

Reflections on Promoting the Reform of Higher Education Management through Informatization

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Abstract: With the in-depth integration of the “Internet Plus” and digital technologies in the education sector, information technology has become a vital force for advancing the reform of China’s higher education management system and modernizing national governance capacity. The primary goals of higher education management reform are to optimize resource allocation, promote information sharing, and improve the quality of school running. Information technologies such as big data, artificial intelligence and smart campuses can solve the problems of low efficiency, scattered resources and insufficient collaboration existing in the current management mode. This paper mainly discusses the strategies for promoting the reform of higher education management through informatization, so as to provide references for relevant scholars.

Keywords: Informatization; Higher education; Management reform

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1. Introduction

With the rapid development of the “digital economy” and “smart society”, profound changes have taken place in the development environment and operation mode of higher education. The traditional education management mode relying on manual work, decentralization and experience has been difficult to meet the development needs of universities in the new era. Information technology has broken down the barriers between teaching, scientific research, management and services, providing technical support and practical possibilities for optimizing management processes, integrating high-quality resources and improving decision-making levels ^[1]. To meet the needs of the digital transformation of education, promoting the informatization process of higher education management is a realistic choice for colleges and universities to achieve high-quality development.

2. Significance of informatization in promoting the reform of higher education management

2.1. Adapting to the digital transformation of education and consolidating the foundation for high-quality development of colleges and universities

At present, the national digital education strategy has been fully implemented, and higher education has entered a new

stage of quality improvement, efficiency enhancement and connotative development. The traditional extensive and experience-based management mode is no longer adaptable to the core needs of university running and talent cultivation in the new era. Empowering the reform of higher education management through informatization is a core measure for colleges and universities to follow the national deployment of digital education development and implement the goals of building a powerful education country. Relying on digital technologies, colleges and universities can break the temporal, spatial and departmental barriers of traditional management, solve prominent problems such as low management efficiency, poor business collaboration and lagging work connection, and help university management get rid of the development bottleneck of excessive reliance on manual work. It can not only align the school running mode of colleges and universities with the development of the digital age, standardize the operation and management order within the campus, but also consolidate the foundation of connotative development of colleges and universities, escort the development of core teaching and scientific research work, and help the steady quality upgrading of higher education undertakings.

2.2. Empowering the improvement of education and management quality and enhancing the efficiency of talent cultivation and social services

Talent cultivation, scientific research and social services are the three core functions of colleges and universities, and management work serves as an important guarantee for the implementation of various functions. The level of management directly determines the core quality of university running. The core of promoting higher education management reform through informatization is to empower management quality improvement with technology and optimize education effectiveness with management, focusing on the core needs of teachers and students and the core tasks of school running to solve the bottlenecks and difficulties in management and services. The new digital management mode can optimize the supporting guarantees for education, accurately allocate school running resources, scientifically judge the development trend, and transform management work from passive performance of duties to active service. It can not only accurately meet the actual needs of students' growth and development as well as teachers' teaching and scientific research, improve the sense of gain of teachers and students on campus, but also continuously strengthen the talent cultivation capacity of colleges and universities, help them better perform social service responsibilities, and transport high-quality innovative talents for the society ^[2].

3. Implementation strategies for informatization to promote the reform of higher education management

3.1. Restructuring management processes through informatization to realize efficient school operation

The traditional administrative work process of colleges and universities is cumbersome, highly dependent on manual work, with lagging information transmission, resulting in many problems such as repetitive work, low efficiency and inadequate supervision. Reengineering the management process by means of information technology is the fundamental countermeasure to promote the reform of the educational administrative system. Centering on core businesses such as teaching management, student status management, course selection and scheduling, and grade management, colleges and universities should establish a complete online management platform, transfer offline work processes to the online platform, and realize the full electronic processing of application, review, approval and filing. Taking teaching management as an example, the information system can automatically process course arrangement, conflict inspection, course selection adjustment, grade entry, statistical analysis and other processes, reducing the probability of human errors. At the same time, the system can make the whole management process transparent and traceable at each node, enabling managers to timely grasp the work progress. By breaking the information barriers between various departments, streamlining intermediate approval procedures and clarifying the division of powers and responsibilities, colleges and universities can realize the

management transformation from “multi-level transmission” to “flat operation”, significantly improving administrative operation efficiency and service response capacity, and building a solid technical guarantee for the normal and efficient operation of various work in colleges and universities.

3.2. Integrating educational resources through informatization to realize optimal resource allocation

Informatization can break the restrictions of regions, disciplines and departments and promote the co-construction and sharing of high-quality educational resources. Relying on information technology platforms, colleges and universities should coordinate and integrate curriculum resources, teacher resources, experimental training resources, library and literature resources, build a unified resource sharing database, and realize the efficient allocation and deployment across departments, colleges and campuses. Big data technology is adopted to dynamically monitor the usage frequency, bearing load and demand changes of resources in real time, accurately judge the shortage and redundancy of resources, provide data support for resource procurement, allocation optimization and iterative updating, and avoid redundant construction and resource waste. Information carriers such as online education platforms, virtual simulation experiment centers and digital libraries can expand the coverage of high-quality resources, allowing teachers and students to access various teaching and research resources conveniently without the restrictions of time and space. On the other hand, colleges and universities can deepen inter-university resource cooperation relying on information systems, actively introduce high-quality external courses and teaching and research resources, and enrich the internal educational resource reserve. Relying on information technology to realize visualized management, intelligent scheduling and efficient utilization of resources can effectively improve the scientificity and utilization rate of resource allocation, and provide a solid and stable support for the orderly development of teaching and scientific research activities.

