Construction of the Digital Practical Teaching System for Business Administration Disciplines in Vocational Undergraduate Education

Chunhui Jiang[*]

Hainan Vocational University of Science and Technology, Haikou, 571126, China
[*]Corresponding author: m17889788270@163.com

Abstract: *The deepening development of the digital economy has placed new demands on the competency structure of business administration professionals, which compels vocational undergraduate education to innovate its traditional practical teaching model. This paper aims to construct a systematic digital practical teaching system in response to this challenge. The study first clarifies the core concept of digital practical teaching as creating a highly simulated and interactive "practical field," grounded in theories such as situated learning and constructivism. Furthermore, the paper systematically elaborates the core framework of this system, which includes: modular curriculum content integrated with digital literacy; a tiered teaching environment blending virtual and real elements; an integrated set of interactive teaching methods based on digital technologies; and a multidimensional evaluation system combining procedural and developmental assessment. Finally, the research explores the supporting conditions and implementation pathways for ensuring the effective operation of the system, covering the development of digital competence among teaching practitioners, the construction of intelligent platforms and resource environments, data-driven process management, and sustainable school-enterprise collaboration mechanisms. The construction of this system provides a systematic theoretical reference and implementation framework for the digital transformation of talent cultivation in business administration disciplines within vocational undergraduate education.*

Keywords: *vocational undergraduate education; business administration; digital practical teaching system; system construction; talent cultivation*

Introduction

The profound restructuring of the business ecosystem by digital technologies has triggered a fundamental shift in the vocational competency spectrum of the business administration field. New capabilities such as data-driven decision-making, digital process management, and digital platform collaboration have become essential literacies for practitioners. This transformation poses a direct and urgent challenge to vocational undergraduate education, which aims to cultivate high-level technical and skilled talents aligned with industry needs. The traditional practical teaching model faces limitations in terms of situational authenticity, skill complexity, and the efficiency of iterative feedback, making it difficult to effectively support students in developing the comprehensive digital competencies required to navigate complex and uncertain business environments. Therefore, exploring and constructing a practical teaching system that deeply integrates digital technologies, aligns with the educational principles of vocational undergraduate education, and systematically cultivates students' digital management capabilities is not only theoretically necessary but also crucial for advancing teaching reforms in related disciplines and ensuring that talent cultivation dynamically meets market demands. This study is dedicated to the systematic construction of such a system, aiming to provide a theoretical foundation and practical pathways for relevant educational practices.

1. Connotation and Theoretical Foundation of Digital Practical Teaching

1.1 Definition of the Core Concept of Digital Practical Teaching

Digital practical teaching is a new pedagogical paradigm formed through the deep integration of information technology into the educational process. Its essence lies in utilizing digital technologies to create, simulate, enhance, or connect real business environments, thereby providing students with

operable, interactive, and feedback-rich learning experiences. Within the context of business administration disciplines in vocational undergraduate education, it is not merely the online adaptation of traditional practical components or tool-assisted instruction, but rather a systematic concept. Fundamentally, it involves constructing a digital "practical field" through data, algorithms, platforms, and intelligent devices. This field is designed to support complex management decision simulations, immersive business process experiences, organizational behavior analysis, and market dynamic deductions. It is characterized by high simulation fidelity, strong interactivity, dynamic evolution, and data traceability, aiming to bridge the perceptual and competency gaps between theoretical knowledge and the real business world. Digital practical teaching emphasizes cultivating students' digital thinking, complex problem-solving abilities, and comprehensive decision-making literacy in data-driven contexts within near-authentic management scenarios. Ultimately, it seeks to develop a new professional competency structure that meets the demands of the digital economy and deeply integrates technological logic with management logic[1].

1.2 Support from Relevant Educational Theories and Learning Science

The construction of the digital practical teaching system is grounded in the development of modern educational theory and learning science. Situated Learning Theory provides its core rationale, positing that knowledge and skills are formed and developed within specific cultural or applied contexts. Digital technology is capable of meticulously designing and infinitely approximating various business and management scenarios, enabling learners to gradually internalize professional knowledge through "legitimate peripheral participation." The constructivist view of learning further emphasizes that learning is an active process of meaning construction through learners' interaction with their environment. The digital practical platform, which offers students spaces for exploration, trial and error, collaboration, and creation, serves as an ideal environment supporting such meaning construction. From the perspective of cognitive science, Distributed Cognition Theory indicates that cognitive activities are distributed among individuals, tools, and the environment. Digital tools, as cognitive artifacts, significantly expand students' cognitive boundaries and problem-solving capacities. The TPACK framework for technology integration, from the viewpoint of Technological Pedagogical Content Knowledge, offers methodological guidance for designing practical teaching activities that integrate digital technology, management discipline content, and effective pedagogical methods. This ensures that technological application prioritizes instructional effectiveness rather than mere technological accumulation.

