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Research on the Path of Enhancing Education Management for College Students Empowered by Digital Intelligence Technology

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Abstract: In the process of global informatization and intelligent transformation, digital technology is bringing disruptive changes to various fields of society. As a key position for implementing the innovation-driven development strategy, universities shoulder the responsibility of cultivating compound, innovative and high-quality talents. The development and popularization of technologies such as big data and artificial intelligence have brought new opportunities to the education and management of college students, leading the transformation of management concepts towards diversification, openness and personalization. In the tide of the digital age, how to leverage the advantages of digital intelligence technology and establish a scientific and intelligent education management system has become an important issue to improve the efficiency and quality of college students' education management.

Keywords: Digital intelligence technology; Universities; College students; Educational management; Enhancement paths

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1. Introduction

Digital intelligence technology is a technical form driven by a digital foundation and intelligent decision-making, with the deep integration of digitalization and intelligence. It was first formally proposed in the "Decision of the Central Committee of the Communist Party of China on Further Comprehensively Deepening Reform and Promoting Chinese-style Modernization", promoting technologies such as digital twins, machine learning and artificial intelligence, driving the transformation and upgrading of traditional industries, and realizing the digital and intelligent reconstruction of traditional processes. At present, the digitalization of education management and governance is a major trend in university reform. In the education and management of college students, by applying digital intelligence technology, managers or teachers can highlight the dominant position of students, build a student-centered education management model, and promote the modernization of education management [1]. However, in the process of digital transformation, some education managers have outdated thinking modes and lack collaborative management capabilities. In addition, the configuration of digital infrastructure is not

perfect, and there are differences in teachers' and students' acceptance of digital technology, making it difficult to give full play to the role of digital intelligence technology in education management [2]. Therefore, it is imperative to establish the concept of digital education management, unite various departments within the university, fully promote the application of digital intelligence technology in college students' education management, accelerate the digital transformation of university education management, and promote the high-quality development of education.

2. The triple logic of enhancing the effectiveness of college students' education management empowered by digital intelligence technology

2.1. Promoting the improvement of precision in college students' daily affairs management

The transformation of "refinement" in affairs management by digital intelligence technology helps to solve problems such as fragmented information and delayed response in traditional management.

(1) Data Integration to Break Information Silos: Based on the collaborative theory of education management, digital intelligence technology integrates multi-dimensional data such as student status, scholarships and grants, and attendance through a unified student data center, breaking departmental information barriers and realizing "one data source, cross-department sharing" [3]. This integration transforms scattered "information points" into coherent "information chains", accurately identifies student needs through data correlation analysis, avoids management deviations caused by fragmented information, and reflects the "systematic thinking" of modern education management.

(2) Process Optimization to Improve Service Precision: According to the process reengineering theory, digital intelligence technology is embedded in the entire process of affairs handling, simplifying approval, reducing paper materials, and shortening time limits. Whether it is biometric identification to optimize identity verification or a one-stop platform to integrate cross-departmental affairs, the core is to remove "non-value-added links" to meet students' demand for "efficiency and convenience" [4]. From the perspective of service science theory, this is a response to the "student-centered" orientation, which can enhance students' sense of identity and build a sound management ecosystem.

2.2. Leading the innovative development of college students' education management models

With the advantages of big data and artificial intelligence technology in data integration, processing, application and decision-making, digital intelligence technology promotes the transformation of education management from traditional experience-based to modern collaborative-based.

(1) From "Experience-Driven" to "Data-Driven": Traditional management relies on subjective experience, resulting in delayed decision-making. Digital intelligence technology extracts rules through data mining, making decisions based on objective data, which is in line with the concept of "evidence-based management". Data feedback can continuously optimize decisions, discover hidden problems that are difficult to detect with traditional experience, and promote management to shift from "experience judgment" to "scientific decision-making", realizing the upgrade from "extensive" to "refined" [5].

(2) From "Decentralized Management" to "Integrated Collaboration": Traditional management has problems such as division of departmental powers and responsibilities and difficulty in resource coordination. Digital intelligence technology integrates teaching, student affairs, logistics and other systems to

build a “comprehensive education management” platform, realizing cross-domain resource allocation and seamless process connection, which is in line with the system theory principle that “the whole is greater than the sum of its parts”. This can reduce departmental coordination costs, improve the overall efficiency of the management system, and meet the “system integration” requirements of the modernization of education governance [6].

2.3. Accelerating the personalized implementation of college students’ education management concepts

Digital intelligence technology brings opportunities for the implementation of humanized and personalized education concepts. With the logic of individual portraits and resource matching, it transforms personalized education management concepts into operable practices.

(1) Constructing Dynamic Student Growth Portraits: Based on the theory of multiple intelligences and the concept of personalized education, digital intelligence technology collects data such as learning behaviors and interest preferences to build dynamically updated growth portraits [7]. Different from static labels, the portraits are continuously iterated through algorithms to accurately capture students’ development changes, providing a basis for grasping individual differences, breaking the limitation of “one-size-fits-all”, and reflecting the essence of “people-oriented”.

