

Construction and Practice of Modern Educational Management System in Preschool Education Colleges

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Abstract: Under the background of educational modernization and digital transformation, the traditional management mode of preschool education college has been difficult to meet the development needs. With the goal of improving governance efficiency and education quality, based on education system theory and change management theory, this paper designs a modern management system with top-level guidance, hierarchical promotion and dynamic adjustment, constructs subsystems covering teaching, teachers, student support and logistics support, and takes data center and education big data as technical support. Through practical exploration and typical case analysis, the system has proved its effectiveness in resource optimization, process efficiency and service improvement, and identified problems such as lagging concept, weak technology application and data island. Finally, the paper puts forward some improvement strategies, such as strengthening policy guidance, improving digital literacy, perfecting data governance and optimizing feedback mechanism. The research shows that the modern education management system can effectively promote the modernization of the governance system and governance capacity of preschool education colleges.

Keywords: Preschool education college; Education management system; Digital transformation; Practice and exploration; Governance effectiveness

Introduction

With the deepening of the national education modernization strategy, preschool education as an important part of the basic education system, more and more widespread concern from all walks of life. At present, the modernization of education is not only reflected in the renewal of curriculum content, but also in the systematic upgrading and innovation of educational management system. Under this background, the preschool education college has been entrusted with the task of cultivating

high-quality preschool education talents, which poses an unprecedented challenge to the educational management level of the college.

1 Theoretical basis and analytical framework

1.1 Theoretical basi of modern education management

The construction of modern education management system of preschool education college must be guided by the scientific theoretical system to ensure the scientific nature of the system design and the operability of the

practice^[1]. Firstly, the theory of educational system provides a macro perspective for this study. the theory of educational system emphasize that educational institution is a complex adaptive system, and that internal factors such as teacher, students, curriculum, resources and management mechanism are interdependent and dynamically adjust. Based on this theory, the modern management system should pay attention to the overall optimization and the coordinated operation of the elements, rather than promoting the reform of a certain aspect in isolation. Secondly, the theory of organizational behavior provides theoretical support for understanding and guiding the behavior of internal personnel in preschool education colleges. The theory holds that the behavior of individuals and groups by the organizational structure, cultural atmosphere, incentive mechanism and other factors, so in the process of building management system, must give full consideration to the teachers, managers and students in the process of change of psychological expectations and behavioral responses, through the optimization of communication mechanism, improve the incentive system, stimulate the enthusiasm and innovation of the members of the organization. In addition, the theory of change management emphasizes that organizational change needs to go through three stages: motivation identification, change implementation and effect consolidation, and emphasizes the importance of leadership, communication strategy and resistance management. Based on the theory of change management, preschool education college in promoting the construction of modern management system should be to develop a clear

path of change, set reasonable goals, while taking effective risk response measures, to ensure the smooth progress of the process of change and the expected results of the realization of^[2].

1.2 Theory of education digital transformation

Under the background of the deep integration of information technology into the practice of education management, the theory of Smart Education has become an important theoretical resource to guide the modernization of the management system of preschool education college^[3]. Intelligent education advocates the use of big data, artificial intelligence, Internet of Things and other advanced technical means to realize the precision, personalization and intelligence of educational management, and improve the scientificity and efficiency of educational governance. Through the construction of intelligent platform, managers can grasp the teaching dynamics, students' development status and resource usage in real time, so as to achieve scientific decision-making and dynamic adjustment. At the same time, the modernization framework of educational governance puts forward that modern educational governance should be transformed from single government-led to multi-coordinated, paying attention to the guarantee of rule of law, information disclosure, data empowerment and public participation. This framework requires that preschool education colleges not only pay attention to the optimization of internal processes, but also enhance the transparency of information, encourage teachers and students to participate in the governance process, and form a

new pattern of educational management of co-construction, co-governance and sharing [4] when designing the management system. The combination of intelligent education and the modernization theory of educational governance urges preschool education colleges to consider the dual requirements of technical support and system innovation in the design of management system, and promote the formation of a more scientific, efficient, intelligent and open new management mode.

1.3 Building the analysis framework

Based on the above theoretical basis, this study constructs an analytical framework with the core thread of organizational change motivation, change process and change result. Firstly, at the level of change motivation, it focuses on the multiple driving factors such as national policy guidance, information technology progress and internal management bottleneck; Secondly, at the level of change process, it focuses on the specific implementation paths such as management system design, platform construction, personnel training, process reengineering; Finally, at the level of change result, it evaluates the actual impact of system reform on the governance efficiency, education quality improvement and teacher and student satisfaction change of the college. The overall research logic follows the approach of "theoretical guidance-system design-path practice-effectiveness verification," striving to realize the organic combination of theoretical innovation and practical application. Through the system construction and practice test, it not only provides a replicable and replicable implementation paradigm for the modern management system of preschool

education colleges, but also contributes theoretical and empirical support to the modernization of preschool education governance in China.

