Journal of Contemporary Educational Research, 2026, Volume 10, Issue 6
http://ojs.bbwpublisher.com/index.php/JCER
Online ISSN: 2208-8474
Print ISSN: 2208-8466

Digital Empowerment Enhances the Efficiency of Graduate Teaching Management in Universities

Junting Teng

Department of Economic Management, North China Electric Power University (Baoding), Baoding 071003, China

Abstract: Against the backdrop of rapid iteration in digital technologies, the scale of graduate education in universities continues to expand, while training demands have become increasingly diverse. The traditional graduate teaching management model can no longer align with contemporary educational objectives, making the optimization of teaching management efficiency crucial for enhancing graduate education quality. Grounded in the practical realities of graduate teaching management and incorporating the characteristics of digital technology applications, this study examines the connotation and value of digital empowerment in graduate teaching management, identifies prominent challenges currently faced in university graduate teaching management, and proposes concrete pathways for optimizing teaching management efficiency through digital empowerment. The findings provide theoretical insights and practical references for universities to leverage digital technologies in refining their graduate teaching management systems and improving operational standards.

Keywords: Digital empowerment; Graduate students in higher education institutions; Teaching management; Management efficiency; Optimization of teaching management

Online publication: July 14, 2026

1. Introduction

The advent of the digital era has driven the comprehensive integration of digital technologies across all aspects of education, infusing new vitality into higher education reform. As the pinnacle of higher education, graduate education bears the critical mission of cultivating high-level innovative talents, where teaching management directly determines the quality of graduate training and the enhancement of innovative capabilities. Traditional graduate teaching management, centered on manual operations, suffers from low efficiency, delayed information flow, inadequate resource integration, and insufficient personalized services, making it ill-suited to the refined and diversified demands of graduate education. Leveraging digital technologies to empower graduate teaching management—by restructuring workflows, consolidating teaching resources, and optimizing service models—has become essential for overcoming current management challenges and improving operational effectiveness. Based on the core principles of

digital empowerment and considering the practical realities of graduate teaching management in universities, this study explores actionable pathways for enhancing management efficiency through digital solutions, providing actionable insights for advancing the digital transformation of graduate education systems.

2. The connotation and value of digital empowerment in graduate teaching management at universities

2.1. The core meaning of digital empowerment

Digital empowerment leverages digital technologies such as big data, artificial intelligence, cloud computing, and the Internet of Things to restructure and optimize traditional management models, processes, and methods, thereby enhancing management efficiency, improving service quality, and maximizing resource utilization. In the context of graduate education management at universities, digital empowerment is far more than merely applying digital technologies; it involves integrating digital thinking throughout the entire teaching management process. By utilizing technological means to break down management barriers, consolidate various resources, and precisely address the needs of both faculty and students, it transforms graduate education management from an "experience-based" approach to a "precision-oriented" one, from "passive response" to "proactive service," and from "decentralized management" to "collaborative efficiency." This ultimately leads to a comprehensive improvement in teaching management effectiveness, providing higher-quality, more efficient, and personalized management services for graduate education.

2.2. The core value of digital empowerment in graduate teaching management

Digital empowerment has ushered in transformative opportunities for graduate education management in universities, with its core value manifesting across three key dimensions. Digital technologies streamline cumbersome manual processes, enabling fully automated online handling of graduate admissions, training programs, thesis defenses, and graduation procedures. This reduces human errors, shortens administrative timelines, and frees administrators from repetitive tasks to focus on innovative management practices, thereby significantly enhancing operational efficiency. By integrating teaching resources, research materials, and practical training through digital platforms, institutions overcome spatial and temporal constraints to achieve resource sharing—allowing students easy access to high-quality educational resources while empowering administrators to monitor resource utilization precisely, optimize allocation effectiveness, and maximize efficiency. Leveraging big data analytics, institutions can accurately identify students' learning patterns, developmental needs, and career aspirations, enabling the creation of personalized training plans and tailored guidance services that support individualized growth and meet diverse educational requirements.

