

Construction of Digital Transformation Path and Strategy for Higher Education

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Abstract: In the context of global digital economic development and the promotion of domestic education digitalization strategy, the digital transformation of higher education has become a key to breaking through the limitations of traditional education and achieving high-quality development. This study addresses the challenge that current research on higher education digitalization mostly focuses on a single dimension and lacks a complete framework for the transformation path. By systematically reviewing domestic and international academic achievements, it clarifies the connotations of higher education digital transformation in teaching, research, management and service dimensions, constructs a transformation path framework of “macro policy guidance - mid-level institutional practice - micro-level empowerment” in a coordinated manner, and proposes breakthrough strategies for the three core areas of teaching, research, management, and service. The study not only enriches the theoretical system of higher education digital transformation and advances research on transformation mechanisms, but also provides theoretical support and practical guidance for universities to promote digital transformation practices and subsequent related academic exploration.

Keywords: Higher Education; Digital Transformation; Transformation Connotation; Path Construction; Implementation Strategies

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1. Introduction

With the accelerated penetration of the global digital economy, digitalization has become the core force reshaping the development patterns of various industries. The higher education sector has also witnessed significant opportunities for digital transformation. Traditional higher education has gradually encountered bottlenecks in talent cultivation, scientific research innovation, and management services, including fixed teaching models, barriers to scientific research collaboration, and low management efficiency. It urgently needs to innovate its operation mechanisms and optimize resource allocation through digital means to meet the demands of the new era of education development. The reshaping effect of digitalization on the higher education ecosystem has become increasingly prominent.

Based on existing research, although scholars at home and abroad have conducted numerous studies on digitalization in higher education, yielding achievements spanning policy analysis, theoretical exploration, and technological application, there are significant deficiencies in the research. Most studies focus on digitalization of teaching or management, lacking systematic exploration of the internal mechanism of transformation and the laws of development stages; and the research on transformation paths mostly focuses on theoretical discussions, without forming a complete framework covering all levels, making it difficult to effectively guide the actual promotion of university digital transformation.

This study based on the actual needs of higher education digital transformation, a systematic review of academic history at home and abroad, and a precise definition of the multi-dimensional connotation of transformation. It constructs a collaborative transformation

path framework and proposes breakthrough strategies in key areas. The aim is to fill the gaps in existing research, provide clear guidance for universities to clarify the transformation direction and optimize transformation measures, and lay a theoretical foundation for subsequent academic exploration on higher education digital transformation.

2. The Multi-Dimensional Connotations of Higher Education Digital Transformation

2.1 Teaching Dimension: Transformation from “One-way Instruction” to “Digital Empowerment”

The digital transformation of the teaching dimension breaks the traditional classroom’s limitations in terms of time and space as well as content, promoting an upgrade towards “personalized, interactive, and diversified” teaching. On one hand, online courses, blended learning, and virtual simulation experiments reconstruct teaching scenarios, enabling students to access resources and conduct high-risk experiments across time and space. On the other hand, big data tracks learning behaviors and analyzes demands, providing support for teachers to adjust strategies and design personalized paths, thus achieving a shift from “teaching-centered” to “learning-centered” and enhancing teaching quality and targeted cultivation.

2.2 Research Dimension: Transformation from “Independent Exploration” to “Digital Collaboration”

The digital transformation of the research dimension, centered on “data-driven and collaborative sharing,” promotes a shift in research paradigms towards “interdisciplinary collaboration and data-intensive research.” Digital technologies (such as AI and big data) provide new tools for research, facilitating the handling of massive data and the simulation of complex scenarios to accelerate the research process. Interdisciplinary digital research platforms break down barriers, enabling the sharing of research resources across schools and regions, promoting collaborative efforts among researchers to tackle complex problems, and enhancing innovation efficiency and the ability to convert research results into practical applications.

2.3 Management and Service Dimension: Efficiency Upgrade from “Process-driven” to “Digital Governance”

The digital transformation of the management and service dimension focuses on “efficiency improvement and experience optimization,” building a digital governance system. At the management level, digital platforms integrate multiple modules to achieve “one-stop service,” with data supporting decision-making and precise management. At the service level, through campus apps and intelligent customer service, precise matching of teachers’ and students’ demands is achieved, shifting from “passive response” to “proactive service,” reducing the cost of handling affairs, and enhancing service satisfaction and convenience.

