Article

Research on the Collaborative Cultivation of Professional Development of Business Teachers and Students' Data Literacy in Private Universities Under the Guidance of Educator Spirit

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Abstract: Against the dual background of educational digital transformation and the construction of a strong educational country, business education in private universities urgently needs to cultivate high-quality applied talents. As the spiritual core of teachers' professional development, educator spirit guides the solution to the bottlenecks of business teachers' professional growth and students' data literacy cultivation. Using literature research and logical analysis, this paper constructs a relevant theoretical framework, analyzes the empowering role of educator spirit, and explores a four-in-one practical path. The research shows that educator spirit promotes positive interaction between teachers' professional development and students' data literacy cultivation, providing support for the high-quality development of business education in private universities.

Keywords: educator spirit; professional development; data literacy; collaborative cultivation

1. Preface

The rapid advancement of the digital economy has catalyzed a profound digital-intelligent transformation within the global landscape of higher education, positioning data literacy as the definitive core competitiveness for business talents in the modern era. Private universities, characterized by their distinct application-oriented positioning and market sensitivity, serve as a vital vanguard in the cultivation of high-caliber business data professionals. However, contemporary business education within these institutions currently faces a series of multifaceted dilemmas that hinder its further progress. On one hand, faculty members often lack the necessary spiritual guidance to sustain long-term professional development and frequently possess insufficient data literacy, which complicates their transition toward data-driven pedagogical reforms. On the other hand, the cultivation of data literacy among students frequently lacks a systematic and integrated design, often suffering from an imbalance where technical skills are prioritized over critical data thinking and theoretical knowledge remains detached from practical application. This misalignment directly impacts the ability of graduates to meet the complex and evolving demands of the modern workplace.

The introduction of the educator spirit offers a potential solution to these challenges, as it can inject significant internal motivation into the professional growth of business faculty while simultaneously providing a moral and intellectual compass for improving student data literacy. By emphasizing a commitment to both professional excellence and student-centered development, this spirit acts as a bridge between the technical requirements of the digital age and the humanistic values of education. Despite its potential, existing academic discourse tends to examine faculty development and student literacy in isolation, resulting in a significant lack of systematic construction regarding their collaborative cultivation from the perspective of the educator spirit.

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Consequently, this paper focuses on the practical realities of business education within private universities to explore a comprehensive theoretical framework and specific practical strategies for their synergy. By addressing the current disconnection between talent cultivation models and actual market requirements, this research seeks to establish a collaborative ecosystem where teacher growth and student development are mutually reinforcing. Ultimately, this study aims to provide a transformative new path for the high-quality development of business education in private universities, ensuring that both educators and students are equipped to thrive in the data-driven future.

2. Literature Review

2.1. Research on Educator Spirit and Professional Development of Teachers in Private Universities

As the foundational ethos for faculty development in the contemporary era, the educator spirit represents the profound spiritual traits and ethical values distilled from long-term pedagogical practice, providing a strategic compass for the evolution of university faculty. This spirit is increasingly recognized as the primary psychological catalyst for the healthy professional growth of teachers, serving to enhance both individual moral cultivation and collective group cohesion [1]. Within the specific landscape of private universities, which often face unique challenges in faculty stability and identity, this spirit functions as a stabilizing spiritual pillar that offers essential action guidance for professional advancement [2]. Existing scholarship has elucidated various implementation paths for this development, emphasizing a synergistic combination of targeted training, performance incentives, and the creation of a supportive institutional environment [3]. Furthermore, contemporary models advocate for a multidimensional approach to shaping the teaching personality of faculty, focusing on distinct psychological and professional personality traits [4, 5]. However, while the current literature provides a robust foundation for individual teacher growth, there remains a significant lack of research concerning the collaborative mechanism between the professional maturation of teachers and the practical cultivation of student abilities.