2 The construction of modern management system in preschool education college

2.1 Overall design idea

The construction of modern management system of preschool education college, first of all, should be based on the top-level design, to ensure that the overall planning of the scientific, systematic and forward-looking [5]. The top-level design requires that the overall development strategy of the college should be taken as the guidance, the basic framework and operation mechanism of the management system should be established, the functional orientation and coordination relationship of each subsystem should be clarified, and the resource allocation and organizational structure adjustment should be arranged as a whole. On the basis of top-level design, implement hierarchical promotion strategy, optimize management system by stages and steps according to actual needs of different departments and different business fields, gradually realize overall objectives and ensure controllability and flexibility of reform process. At the same time, the dynamic adjustment mechanism should run through the whole process of system construction, monitor the operation status of the system in real time through the establishment of feedback mechanism and evaluation system, optimize and adjust in time according to the changes of internal and external environment, and maintain the vitality and adaptability of the system. In the overall design, the modern management system

should adhere to the basic orientation of intelligence, refinement and service. Intelligentization emphasizes the support of information technology to improve the scientificity of decision-making and management efficiency; refinement requires refinement of process, standardized operation and quantitative evaluation to improve the accuracy and standardization of management; service-oriented takes teacher development and student growth as the core, reshapes the service function of management, strengthens the support and enabling function, and finally realizes the double improvement of governance efficiency and education quality.

2.2 Subsystem construction

2.2.1 teaching management subsystem

In the aspect of teaching management subsystem construction, we should construct a platform system with dynamic management of curriculum resources as the core, realize real-time update, intelligent matching and accurate push of teaching resources, and meet the personalized and comprehensive talent training needs of preschool education specialty. The construction of intelligent course arrangement system, relying on algorithm optimization and resource overall planning, can significantly improve the efficiency of course arrangement and the utilization rate of teaching space, and reduce manual intervention and resource waste. At the same time, based on real-time data collection and multi-dimensional analysis, the online teaching evaluation system can effectively monitor the teaching process and learning effect, provide strong support for curriculum optimization and teacher development, and promote the continuous

improvement of teaching quality.

2.2.2 teach management subsystem

The construction of teacher management subsystem should be based on data-based personnel management, integrate recruitment, appointment, assessment, training, promotion and other links of data, open up information flow, and improve the scientificity and transparency of personnel management. Through the establishment of teachers' 'professional development files, dynamic records of teachers' teaching achievements, scientific research projects, training experience and career development track, to provide data support for personalized development planning and professional title evaluation. At the same time, based on the comprehensive analysis of multi-source data, the intelligent performance evaluation system can realize the objective evaluation of teachers' 'workload, teaching quality, scientific research output and other dimensions, form a fair, just and open assessment mechanism, and stimulate teachers' endogenous motivation and innovation vitality.

2.2.3 student development support subsystem

The core of student development support subsystem is to build an all-round and whole-process growth support system. Based on student achievement, attendance, learning behavior and other data, the academic early warning system monitors students' learning status in real time, timely identifies potential risks and pushes intervention suggestions. The personalized tutoring platform formulates differentiated development schemes according to students' interests, hobbies, abilities, specialties and development willingness to promote students' comprehensive and individual

growth. At the same time, through online questionnaire, interview data and behavior analysis, the mental health monitoring system dynamically grasps the students' psychological state, carries out psychological intervention and crisis intervention in time, and protects the students' physical and mental health.

2.2.4 Logistics and Resource Support Subsystem

The key to the modernization transformation of logistics and resource support subsystem lies in the construction of intelligent logistics management platform and digital resource allocation system. The intelligent logistics platform realizes the whole process management and service optimization of dormitory management, catering service, safety guarantee, equipment maintenance and other links through informatization means, so as to improve the timeliness, accuracy and satisfaction of logistics service. Digital resource allocation system integrates all kinds of teaching facilities and scientific research resources, realizes dynamic update, intelligent scheduling and shared use of resource information, maximizes resource use efficiency and supports smooth operation of teaching and scientific research activities.