2.3. The compatibility between digital empowerment and graduate teaching management

Graduate education management is characterized by high educational standards, pronounced personalized needs, complex administrative processes, and involvement of diverse stakeholders, making it highly compatible with the application advantages of digital empowerment. The entire graduate education process encompasses multiple stages—from enrollment and preliminary examinations to curriculum design, course completion, thesis proposal submission, mid-term assessments, and graduation defenses—all involving substantial information processing and workflow coordination. Digital technologies enable real-time information sharing and efficient data transmission across these stages, addressing issues such as information

silos and fragmented workflows inherent in traditional management models. Reform requires wisdom, but it demands even greater courage. The integration of graduate education, discipline development, and degree conferral has fundamentally disrupted the traditional organizational logic of graduate education management, rendering management frameworks based on specific administrative functions obsolete [1].

3. Current challenges in graduate education management at universities

3.1. Outdated management models and insufficient digital applications

Currently, graduate education management in some universities still adheres to traditional models, with outdated management philosophies and digital infrastructure development remaining at a rudimentary stage. Although many institutions have adopted various digital management tools, their application is largely confined to basic information entry and retrieval, failing to fully integrate digital technologies throughout the entire teaching management process. Administrators generally lack sufficient digital literacy and the capability to utilize digital technologies for problem identification and decision-making support, thereby limiting the full potential of these tools. Under the traditional framework, management procedures are cumbersome and redundant, with manual approvals and paper-based records remaining dominant operational practices. This not only results in low efficiency but also increases risks of information loss and data inaccuracies, failing to meet the demands for refined and efficient graduate education management and directly hindering overall improvement in administrative effectiveness.

3.2. Insufficient resource integration and an underdeveloped sharing mechanism

Graduate teaching management in universities encompasses various resources such as courses, research activities, faculty, and practical training. Currently, many institutions face widespread issues of fragmented resources and insufficient integration, coupled with a lack of robust resource-sharing mechanisms. Teaching resources across different colleges and disciplines operate in isolation, hindering efficient cross-institutional and cross-disciplinary collaboration. Consequently, a significant amount of high-quality resources remain underutilized, leading to substantial waste. Course and research resources are outdated, while digital resource reserves are inadequate, failing to meet graduate students' diverse learning and research needs. Furthermore, resource management lacks systematic planning; various resources are not uniformly categorized, organized, or standardized, resulting in limited access channels, cumbersome procedures, and low utilization efficiency—all of which impede the overall effectiveness of graduate teaching management.

3.3. Insufficient service precision makes it difficult to meet personalized needs

Graduate students, as high-level innovative talents, exhibit distinct personalized training needs. Those from different disciplines, research orientations, and academic backgrounds demonstrate significant variations in core aspects such as curriculum requirements, research guidance, and thesis writing. Current graduate education management in universities predominantly employs a one-size-fits-all approach, lacking precise identification and in-depth analysis of individual student needs, thereby failing to provide tailored support services. Ineffective communication channels between administrators and students prevent the timely identification of academic challenges, research dilemmas, and personal development aspirations, resulting in a substantial disconnect between administrative services and actual student needs. With robust support from big data analytics technologies, teaching management quality will achieve qualitative improvement, thereby

enhancing the governance efficiency of higher education [2]. Moreover, the absence of customized training programs and targeted guidance mechanisms hinders consideration of individual differences among graduate students, not only impeding the cultivation of their innovative capabilities and comprehensive competencies but also constraining the optimization of teaching management effectiveness.

4. Pathways for digital empowerment to optimize the efficiency of graduate teaching management in universities

4.1. Establishing a digital management system to promote the transformation and upgrading of management models

Establishing a comprehensive digital graduate education management system serves as the cornerstone for advancing management model transformation and enhancing operational efficiency. First, update management philosophies by adopting a data-driven approach that integrates digital technologies throughout the entire graduate education management process, shifting from experience-based to data-driven practices to overcome traditional management limitations. Second, develop an integrated digital management platform that consolidates functions across enrollment, training, thesis defense, graduation, and employment processes, enabling real-time information sharing, digitalization of workflows, and automated processing to eliminate administrative barriers, streamline procedures, and improve efficiency. The platform design should prioritize usability and user-friendliness with optimized interfaces for both administrators and students. Concurrently, strengthen administrators' digital literacy through regular training on technology application and data processing to enhance their proficiency in leveraging digital tools for management tasks [3]. Additionally, establish robust digital management regulations to standardize data entry, storage, utilization, and governance, ensuring data authenticity and security while providing institutional support for the effective operation of the digital management system and ultimately elevating the quality and efficiency of graduate education administration.