1.3 The Digital Transformation of Talent Cultivation Objectives in Vocational Undergraduate Education

The in-depth development of the digital economy has triggered a profound shift in the vocational competency structure within the field of business administration. This shift directly drives the digital transformation of talent cultivation objectives in vocational undergraduate education. Traditionally defined management competencies, often segmented by function, are now interwoven and integrated with new digital capabilities such as data literacy, automated process management, digital platform operation, and intelligent decision support. The objective of talent cultivation is evolving from training executors adapted to stable environments towards cultivating "technologically-enhanced managerial talents" who can navigate uncertainty and are adept at leveraging digital tools for innovation and optimization. This transformation requires graduates not only to understand management principles but also to possess the ability to translate managerial problems into analyzable data models, utilize digital tools to optimize business processes, and engage in collaboration and value co-creation through digital platforms. As a critical link connecting higher education and the professional world, vocational undergraduate education faces both urgency and inevitability in the digital transformation of its talent cultivation goals. The construction of a digital practical teaching system represents the core pathway to respond to this transformation and achieve the new cultivation objectives[2].

1.4 Core Principles and Orientation for System Construction

The construction of an effective digital practical teaching system must adhere to several core principles to ensure its systematic nature and efficacy. The principle of student-centeredness and competency-orientation requires that the system design consistently focuses on promoting the development of students' digital management capabilities, ensuring that all technological applications and activity designs serve observable, assessable competency outcomes. The principle of unifying

technological empowerment and educational essence emphasizes that digital technology serves as an enabler to achieve educational objectives rather than an end in itself; the selection and application of technology must closely align with the intrinsic logic and learning patterns of the business administration discipline to avoid the scenario where technology overshadows the core educational purpose. The principle of virtual-reality integration and progressive deepening advocates that digital practice should organically combine with essential physical perception and social interaction, following a progressive sequence of difficulty from cognitive verification and skill training to comprehensive innovation, thereby forming a spiral, ascending path for competency development. The principle of systematic integration and ecological development indicates that the digital practical teaching system is not an isolated module; it must be organically integrated with the theoretical curriculum system, faculty development mechanisms, learning evaluation systems, and the ecosystem of external industry resources to form a holistic educational ecosystem that evolves synergistically and continuously optimizes. Together, these principles constitute the fundamental action framework and value orientation for the construction of the system.

2. Construction of the Core Framework for the Digital Practical Teaching System

2.1 Modular Curriculum Content Design Integrated with Digital Literacy

The construction of the core framework begins with the restructuring of curriculum content. Its key lies in deeply integrating digital literacy as a structural element, rather than a supplementary skill, into the professional course modules of business administration. This integration manifests as the digital evolution of content modules. Core course modules such as traditional Management, Marketing, Human Resources, and Financial Management must systematically incorporate relevant content units related to data analysis fundamentals, digital mapping of processes, digital platform governance, and the application of intelligent tools. For example, the Marketing module should cover digital consumer behavior analysis, social media metrics measurement, and the principles of automated marketing tools. The Financial Management module, meanwhile, needs to integrate financial big data visualization, understanding of intelligent risk control models, and the operational logic of cloud-based financial systems. Modular design allows for flexible combination and configuration based on professional specializations and competency progression needs, forming a matrix-style curriculum content network with management functions as the warp and digital capabilities as the weft. Each module clearly defines the specific digital management sub-competency it aims to cultivate, ensuring that the teaching content directly corresponds to the digital tasks students will encounter in their future professional scenarios. This design supports a coherent competency development path ranging from basic digital cognition to complex digital decision-making[3].

2.2 Design of Tiered Teaching Scenarios Integrating Virtual and Real Elements

The design of teaching scenarios follows a tiered principle, progressing from virtual perception to virtual-real interaction, and then to comprehensive innovation. The first tier focuses on cognitive verification, utilizing tools such as business simulation software and virtual enterprise tours to help students intuitively understand abstract theories and complex processes. The second tier emphasizes skill training and decision-making immersion; through interactive business simulation sandboxes and ERP/CRM simulation environments, learners apply digital tools to complete tasks under simulated decision-making pressure. The third tier is directed toward comprehensive innovation, involving the design of integrated projects based on real industry datasets or collaborative digital twin tasks, which require students to conduct strategic planning in highly uncertain scenarios that blend virtual and real elements. This tiered design ensures that the learning challenges are appropriately matched to the learners' cognitive levels, systematically cultivating their ability to adapt to and navigate digital environments.