2.3 Technical support system

The efficient operation of modern education management system cannot be separated from the strong technical support system as the guarantee. First of all, the construction of data center is the foundation, which needs to break the information isolated island among various business systems, realize standardized data collection, unified management and shared application, and form a college-level data resource pool. Secondly,

consolidate the informatization infrastructure, including high-speed and stable campus network, flexible and expandable cloud computing platform and safe and reliable data center, providing a solid foundation for the normal operation and intelligent management of each subsystem. In addition, the education big data technology shall be comprehensively applied to assist teaching optimization, learning situation diagnosis, management decision-making and quality monitoring through in-depth mining and intelligent analysis of management data and education data, so as to promote the transformation of management mode from experience-driven to data-driven, and truly realize the scientific, precise and forward-looking management decision-making.

3 Practical exploration of modern educational management system

3.1 Practice path design

In order to realize the effective implementation of the modern education management system of preschool education college, the college has established a phased and step-by-step practice path. In the planning stage, the college first carries out all-round demand analysis, widely collects management pain points and reform demands through questionnaire survey, interview discussion and other ways, completes the overall modeling work of management system based on this, and clarifies the objectives and process logic of each subsystem construction. Entering the implementation stage, the college builds an intelligent management platform, organizes multiple rounds of all-staff training at the same time, improves the informatization application ability of teachers and management personnel,

and continuously optimizes function settings and business processes in small-scale pilot operation. In the optimization stage, based on the data feedback, a normal problem collection and analysis mechanism is set up to timely correct the problems exposed in the operation, forming an iterative optimization closed loop of the system. In order to show the specific tasks and achievements of each stage more clearly, see Table 1.

Table 1 Preschool Education Institute of modern education management system construction phase of the task and results

stage	core task	major measure	key results
planning stage	Requirement analysis and system modeling	Questionnaire investigation, discussion and communication, process design	Blueprint of management system formed
	System construction, personnel training and pilot operation	Intelligent platform construction and pilot promotion	Initial implementation of system launch and business collaboration
optimization phase	Data feedback, problem correction, continuous optimization	Data monitoring, process optimization, system iteration	Double improvement of operation stability and service level

It can be seen from Table 1 that the preschool education college has promoted the modern management system from theoretical conception to systematic implementation through scientific and orderly stages, ensuring the steady progress of the reform process and the continuous accumulation of actual results.

3.2 Typical case analysis

In the practice exploration, the preschool education college has created several typical subsystem application cases around the core fields such as teaching, teacher and student management, which reflects the integration and innovation of the management system construction. In the process of development and application of intelligent management system of teaching resources, the college, guided by precise supply and demand, has designed a comprehensive platform covering dynamic management of curriculum resources, intelligent course arrangement and online teaching quality evaluation, which has significantly improved the updating speed and scheduling efficiency of curriculum resources. In the aspect of teacher development support system construction, the college has broken the traditional single assessment mode and established a teacher development file system with data tracking and dynamic feedback as the core to scientifically support teachers' growth and evaluation. In the construction of students' comprehensive quality development platform, the college introduces personalized growth path design and dynamic tracking mechanism, realizing real-time monitoring and accurate support of students' multi-dimensional development data. In order to visually demonstrate the main achievements of typical cases, the following Table 2 summarizes them.

Table 2 Overview of the effectiveness of the construction of typical application systems in preschool education colleges

subsystem name	core function	application effectiveness
intelligent management system of teaching	Course dynamic management, intelligent	Course resource update rate increased by

resources	course arrangement, teaching evaluation	22% and course scheduling efficiency increased by 18%	quality achievement rate			
		Teacher satisfaction increased by 14% and teaching achievements increased significantly	Students' comprehensive satisfaction	78%	92%	+14%
teacher development support system	Data Tracking, Performance Intelligence	Student satisfaction increased by 16% and academic risk rate decreased by 10%	Excellent rate of teacher performance appraisal	65%	78%	+13%
student comprehensive quality development platform	Personalized counseling, comprehensive quality tracking		Management Response Speed	2 days	0.8 sky	60% improvement

Table 2 clearly reflects that through the subsystem construction, the College has achieved tangible results in improving the management level of education and teaching, optimizing the development environment of teachers and promoting the all-round growth of students, which fully reflects the comprehensive value of modern management system.

3.3 Practice effectiveness evaluation

In order to scientifically evaluate the effect of the construction of modern education management system, the College of Preschool Education has established a data-supported effectiveness evaluation system, covering key dimensions such as teaching quality, student satisfaction and teacher performance. Through the comparison before and after the construction, the college has made remarkable progress in a number of indicators. In order to more clearly show the changes of main achievements, the statistics are summarized in Table 3 below.

Table 3 Changes in Core Indicators before and after the Construction of Modern Management

index category	System		
	Pre-construction level	Post-construction level	increase rate
teaching	82%	95%	+13%

Further comparison of student personality development and risk intervention effectiveness changes, the relevant data in Table 4.