4.2. Integrating digital teaching resources and improving the resource-sharing mechanism

The core advantage of digital empowerment lies in the efficient integration and sharing of resources. Universities should leverage digital technologies to strengthen the consolidation of graduate teaching resources, refine resource-sharing mechanisms, and provide robust support for both teaching and research. Establishing a digital resource-sharing platform enables unified classification, organization, and labeling of various resources—including courses, research materials, faculty resources, and practical materials—facilitating centralized management and convenient retrieval for more efficient resource utilization. In course resource development, high-quality online courses, courseware, and instructional videos should be created with real-time content updates to precisely meet graduate students' diverse learning needs, enhancing self-directed learning and skill development. For research resource integration, literature, experimental data, and equipment resources should be consolidated to provide solid support for graduate research activities and lower entry barriers. In faculty resource management, comprehensive teacher databases should clearly display key information such as research focuses and teaching achievements, enabling students to independently select supervisors and receive targeted guidance, thereby improving training relevance. By optimizing resource-sharing mechanisms, institutional and disciplinary barriers should be dismantled to promote cross-domain and cross-disciplinary resource flow, preventing underutilization and waste while

enhancing efficiency. Additionally, robust resource update and maintenance systems should be established, with dedicated personnel overseeing content review, updates, and upkeep to ensure timeliness and accuracy, providing high-quality resources that support graduate teaching and research efforts and elevate overall educational quality.

4.3. Leveraging big data technology to enhance the precision of management services

Leveraging big data technology to accurately identify graduate students 'needs and provide personalized management services is crucial for enhancing teaching management efficiency. Establishing a comprehensive graduate data collection system that integrates learning performance, research progress, and assessment results across the entire academic journey enables the creation of systematic student profiles. By employing big data analytics to deeply mine collected data, institutions can develop tailored development plans that account for each student's academic foundation, interests, and research potential. This approach allows for optimized curriculum design and precise recommendations of suitable learning resources and research projects to meet diverse developmental needs. The inclusion of "advancing educational digitalization" in the 20th National Congress report underscores that this initiative has become a nationwide consensus and a key national strategic objective. Graduate education serves as a critical indicator of a country's higher education competitiveness, a primary source of high-quality talent, a key player in technological competition, and a pivotal factor in implementing innovation-driven development strategies [4].

5. Conclusion

Digital empowerment has pioneered a new approach to optimizing the efficiency of graduate education management in universities. Currently, graduate education management still faces practical challenges such as outdated management models, inadequate resource integration, and insufficient service precision. Digital technologies enable the establishment of digital management systems, consolidation of various teaching-related resources, enhanced service accuracy through technological means, and overcoming existing management bottlenecks—thereby steering graduate education management toward a digitalized, refined, and personalized direction. Universities must recognize the core value of digital empowerment in teaching management, refine digital management mechanisms, strengthen administrators' digital literacy, and ensure deep integration of digital technologies across all aspects of graduate education management. The continuous evolution of digital technologies will further drive graduate education management toward greater intelligence, efficiency, and precision.

Disclosure statement

The author declares no conflict of interest.

References

[1] Zhang W, Wang Z, 2025, The Evolutionary Paradigm and Internal Mechanisms of Digital and Intelligent Empowerment in Graduate Education Management. Tsinghua University Education Research, 46(03): 69–77.

[2] Wang Z, Zhang W, Qiao W, 2024, Construction of the GROM Theory for AI-Enabling Graduate Education

Management. Degree and Graduate Education, (12): 1–8.

[3] Zhai Y, Wang Z, 2023, Digital and Intelligent Empowerment of the Transformation and Construction of Organizational Models in China's Graduate Education Management. Tsinghua University Education Research, 44(06): 63–73.

[4] Liu J, Bian M, 2026, Digital Empowerment in University Teaching Management: Constraints, Driving Logic and Practical Approaches. China Light Industry Education, 29(01): 20–27 + 36.