3. The Construction of the Path for the Digital Transformation of Higher Education

The digital transformation of higher education requires a coordinated and integrated approach at the “macro - meso - micro” levels to build a systematic framework of policy guidance, institutional practice, and subject empowerment, addressing the issues of “fragmentation, scattered direction, and difficult implementation”. At the macro level, the focus is on “top-level coordination and ecological co-construction”, by improving the national policy system, establishing cross-regional collaborative networks, and forming a synergy among the government, universities, and enterprises to address the imbalance in transformation. At the meso level, with universities as the core, the focus is on advancing practice around “planning - facilities - domains”, formulating special plans, upgrading smart campus facilities, and implementing digital changes in teaching, research, and other areas. At the micro level, the focus is on “empowering people”, through teacher training and incentives, student quality cultivation, and enhancing the data capabilities of management personnel, to bridge the “last mile” of transformation implementation.

This systematic path follows the logic of “macro-level direction setting, meso-level implementation, and micro-level foundation strengthening”, forming a closed loop of transformation from top-level policy design to specific university practices, and then to the empowerment of teachers, students, and management personnel. It not only provides guarantees for transformation through policy and ecological construction at the macro level, but also converts transformation goals into concrete actions through university practices at the meso level, and ensures the implementation of transformation results through subject empowerment at the micro level. Ultimately, it promotes the digital transformation of higher education from fragmented exploration to systematic change, adapting to the needs of talent cultivation and educational development in the digital age.

4. Implementation Strategies for the Digital Transformation of Higher Education

4.1 Digitalization of Teaching: From “Resource Construction” to “Mode Innovation and Evaluation Optimization”

Digitalization of teaching needs to overcome the predicament of “emphasizing resources but neglecting application, and

emphasizing form but neglecting effect”, and promote a full-process revolution: Promote the deep integration of “high-quality online courses + blended teaching”, formulate standards for blended teaching design and strengthen digital training for teachers; Build a “digital teaching evaluation system”, combine big data to track learning behaviors and adopt multiple evaluation methods, and establish a teaching effect feedback mechanism; Focus on educational equity, provide adapted resources for students in remote areas and special groups through digital means, and narrow the gap.

4.2 Digitalization of Research: From “Resource Sharing” to “Collaborative Innovation and Transformation of Achievements”

Digitalization of research needs to overcome the problems of “data silos, collaboration barriers, and unsmooth transformation”: Improve the management and sharing mechanism of research data, establish a school-level data center and clarify data standards and security rules, and promote cross-disciplinary data sharing; Build a cross-disciplinary research collaboration platform to achieve digital management of the entire research process and online collaboration of teams; Build a research achievement transformation platform, connect with enterprise needs through digital means, and accelerate the implementation of achievements.

4.3 Digitalization of Management Services: From “Process Online” to “Precise Governance and Experience Optimization”

Digitalization of management services needs to overcome the pain points of “cumbersome processes, delayed responses, and poor experience”: Promote the full-process onlineization of administrative core processes, break data barriers to achieve “one-stop online processing”; Build a precise response mechanism for teachers and students’ needs, collect demands through digital channels and actively push services; Establish a digital management decision-making system, integrate campus data and support planning formulation and resource optimization through visualization tools.

5. Conclusion

This study clearly demonstrates that the digital transformation of higher education has achieved a paradigm shift in the teaching dimension from “one-way teaching” to “digital empowerment”, in the research dimension from “independent exploration” to “digital collaboration”, and in the management and service dimension from “process-driven” to “digital governance”. A collaborative transformation path framework of “macro policy guidance - meso institutional practice - micro empowerment” has been established. And breakthrough strategies for the three core areas of teaching, research, and management services have been proposed, from resource construction to model innovation, from resource sharing to the transformation of achievements, and from online process to precise governance, providing theoretical and practical support for the digital transformation of higher education.

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