2.3 Integration of Interactive Teaching Methods Based on Digital Technologies

The innovation of teaching methods is key to activating teaching scenarios and content. The digital practical teaching system integrates a series of interactive teaching methods mediated by digital technologies, aiming to promote deep learning and competency transfer. Asynchronous distributed collaboration, facilitated by project management tools, cloud-based collaborative documents, and professional forums, supports students in conducting cross-temporal and spatial teamwork and

knowledge co-construction around complex projects. Synchronous virtual seminars utilize video conferencing systems, virtual whiteboards, and real-time polling tools to replicate or enhance the depth and breadth of classroom discussions, project reviews, and debates online. The human-computer interaction mode, by incorporating intelligent tutoring systems, adaptive learning platforms, and conversational agents with natural language processing capabilities, provides students with personalized path guidance, immediate feedback, and query support. The case teaching method is also digitally enhanced, evolving into the analysis of "living cases" based on dynamic databases, allowing students to retrieve, filter, and visualize real-time enterprise operational data for trend prediction and decision-making simulation. The integrated application of these methods breaks the temporal, spatial, and resource constraints of traditional teaching, creating a new type of teaching relationship and process characterized by high interactivity, immediate feedback, and learner inquiry-centered engagement[4].

2.4 Multidimensional Evaluation System Integrating Processual and Developmental Assessment

To accurately measure the effectiveness of digital practical teaching, it is necessary to establish a multidimensional evaluation system that goes beyond traditional summative examinations. The core feature of this system lies in the integration of processual and developmental assessment. Processual evaluation leverages the inherent data recording capabilities of digital platforms to comprehensively collect students' behavioral data across various practical scenarios. This includes data such as the logical pathways of simulated decision-making, the number of solution iterations, contributions to teamwork, proficiency in tool usage, and response speed to virtual market changes, thereby forming a traceable and analyzable digital archive of the learning process. Developmental assessment focuses on tracking the growth trajectory of students' digital management capabilities. By designing comprehensive tasks or challenges at varying difficulty levels, it compares the depth of analysis, complexity of strategies, and level of technological application demonstrated by students in pre-tests and post-tests to evaluate their competency progression. The evaluation dimensions should encompass cognitive, skill-based, and literacy aspects, with specific indicators including the appropriateness of digital tool usage, accuracy in data interpretation and modeling, quality of decisions based on digital evidence, ethical awareness in digital environments, and collaborative efficacy. Ultimately, this evaluation system aims to generate a dynamic, multidimensional "digital competency profile" of the learner, providing precise insights for teaching optimization and students' personalized development.

3. Supporting Conditions and Implementation Pathways for the Digital Practical Teaching System

3.1 Development of Digital Competency and Role Transformation of Teaching Practitioners

The effective operation of the digital practical teaching system primarily relies on the systematic development of the digital competency of teaching practitioners, namely the instructors. Digital competency here specifically refers to the comprehensive capability of instructors to effectively integrate digital technologies into business administration discipline teaching and to guide students in developing digital management skills. Its core dimensions include digital instructional design ability, mastery of virtual simulation environments, teaching data analysis capability, and online collaboration facilitation skills. The development pathway must transcend discrete technical training and shift toward continuous professional development programs deeply integrated with the discipline. Examples include participation in micro-certification programs based on authentic teaching scenarios, technology application discussions embedded in curriculum design workshops, and practice communities focused on specific digital pedagogical methods. Alongside the enhancement of competency, the role of instructors will inevitably undergo a profound transformation-evolving from traditional knowledge authorities and transmitters to designers of digital learning environments, guides for complex inquiry activities, collaborators in the learning process, and teaching optimizers driven by data analysis. This transformation requires instructors to skillfully use technological tools to construct cognitive scaffolds, pose challenging management problems within virtual practice, and provide personalized feedback based on learning behavior data, thereby becoming catalysts for students' growth in digital professional competency[5].

3.2 Development of an Intelligent Teaching Platform and Digital Resource Environment

The operation of the system requires an integrated intelligent teaching platform and a high-quality digital resource environment as its technological foundation. The intelligent teaching platform is not merely a collection of singular tools, but a comprehensive digital hub capable of integrating functions such as course management, virtual training, collaborative interaction, as well as data collection and analysis. This platform should possess strong openness, supporting data interface connectivity with mainstream business simulation software, data analysis tools, and industry-specific systems to achieve seamless aggregation of learning trajectories and behavioral data. The development of the digital resource environment focuses on creating highly simulated, reusable, and modular learning resources. Its core components include: a library of virtual simulation training projects covering key management functional areas; a dynamic case database formed from desensitized real business scenarios; micro-lesson resource packages combining operational demonstrations with theoretical explanations; and a digital knowledge repository aggregating industry frontier trends and tool evolution. The design of resources must adhere to educational technology standards to ensure their accessibility and interoperability across different platforms and scenarios. Furthermore, through a continuous dynamic update mechanism, these resources should remain synchronized with technological iterations and management innovations in the business world.