Table 4 Student Development Support

Effectiveness Comparison		
project	before the construction	after the construction
Personalized growth path coverage	45%	87%
Accuracy of academic warning	68%	91%
Response rate of mental health intervention	55%	85%

It can be seen from Table 3 and Table 4 that the modern education management system has effectively improved the overall management efficiency and service quality of the College, especially in terms of improving teaching quality, stimulating teachers' enthusiasm and supporting students' development. This verifies the scientificity and effectiveness of the system construction and practice path design, and provides a solid practical basis for the subsequent deepening reform and continuous optimization.

4 The realistic problems and improvement strategies

4.1 Analysis of main problems

In the process of the construction and operation of the modern education management

system of preschool education colleges, although the phased achievements have been made, there are still some practical problems that restrict the further development of the system. First of all, the concept of updating lag is still one of the main obstacles to the system. Some managers and teachers in the ideological awareness of modern management concept is insufficient, the application of information technology there is fear of difficulties, resulting in the new system to promote the application of the initial existence of low acceptance, lack of participation. Secondly, the lack of technology application ability also affects the efficiency of the management system to a certain extent. Although the college is equipped with advanced information management platform, but the front-line management personnel and teachers in the data analysis, platform operation, system maintenance and other aspects of the technical application ability is uneven, which restricts the full use of system functions. In addition, the problem of data isolated island is still outstanding. Although the subsystems have been preliminarily connected, the information flow is blocked due to the inconsistent data standards and imperfect sharing mechanism, which makes it impossible to realize the efficient support of management decision-making. Finally, the disconnection between management system and practice still needs to be paid attention to, and some management processes do not match the actual business needs well, resulting in low efficiency and slow response in the implementation process. If these problems can not be solved in time and effectively, it will weaken the operation effect of modern management system to a great extent, and affect

the improvement of the overall governance level of the college.

4.2 Targeted optimization recommendations

4.2.1 Strengthen top-level policy guidance and resource investment

In view of the current concept update lag problem, should by the college top strengthen top-level policy guidance, clear the strategic position of modern education management system construction in the development of college, the introduction of systematic and targeted reform policy, form a good atmosphere of unity of thinking, consensus. At the same time, increase capital and human resources investment, support informatization infrastructure construction, management platform upgrading and personnel training, and ensure sufficient resource guarantee and policy support for the construction of modern management system.

4.2.2 Digital Literacy Ability Improvement Project for All Staff

In order to solve the problem of insufficient technology application ability, the college should systematically promote the project of improving the digital literacy ability of all employees. Through regular information technology training, special skill improvement courses and online learning platform, the informatization application level of teachers and management personnel will be improved in an all-round way, especially in data processing, system operation and use of intelligent decision support tools, so as to ensure that personnel at all posts can skillfully apply modern management platform, release system potential and improve management efficiency.

4.2.3 Improve the data governance system and break the information isolated island

In view of the problem of data islands, the college should accelerate the construction of data governance system, formulate unified data standards and interface specifications, establish data sharing and exchange mechanism, and promote the data interconnection between business systems. At the same time, full-time posts or organizations for data management shall be set up to coordinate data collection, cleaning, analysis and application, ensure high quality, efficient circulation and deep utilization of data resources, and improve the scientificity and accuracy of management decision-making driven by data.

4.2.4 Build dynamic feedback closed-loop mechanism to promote continuous optimization

In order to solve the problem of disconnection between management system and practice, dynamic feedback closed-loop mechanism should be implanted in management system, and the system operation mode with data-driven, problem-oriented and continuous improvement as the core should be established. Through real-time collection of operational data and feedback from teachers and students, regularly carry out management process review and optimization evaluation, timely find problems, adjust strategies, ensure that the management system is highly matched with the actual business needs, continuously improve the scientificity, flexibility and

execution of the management process, and truly realize the virtuous cycle and efficient evolution of the modern education management system.

5 Conclusion

Through the systematic construction and practical exploration of the modern educational management system of preschool education colleges, we can clearly see that the modern management system has played a significant role in improving the governance efficiency and educational quality of the colleges. With top-level design as the guide, hierarchical promotion and dynamic adjustment as the implementation strategy, the college has effectively broken through the problems such as administrative dominance, information isolated island and slow response in the traditional management mode, and constructed a new management mode characterized by intelligence, refinement and service. The collaborative construction of each subsystem realizes the optimization of teaching resource allocation, the perfection of teacher development support system, and the precision of students' comprehensive quality training path. Meanwhile, the continuous improvement of technical support system ensures the circulation and application efficiency of management data. The practice results show that the modern management system not only improves the management level and service efficiency, but also greatly promotes the overall leap of teachers' enthusiasm, students' satisfaction and education and teaching quality.

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