2.2. Research on the Cultivation of College Students' Data Literacy

The pervasive integration of digital technology into the global economy has established data literacy as a non-negotiable core competitiveness for college students. This literacy is frequently characterized in recent studies as the "new oil" of the 21st-century economy, where its value lies not just in technical proficiency but in its application to data-driven decision-making and strategic business problem-solving [6]. Current research explores diverse cultivation frameworks to address this need, including the implementation of a "four-element reconstruction" designed to transform traditional teaching into a data-centric pedagogical model [7]. Additionally, empirical evidence suggests that the effectiveness of these cultivation efforts can be significantly augmented through the adoption of blended teaching models that bridge the gap between theoretical knowledge and digital practice [8]. Despite these advancements, the cultivation of data literacy for business students in private universities continues to face structural obstacles, such as fragmented curriculum systems and a general lack of data expertise among faculty members, which hinders the development of a systematic talent cultivation ecosystem.

2.3. Research on the Collaboration between Teachers' Professional Development and Students' Literacy Cultivation

A profound and natural interdependence exists between the professional growth of educators and the literacy outcomes of their students, as the pedagogical quality and technical proficiency of faculty directly dictate the success of student development. It has been empirically confirmed that the enhancement of a teacher's own data literacy is a prerequisite for achieving positive learning outcomes in students, as faculty expertise is

effectively transformed into student competence through the instructional process [9]. However, existing studies on this collaboration often prioritize technological empowerment or curriculum integration while neglecting the essential role of spiritual and ethical guidance. Current strategies for faculty development frequently fail to adequately incorporate the collaborative cultivation of students into their frameworks [10]. Moreover, a significant portion of the literature tends to overlook the critical intermediary role played by teachers as the primary link between institutional goals and student achievement [11]. The educator spirit, as the potential spiritual link that could harmonize this collaboration, has not yet been fully explored in existing research, representing the primary theoretical and practical gap that this paper seeks to address.

3. Theoretical Framework and Core Logic of Collaborative Cultivation

3.1. Construction of Theoretical Framework

Based on the comprehensive literature analysis provided, this paper establishes a robust theoretical paradigm centered on "Educator Spirit Guidance - Dual-subject Collaboration - Ability Symbiosis." This framework positions the educator spirit as the fundamental ontological core of the collaborative cultivation process, effectively bridging the inherent gap between the professional evolution of faculty and the data-driven literacy of students. Within this systemic architecture, the educator spirit serves as the primary orienting force and the vital source of internal motivation, permeating every phase of the educational journey through the continuous transmission of concepts and the shaping of professional values. The dual-subject collaboration mechanism acts as the operational nexus, facilitating a multidimensional exchange between teachers and students across three critical layers: conceptual alignment, pedagogical interaction, and practical advancement. Ultimately, the goal of ability symbiosis represents the teleological end of this framework, manifesting as the synchronous enhancement of faculty professional competencies and student quantitative proficiency. Together, these elements constitute a dynamic, self-reinforcing cycle of "guidance, collaboration, and symbiosis," ensuring the systematic integrity and long-term sustainability of the cultivation model within the private university ecosystem.

3.2. Core Collaborative Logic

3.2.1. Concept Transmission Logic

The transmission of concepts serves as the initial cognitive phase where the educator spirit is distilled into actionable pedagogical philosophies through the professional practice of faculty. Guided by profound professional ideals and ethical beliefs, educators move beyond the traditional boundaries of knowledge delivery to adopt a "student-centric" ethos that prioritizes the long-term intellectual growth of business talents. Supported by professional wisdom, they design sophisticated data literacy programs that are specifically tailored to the nuances of the business sector, ensuring a seamless integration of theoretical knowledge and practical competency training. Driven by a dedicated and conscientious attitude, faculty members commit to the continuous refinement of their own data proficiency, thereby providing a high-quality instructional benchmark for their students. This conceptual transmission is not a unidirectional process of indoctrination; rather, it fosters a reciprocal recognition of values between the educator and the learner. Under this guidance, students develop a proactive data awareness and a commitment to lifelong learning, which in turn encourages faculty to optimize their instructional content and methodologies, creating a virtuous cycle of cognitive alignment.

3.2.2. Ability Interaction Logic

A reciprocal feedback loop defines the logic of ability interaction, where the professional growth of the educator and the data literacy of the learner are inextricably linked and mutually beneficial. On one hand, the faculty's proficiency in data analytics and instructional design provides the essential scaffolding for student development. Through meticulous curriculum design, instructional demonstrations, and hands-on guidance, educators impart critical skills in data collection, complex analysis, and strategic application, while simultaneously fostering a deep sense of data ethics and critical thinking among students [12]. On the other hand, the rapid advancement of student data literacy introduces higher benchmarks for faculty professional development. The innovative queries and practical challenges presented by students during the learning process compel educators to pursue advanced data skill sets and pedagogical innovations. This interaction effectively dismantles the traditional, hierarchical "teacher-led" model in favor of a "teaching and learning promote each other" paradigm, facilitating a bidirectional empowerment that enhances the professional standing of the teacher and the marketability of the student.