(2) Providing Differentiated Resource Supply: Relying on the theory of precision education, resource “on-demand allocation” is realized according to growth portraits, matching academic, practical, support and other resources to avoid supply-demand mismatch [8]. This is in line with the essence of “teaching students in accordance with their aptitude”, which can maximize resource utilization. From the perspective of educational equity, it realizes the unity of “opportunity equity” and “result equity” through “on-demand allocation” and taps students’ potential.

3. The four-dimensional practical path of enhancing the effectiveness of college students’ education management empowered by digital intelligence technology

3.1. System guarantee dimension: Constructing a digital and intelligent management system

Build a top-level framework empowered by digital intelligence technology from three mechanisms: organizational coordination, standard formulation and motivation stimulation.

3.1.1. Improving the overall coordination mechanism

(1) University-level Leading Group: Starting from the modernization of education governance, solve the “decentralization of powers and responsibilities” across departments, integrate “departmental goals” into “school goals”, avoid fragmented technology application, and ensure that digital and intelligent construction is in line with the overall development of the school [9].

(2) University-College Two-Level Linkage: According to the principle of “hierarchical management”, set up digital and intelligent specialists in colleges and departments to realize a closed loop of “university-level planning - college-level implementation - feedback optimization”, avoiding policies being “out of touch with reality” or practices “deviating from direction”.

(3) Third-Party Evaluation: Based on the concept of “continuous improvement”, introduce independent

institutions to objectively evaluate the effectiveness, avoid subjective deviations in internal evaluation, and promote the transformation of digital and intelligent construction from "one-time investment" to "continuous improvement".

3.1.2. Improving the standard system

(1) Data Management Standards: Based on data governance theory, clarify the norms for collection, storage and sharing to ensure data authenticity and security, avoid "data silos", lay the foundation for cross-departmental integration, and prevent privacy leaks.

(2) Technology Application Standards: Follow the principle of technical compatibility, unify platform architecture, interfaces and security standards, reduce system integration costs, reserve space for subsequent upgrades, and improve the flexibility of technology application.

(3) Digital Ethics Norms: Based on the "people-oriented" requirement of educational ethics, clarify the boundary of technology application, prevent technological alienation, and realize the unity of technical rationality and educational rationality [10].

3.1.3. Optimizing the incentive and restraint mechanism

(1) Assessment and Incentive: According to the "goal-oriented" performance theory, include digital and intelligent effectiveness into assessment to guide active transformation and avoid insufficient reform motivation.

(2) Error Tolerance and Correction: In line with the concept of "encouraging innovation", clarify the error tolerance range for technical exploration mistakes, reduce innovation concerns, summarize experience to avoid similar problems, and create a relaxed innovation environment.

3.2. Technical support dimension: Building high-efficiency digital infrastructure

Build a "technical base" for digital transformation from platform integration, data governance and security protection to provide stable and efficient technical support for education management.

3.2.1. Building an integrated digital platform

(1) One-Stop Platform: Based on service integration theory, integrate functions such as student status, academic performance and ideological and political education to realize "intensive" services, reduce students' operation costs, conform to the "student-centered" approach, and shorten the service path.

(2) Mobile Applications: Meet the needs of "ubiquitous learning", break the time and space constraints through APPs and mini-programs, meet the demand for service acquisition and appeal feedback in fragmented scenarios, and improve management convenience.

(3) National-Level Connection: According to the theory of resource sharing, connect to the national educational data platform, expand resource channels, avoid "closed-door construction", and enrich service supply.

3.2.2. Strengthening data governance capabilities

(1) Full-Life-Cycle Management: Based on data governance theory, control all links of data collection, cleaning, storage and destruction to ensure data quality, provide reliable support for decision-making, and prevent circulation risks.

(2) Campus Data Center: Follow the concept of "data assetization", integrate scattered data and mine rules, transform data into "management assets", and promote decision-making from "experience judgment" to "data support" [11].

(3) Intelligent Decision-Making System: Relying on the principle of AI assistance, automatically generate visual analysis reports, simplify data interpretation, improve decision-making efficiency, and support the dynamic optimization of management measures.

3.2.3. Building a solid network security defense line

(1) Infrastructure Upgrade: Based on network security protection theory, deploy firewalls, intrusion detection and other tools to build an "active defense" system, prevent attacks and data leaks, and ensure system stability.

(2) Hierarchical and Classified Protection: Follow the principle of "risk classification", protect sensitive and ordinary data differently, balance security and efficiency, and ensure data is "traceable and controllable".

(3) Security Training and Drills: According to the concept of "human defense + technical defense", improve teachers' and students' security awareness, make up for technical vulnerabilities, and realize the transformation from "passive response" to "active prevention".

3.3. Scene empowerment dimension: Deepening the application of digital intelligence technology in core scenarios

To promote the implementation of digital intelligence technology in education management scenarios, select four core areas: academic management, ideological and political education, daily life and employment, and promote the deep integration of technology empowerment and actual management needs.