3.3. Building a data system through informatization to realize scientific management decision-making

An important core measure to improve the governance capacity of university management is to promote the transformation of management mode from “experience-driven” to “data-driven”. Colleges and universities need to build a comprehensive education big data center covering teaching, scientific research, student affairs, personnel, assets, finance and other fields, collect, clean and integrate scattered data from various independent business systems, and build a data resource system with unified standards, interconnection and safety controllability. It is essential to break the shortcomings of isolated and disconnected business data in the past, consolidate the foundation of data governance, and strengthen the unified management and regular update and maintenance of data. Relying on big data analysis technology, colleges and universities can deeply mine core dimension data such as students’ learning behavior, teachers’ teaching effectiveness, discipline development trend, fund use efficiency and equipment operation status, generate visual analysis reports and risk early warning prompts, and provide reliable reference for managers to make targeted policies. For example, academic data of students can be analyzed to accurately identify students with academic difficulties and carry out targeted academic assistance; teaching evaluation data can be used to optimize curriculum system setting and classroom teaching mode; fund use data can be combined to improve the refined management level of budget. Establishing a normalized data-driven decision-making mechanism can reduce the interference of subjective empirical judgment, enhance the forward-looking, targeted and scientific nature of decision-making work, and promote the steady development of university management towards refinement and intelligence ^[3].

3.4. Upgrading service mode through informatization to realize intelligent education services

Colleges and universities should base on the core needs of teachers and students, and build an intelligent, one-stop and convenient comprehensive service system through informatization. It is necessary to build an integrated smart campus service platform, integrate various service functions such as academic affairs, student affairs, finance, logistics, library and network operation and maintenance, and realize “one-network handling and one-terminal service”, reducing the

running errands of teachers and students and realizing more data processing online. For students, the platform provides full-chain one-stop services such as online registration, course selection and payment, leave approval, grade inquiry, employment guidance and psychological counseling; for teachers, it provides digital work support such as teaching preparation, scientific research management, performance declaration and training and further education. With the help of artificial intelligence technology, functions such as intelligent Q&A, intelligent resource recommendation and intelligent risk early warning are launched to improve the personalization and accuracy of services. Colleges and universities should continuously eliminate the cumbersome barriers of offline work, simplify various approval links, reduce handling time limits, and effectively improve the work experience of teachers and students and the sense of campus service acquisition. For example, the system can accurately recommend appropriate learning resources and special tutoring courses according to students' academic conditions, and provide scientific suggestions for teaching optimization and improvement based on teachers' teaching performance data. At the same time, information channels are used to smooth the complaint feedback mechanism for teachers and students, respond to their reasonable demands in a timely manner, and continuously optimize and simplify service processes. Informatization promotes the transformation of service mode from "passive supply" to "active and precision service", creating an efficient, convenient and warm education service environment.

3.5. Improving institutional guarantees through informatization to realize standardized reform operation

Promoting the reform of university management system by means of informatization requires the improvement of supporting long-term management mechanisms to ensure the standardized and orderly progress of technology application, data management and process operation. Colleges and universities should revise and improve various supporting management systems in a timely manner according to the actual situation of local informatization construction and development, forming a positive interaction pattern of technology empowerment, management implementation and institutional guarantee. In terms of data management, a full-chain guarantee system for data collection, storage and use, sharing and circulation, security protection and privacy protection should be constructed, clarifying the rights, responsibilities and obligation boundaries of data management, standardizing the whole-process data processing operations, and consolidating the bottom line of data security compliance. In terms of operation and maintenance, unified construction standards, operation and maintenance specifications and emergency disposal plans for unexpected events should be formulated to ensure the stable and safe operation of various information systems. In terms of process management, the responsibilities, operation specifications and evaluation standards of various departments should be clearly defined in the form of systems to prevent manual interference in management processes. In the field of network security, a comprehensive security management and protection system should be improved, technical security protection measures should be strengthened, regular safety hazard investigation and risk level assessment should be carried out, and safety accidents such as data leakage and system paralysis should be strictly prevented. On this basis, an evaluation and dynamic feedback mechanism for the effectiveness of informatization reform should be established to regularly conduct comprehensive evaluation on platform operation quality, resource utilization, management efficiency and teacher and student service quality, so as to continuously optimize and improve informatization construction and management work.

4. Conclusion

In conclusion, information technology plays a vital role in improving university management efficiency, optimizing educational resource allocation and boosting scientific decision-making. Through the five paths of process restructuring, resource integration, data-driven development, service upgrading and system improvement, the in-depth integration of informatization construction and higher education management work can be gradually realized. In the process of reform promotion, colleges and universities should always adhere to the orientation of demand, problem and effect, and continuously promote the steady development of university management towards standardization, scientization, refinement

and intelligence. Promoting the reform of higher education management through informatization can provide a lasting and strong impetus for innovative talent cultivation, the improvement of university running quality and the high-quality economic and social development.

Disclosure statement

The author declares no conflict of interest.

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