplinary Collaboration to Improve Instruction," in *World Association for Case Method Research and Application Conference*, Extremadura, Spain, July 1999.
13. L. R. Lattuca, *Creating interdisciplinarity: Interdisciplinary research and teaching among college and university faculty*. Vanderbilt University Press, 2001.
14. L. San Martín-Rodríguez, M. D. Beaulieu, D. D'Amour, and M. Ferrada-Videla, "The determinants of successful collaboration: a review of theoretical and empirical studies," *Journal of Interprofessional Care*, vol. 19, sup. 1, pp. 132–147, 2005.
15. L. Petri, "Concept analysis of interdisciplinary collaboration," in *Nursing Forum*, vol. 45, no. 2, pp. 73–82, Malden, USA: Blackwell Publishing Inc., April 2010.
16. L. Fewster-Thuyente and B. Velsor-Friedrich, "Interdisciplinary collaboration for healthcare professionals," *Nursing Administration Quarterly*, vol. 32, no. 1, pp. 40–48, 2008.
17. D. D'Amour, L. Goulet, J. F. Labadie, L. S. Martín-Rodríguez, and R. Pineault, "A model and typology of collaboration between professionals in healthcare organizations," *BMC Health Services Research*, vol. 8, no. 1, p. 188, 2008.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of Publisher and/or the editor(s). Publisher and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.