3.2.3. Practical Progress Logic

The ultimate efficacy of this collaborative model is realized through the tangible progress made by both teachers and students within the theater of professional practice. Guided by the pursuit of knowledge and social responsibility, educators integrate authentic industry data cases into the classroom, leading students through the complexities of real-world enterprise projects. This immersive approach allows faculty to sharpen their own industry-aligned practical skills and instructional versatility simultaneously. Under this expert mentorship, students transform their theoretical data literacy into the practical ability to solve multifaceted business problems through project-based learning and discipline-specific competitions. Concurrently, the results of these student-led projects provide fresh empirical material for faculty-led pedagogical reform and scientific research innovation. This practical progression not only achieves a synchronous improvement in teacher and student competencies but also strengthens the connection between private higher education and the evolving needs of the industry, fully manifesting the institutional mission of cultivating highly adaptable, application-oriented business talent.

4. The Empowering Role of Educator Spirit in Collaborative Cultivation

4.1. Soul-Casting and Education: Guiding the Value Direction of Collaborative Cultivation

The triad of professional ideals, profound beliefs, and benevolence inherent in the educator spirit provides the essential axiological foundation for collaborative cultivation, ensuring that the educational process remains steadfastly aligned with the fundamental mission of moral education. These ideals and beliefs compel business educators in private universities to transcend purely technical instruction by integrating data literacy with the cultivation of student character and social responsibility. This approach guides learners to establish a robust framework of data ethics and integrity-based business values, which are critical in a digital economy. Furthermore, the spirit of benevolence is manifested through a commitment to personalized student care; by leveraging data analytics to identify specific learning obstacles, educators can formulate tailored developmental plans that enhance instructional efficacy and bolster student confidence. This value-driven orientation ensures that the collaborative model fosters not only technical proficiency but also a deep sense of professional vocation.

4.2. Quality Improvement and Empowerment: Promoting the Comprehensive Improvement of Teachers' Professional Abilities

The pedagogical wisdom and conscientious dedication characteristic of the educator spirit serve as the primary drivers for the simultaneous advancement of faculty data proficiency and instructional versatility. Pedagogical wisdom requires educators to move beyond traditional silos, creatively integrating data literacy into core business curricula and pioneering innovative models such as project-based learning and blended instructional environments. This demand for wisdom continuously refines the faculty's capacity for curriculum design and instructional innovation. Simultaneously, a dedicated professional attitude urges educators to embrace a philosophy of lifelong learning, proactively mastering emerging data analysis tools and evolving pedagogical methodologies. This commitment facilitates a perpetual cycle of "learning, practice, reflection, and improvement," ensuring that the faculty's professional evolution remains synchronized with the rapid pace of technological change in the business sector.

4.3. Practical Innovation: Promoting the Optimization and Upgrading of Cultivation Models

The pioneering spirit of innovation and the traditional pursuit of "propagating the Dao" (the fundamental truth) provide the ideological scaffolding necessary for the structural upgrading of collaborative cultivation models. This pioneering spirit encourages faculty to explore and establish characteristic cultivation models that are uniquely suited to the private university context, such as the construction of integrated online-offline teaching platforms and the development of robust, collaborative practice bases with industry partners [13]. Furthermore, the pursuit of propagating the Dao requires educators to remain deeply connected to contemporary industry requirements, clarifying the essential competencies required for student data literacy. By actively participating in comprehensive pedagogical reforms and scientific research innovation, educators can achieve a synergistic outcome that benefits the teacher, the student, and the institution alike, ultimately fostering a high-quality educational ecosystem that is both theoretically sound and practically relevant.