3.3.1. Academic management scenario

(1) Intelligent Monitoring: Based on learning analytics theory, collect data such as classroom interaction and homework quality to generate academic early warnings, provide a basis for intervention, help students adjust learning strategies, and reduce risks.

(2) Personalized Support: Relying on adaptive education theory, push resources according to learning foundations and interests, break the limitation of "unified teaching", and help differentiated development.

(3) Intelligent Examinations: In line with the reform of education evaluation, realize efficient organization and fair supervision through online systems and AI invigilation, and automatic marking improves feedback efficiency, which is in line with the concept of "process evaluation" [12].

3.3.2. Ideological and political education scenario

(1) Ideological Research and Judgment: Based on public opinion analysis theory, analyze students' remarks through natural language processing, and grasp ideological dynamics combined with questionnaires to avoid subjective deviations and realize "targeted teaching".

(2) Immersive Experience: Relying on situational education theory, use VR/AR to build virtual ideological and political scenarios, enhance emotional resonance, break "one-way indoctrination", and improve the appeal of ideological and political education.

(3) Precision Push: According to the theory of niche communication, push ideological and political content combined with students' characteristics, avoid "one-size-fits-all", and achieve the educational effect of

"precision drip irrigation"[13].

3.3.3. Daily life service scenario

(1) Smart Campus: Based on the Internet of Things principle, intelligently manage dormitory electricity use, environmental monitoring and facility reservation, improve living comfort, enhance students' sense of belonging, and conform to the concept of "green campus".

(2) Psychological Services: Relying on positive psychology, screen psychological status through evaluation systems, and AI consulting robots provide 24-hour support to make up for the time and space limitations of traditional consulting, and build a "prevention - intervention - support" system.

(3) Precision Funding: Based on the theory of equitable education, analyze consumption and family data to identify students in need, avoid subjective judgment deviations, ensure "all eligible students receive assistance", and reflect educational equity.

3.3.4. Employment and entrepreneurship scenario

(1) Supply and Demand Matching: Based on human resource matching theory, integrate recruitment and job search information, realize precise docking through AI, break "information asymmetry", and improve employment success rate.

(2) Career Planning: Relying on career planning theory, analyze students' abilities and intentions to generate development reports, avoid experiential suggestions, and help clarify growth paths [14].

(3) Entrepreneurship Empowerment: Based on the theory of innovation and entrepreneurship education, provide policy, resource and training support through digital platforms, and virtual simulation reduces training risks and improves entrepreneurial capabilities.

3.4. Team building dimension: Improving teachers' and students' digital literacy and capabilities

Digital transformation cannot do without the support of talent teams. For three core groups: managers, teachers and students, improve their digital application capabilities through hierarchical training [15].

3.4.1. Training for managers

(1) Hierarchical and Classified Training: According to adult learning theory, design content according to job needs to ensure training is in line with responsibilities.

(2) Blended Training: Adopt a "online + offline + case + practice" model, invite experts to give lectures, enhance training effectiveness, and avoid single theoretical indoctrination.

(3) Training Assessment: Incorporate digital capabilities into continuing education, and link results with performance and promotion to force active improvement and ensure the implementation of training outcomes.

3.4.2. Improvement of teachers' capabilities

(1) Digital Teaching Training: Offer special training on intelligent tools, digital courses and blended teaching to help master digital and intelligent teaching methods and support teaching reform.

(2) Exchange and Sharing Platform: Build virtual teaching and research sections and innovation communities to promote experience exchange, achievement display and resource sharing, and promote

common improvement.

3.4.3. Cultivation of students' literacy

(1) Digital Literacy Courses: Incorporate technical basics, data ethics and network security into general education to improve basic cognition and literacy, and avoid digital capability gaps.

(2) Practical Activities: Organize digital skills and innovation and entrepreneurship competitions, encourage the use of digital intelligence technology to solve practical problems, and improve application and innovation capabilities.

(3) Network Civilization Education: Guide the establishment of correct network values, abide by ethical laws and regulations, prevent addiction and fraud, and cultivate rational digital behaviors.

4. Conclusion

In summary, in the context where cutting-edge technology is closely intertwined with human life and social development, the digital and intelligent empowerment of education governance has become an innovative path for the high-quality development of higher education. College students' education management is a crucial aspect of the university's education governance system. Making good use of the advantages of digital intelligence technology to promote the transformation of college students' education management towards scientificization, intelligence and modernization is related to stimulating the internal management vitality of the college and the reform process of the modernization of education governance. Therefore, universities should seize the opportunity of the innovative development and application of digital intelligence technology, focus on digital and intelligent transformation, strengthen top-level system design, introduce advanced infrastructure, explore in-depth application scenarios, improve teachers' and students' digital capabilities, etc., use digital technology to transform and upgrade the student education management system, build a new paradigm of digital and intelligent education management, and gradually realize the goal of modernization of education management, thereby accelerating universities' march towards governance modernization through digitalization.

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