3.3 Process Management and Quality Assurance Adapted to Digital Teaching

The dynamic and complex nature of digital practical teaching necessitates the establishment of new process management and quality assurance mechanisms tailored to it. The traditional linear, primarily administrative supervision-based management model must give way to more agile, data-driven process management. This involves optimizing the entire lifecycle of instructional design, implementation, and iteration-for instance, adopting agile development principles for the rapid design and prototyping of teaching projects, and establishing interdisciplinary instructional design teams to meet the development needs of comprehensive digital practice projects. The core of quality assurance shifts from inspecting fixed teaching procedures to the continuous monitoring and improvement of the learning process and competency achievement. This relies on the in-depth application of learning analytics, which involves mining the multimodal learning data accumulated within the platform-such as task completion paths, interaction participation levels, simulation decision outcomes, and peer assessment records-to identify the effectiveness of teaching modes, discover common difficulties among student groups, and detect potential risks for individual learners[6]. Based on these data insights, a regular feedback loop is established to drive timely adjustments in teaching content, activity design, or intervention strategies, thereby achieving dynamic, precise, and continuous enhancement of teaching quality.

3.4 Sustainable University-Enterprise Collaboration and Resource Integration Mechanism

The long-term development of the system relies on building a stable, in-depth, and sustainable ecosystem for university-enterprise collaboration and resource integration. This mechanism aims to transcend the traditional cooperative model of internship bases by focusing on the co-creation of digital teaching resources and the normalization of knowledge flow. Collaborative forms may include jointly developing virtual simulation teaching cases based on real enterprise business processes and desensitized data, inviting industry experts to participate in online workshops or serve as virtual project mentors, and introducing current, pedagogically adaptable digital challenges faced by enterprises into the classroom as comprehensive projects. The key lies in establishing structured processes for resource integration and updating. For example, a curriculum advisory committee comprising both academic and industry representatives can be formed, responsible for identifying emerging digital skill demands and guiding the direction of teaching content updates. Additionally, a secure and compliant framework for sharing data and tools between universities and enterprises should be constructed, allowing for the legitimate application of certain non-core industry analysis tools or data samples within the teaching environment. Through institutionalized cooperative channels and mutually beneficial knowledge exchange models, this ensures that the digital practical teaching system can continuously absorb cutting-edge insights from industry, maintaining the advanced nature of its teaching content and the alignment of graduate competencies with market demands.

Conclusion

This study provides a systematic theoretical exposition and framework design for constructing a digital practical teaching system for business administration disciplines in vocational undergraduate education. The research clarifies that the core characteristic of this system lies in building a digital "practical field," aiming to bridge the gap between theoretical knowledge and the real business world. By designing curriculum content integrated with digital literacy, tiered teaching scenarios, interactive teaching methods, and a multidimensional evaluation system, a core framework has been formed to promote the spiral advancement of students' digital management capabilities. Furthermore, the study indicates that the effective operation and continuous evolution of this framework rely on key conditions such as the transformation of teaching practitioners' digital competency, the support of intelligent platforms and resources, data-driven process management, and an in-depth university-enterprise collaborative ecosystem. Future research and application can further focus on refined developmental models for teachers' digital teaching abilities, innovative application models of emerging intelligent technologies in teaching scenarios, the institutional design of long-term mechanisms for university-enterprise collaboration, and the construction of precise evaluation and optimization feedback loops for teaching effectiveness based on big learning data. This will drive the continuous iteration and refinement of the system in practice, thereby consistently empowering the cultivation of management talents for the digital era.

References

[1] Zeng Qingtao. "Exploring the Optimization Path of AI-Enabled Teaching in the Economic Law Course for Business Administration Disciplines." Technology, Economy, Market, no. 10 (2025): 134-136.

[2] Zhou Tao. "Exploration and Practice of Cultivating Innovative and Entrepreneurial Talents in Business Administration Disciplines in the Digital Intelligence Era." Science, Education and Culture, no. 12 (2025): 62-66.

[3] Zhang Yi. "Analysis of Talent Cultivation Models for Business Administration Disciplines in the Digital Economy Era." China Management Informatization, vol. 27, no. 22 (2024): 239-241.

[4] Guo Mengmeng and Hu Xinyu. "Construction of the Talent Cultivation System for Business Administration Disciplines Under the 'Internet+' Background." Western Quality Education, vol. 10, no. 20 (2024): 85-89.

[5] He Songze. "Research and Innovation on the University-Enterprise Collaborative Talent Cultivation Model for Business Administration Disciplines in Higher Education." Shaanxi Education (Higher Education), no. 3 (2024): 39-41.

[6] Chen Peng. "Research on the Integrated Cultivation Model for Applied Undergraduate Talents in Business Administration Disciplines Under the Background of Digital Transformation." Technology Wind, no. 17 (2023): 16-18.