5. Practical Paths of Collaborative Cultivation

5.1. Ideology Casting Soul: Constructing a Value Transmission System Guided by Spirit

5.1.1. Institutionalizing the Educator Spirit in Faculty Development

Private universities should prioritize the formal integration of the educator spirit into their comprehensive teacher training and professional development systems. This necessitates the establishment of long-term ideological cultivation programs that emphasize professional ethics, social responsibility, and a commitment to educational excellence. Furthermore, the practical application of this spirit should be explicitly incorporated into faculty evaluation and promotion criteria, ensuring that the educator’s professional values are aligned with the university’s mission. By fostering a deep sense of vocational identity, institutions can empower teachers to serve as moral and professional exemplars for their students.

5.1.2. Integrating Data Literacy into the Holistic Talent Cultivation Concept

Faculty members must move beyond isolated technical instruction to integrate data literacy into the entire lifecycle of student development. This involves a fundamental revision of talent training programs to reflect the data-driven requirements of the modern business landscape. Universities should strive to build a comprehensive and interdisciplinary curriculum system that weaves quantitative reasoning and data ethics into core business subjects. This conceptual shift ensures that data literacy is perceived not merely as a supplementary skill but as a foundational pillar of modern business intelligence.

5.2. Ability Improvement: Building a Dual-Subject Capacity-Building Platform

5.2.1. Strengthening the Support System for Faculty Professional Growth

To facilitate the continuous improvement of teacher competencies, private universities should develop a multifaceted support infrastructure. This includes providing diversified digital training platforms, dedicated research funds for pedagogical innovation, and the establishment of professional development communities where faculty can share best practices. Such a system encourages a culture of collaborative learning and intellectual exchange, allowing educators to remain at the forefront of both data science and modern instructional methodologies.

5.2.2. Constructing a Systematic Framework for Student Data Literacy

The cultivation of student data literacy requires a robust framework that prioritizes experiential learning and practical innovation. Institutions should adopt diversified teaching models—such as flipped classrooms and case-based inquiries—that challenge students to apply data to complex business scenarios. Beyond the classroom, universities should actively organize student participation in national and international data analysis competitions. Establishing long-term practice bases with leading enterprises further allows students to bridge the gap between academic theory and industry application, fostering a high level of market readiness.

5.3. Practical Empowerment: Innovating the Collaborative Instructional Model

5.3.1. Implementing Teacher-Student Co-construction in Project-Based Learning

The adoption of "teacher-student co-construction" within project-based learning serves as a powerful catalyst for mutual growth. By utilizing authentic business data projects as primary instructional vehicles, faculty and students can engage in collaborative problem-solving. This approach facilitates the organic integration of the teacher's instructional expertise with the student's fresh perspective and analytical curiosity. As they navigate the complexities of real-world data together, both subjects experience a synchronous improvement in their professional and technical competencies.

5.3.2. Building a School-Enterprise Synergistic Practice Platform

Deepening the collaboration between academia and industry is essential for the practical empowerment of both educators and learners. Private universities should actively introduce real-world data resources and industry experts into the curriculum, ensuring that the training remains aligned with current market trends. The construction of joint laboratories and innovation hubs provides a dedicated space for the exploration of emerging business technologies. This synergistic ecosystem not only enhances the practical skills of students but also provides faculty with valuable industry insights that inform their research and teaching reforms.

5.4. Mechanism Guarantee: Improving Institutional Support for Collaborative Cultivation

5.4.1. Establishing an Organizational Governance and Oversight Mechanism

To ensure the effective implementation of collaborative cultivation, private universities should establish a dedicated steering committee or working group. This body is responsible for coordinating interdepartmental resources, clarifying the specific responsibilities of all stakeholders, and providing administrative oversight for collaborative initiatives. By institutionalizing this governance structure, universities can ensure that the collaborative model is implemented with consistency and strategic focus.

5.4.2. Refining Incentive and Comprehensive Evaluation Mechanisms

The success of the collaborative model depends on a robust system of incentives and evaluations that recognize excellence in both teaching and learning. Incentive structures

should be designed to favor educators who demonstrate significant innovation in collaborative pedagogy and students who achieve exceptional data proficiency. Furthermore, universities should adopt a comprehensive evaluation matrix that combines process-oriented assessments with result-based metrics. This dual approach allows for a more nuanced understanding of the effectiveness of collaborative cultivation, providing data-driven insights that can be used to continuously refine and optimize the institutional support system.

6. Conclusion

Guided by educator spirit, this paper focuses on the collaborative cultivation of professional development of business teachers and students' data literacy in private universities. Using literature research and logical analysis, it constructs a theoretical framework of "Educator Spirit Guidance - Dual-subject Collaboration - Ability Symbiosis", clarifies the core logic and empowerment mechanism of their collaborative cultivation, and proposes a four-in-one practical path of "Ideology Casting Soul - Ability Improvement - Practice Empowerment - Mechanism Guarantee". The research confirms that educator spirit can support collaborative cultivation through three roles: soul-casting and education, quality improvement and empowerment, and practical innovation, promoting positive interaction between teachers' professional development and students' data literacy. There exists a core logic of concept transmission, ability interaction and practical progress between the two, showing a collaborative symbiotic relationship; constructing a systematic value transmission system, ability improvement platform, teaching model and institutional support is the key to achieving the goal of collaborative cultivation. This study has certain limitations: it focuses on theoretical analysis without empirical verification, insufficiently considers the differentiated needs of business majors in different private universities, and the path pertinence needs to be improved. Future research can carry out empirical studies to optimize the path, explore differentiated cultivation models, and combine new technologies such as artificial intelligence and big data to enhance the intelligence level of collaborative cultivation. In short, this collaborative cultivation model is an effective path to solve the problems of business talent cultivation in private universities, which helps cultivate high-quality business talents and provide strong support for the development of the digital economy and the construction of a strong educational country.

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References

1. E. M. Curtis, "The heart of quality teaching: A values-based pedagogy for pre-service teacher education," 2012.
2. H. Bound, "Vocational education and training teacher professional development: Tensions and context," *Studies in Continuing Education*, vol. 33, no. 2, pp. 107-119, 2011. doi: 10.1080/0158037x.2011.554176
3. Z. Weijing, and W. Yao, "A Study on the Leading Role of Educator Spirit in Building a High Quality Teacher Team," *International Journal of New Developments in Education*, vol. 6, no. 6, 2024.
4. N. Ahmad, M. K. Kamarudin, and K. A. Jasmi, "The concept of teachers' personality in shaping students' characters," *Journal of Educational Research*, vol. 57, no. 3, pp. 309-24, 2017.
5. S. W. Law, and B. Yim, "Data literacy: the essential language in the digital era," *Taylor & Francis*, 2025.
6. K. ZHU, and J. M. WANG, "The Five-fold Logic of Digital Intelligence Technology Empowering the Construction of Education Power," *Modern Educational Technology*, vol. 35, no. 1, pp. 15-24, 2025.
7. J. Jeong, and Y. Lee, "Development of Data Literacy Competency System for K-12," *International Journal on Advanced Science, Engineering & Information Technology*, vol. 14, no. 6, 2024. doi: 10.18517/ijaseit.14.6.12373
8. Z. Ningbo, and J. Chunxia, "Value Implications and Practical Paths of Guiding University Teachers' Professional Development with Educator Spirit," *Education Science*, vol. 41, no. 4, p. 76, 2025.
9. Y. Miao, Y. Zhang, C. Zhao, S. Ma, and J. Wang, "Development and Validity Testing of the Medical Student Artificial Intelligence Information Literacy Scale (MS-AIILS)," 2025. doi: 10.21203/rs.3.rs-7327894/v1

10. H. Teräs, M. Teräs, and J. Suoranta, "The life and times of university teachers in the era of digitalization: A tragedy," *Learning, Media and Technology*, vol. 47, no. 4, pp. 572-583, 2022. doi: 10.1080/17439884.2022.2048393
11. B. Cowie, and B. Cooper, "Exploring the challenge of developing student teacher data literacy," In *Developing Teachers' Assessment Capacity*, 2019, pp. 27-43. doi: 10.4324/9781351029100-3
12. Q. Xu, "Investigating and understanding library data services to support college student data literacy competencies: A conceptual framework," *Journal of Librarianship and Information Science*, vol. 57, no. 1, pp. 3-20, 2025.
13. J. Kahn, and S. Jiang, "Leveraging epistemic data agency with data visualizations to bridge the gap between data trends and personal experiences," *Information and Learning Sciences*, vol. 125, no. 11-12, pp. 1126-1145, 2024.