

# Analysis of problems and policies of management reform in higher education

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**Abstract.** Under the background of globalization and informatization, China's higher education management reform faces many challenges, including cumbersome administrative management, lack of transparency, and unequal distribution of resources. This paper aims to analyze these problems and put forward effective countermeasures. First of all, it is proposed to simplify the management process and enhance the transparency to improve the efficiency of decision-making and the fairness of resource allocation. Secondly, it emphasizes strengthening cooperation among universities, breaking barriers, promoting resource sharing and improving education quality. In addition, it is recommended to establish a comprehensive educational evaluation and supervision mechanism to ensure that colleges and universities follow rules and regulations and improve the credibility of education. This paper also discusses the key areas such as the reform of "management service", the integration of science and education, and the reform of personnel system, and puts forward specific reform measures in order to promote the modernization of higher education management system and enhance the international competitiveness of China's higher education.

**Keywords:** Higher education management, decision-making, resource allocation, supervision mechanism.

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## 1. Introduction

Education changes and develops with the development of The Times and the progress of technology. From mechanization, automation, computerization to informationization, the concept, goal, content, and mode of education have undergone major changes. The rapid development from informatization to digitization has given birth to the intelligent education which optimizes the teaching process and promotes the development of learners through man-machine collaboration. Smart education is a new form of education in the digital age, including integrated learning scenarios, flexible and diversified learning styles and flexible organization and management [1-3]. At the beginning of 2022, China launched the national education digitization strategy action to build a national smart education public service platform, bringing together 44000 basic education curriculum resources, 6757 high-quality vocational education courses, and 27000 high-quality MOOCs and experimental courses in higher education, expanding the coverage of high-quality education resources. It has effectively promoted the balanced development of education [4,5]. In 2023, China has successively issued the "China Smart Education Blue Book (2022)" and the "China Smart Education Development Index Report (2022)", and the popularity rate of smart education has continuously increased in both basic education and higher education. Based on its advantages of openness, sharing, interactivity, collaboration, digitization, networking and intelligence, smart education plays a positive role in meeting students' personalized learning needs, improving teachers' teaching ability and teaching quality, and realizing comprehensive, high-quality and balanced education.

At the annual meeting of the International Forum on Higher Education, experts also pointed out: "The digital era is a new stage in the history of human society, sustainable development is the golden key to solve global problems, and the sustainable development of higher education in the future will be better realized in the digital transformation" [6,7]. In the era of smart education, colleges and universities must innovate the concept of higher education, expand the connotation of higher education management, and improve the organizational structure of higher education management in order to effectively cope with the transformation and development of higher education.

## 2. Background and Importance of Management Change in Higher Education

Under the background of globalization and information age, the importance of China's higher education management reform has become increasingly prominent. This change is not only the need of internal development in

the field of education, but also an inevitable choice to respond to the national strategy and adapt to the needs of economic and social development.

1) National strategic needs. The Third Plenary Session of the 20th Central Committee of the Party made important arrangements for promoting the integrated reform of the system and mechanism of education, science and technology talents, emphasizing the construction of a system and mechanism supporting comprehensive innovation, and unifying it in the construction of a high-quality education system. As an important symbol of the national development level and potential, higher education needs to study and implement the spirit of the Third Plenary Session of the 20th Central Committee of the Party, take reform and innovation as the driving force, accelerate the construction of a high-quality higher education system, and provide all-round talent support and intellectual support for promoting Chinese-style modernization [8,9].

2) Scale and quality of education. China has built the largest higher education system in the world, and the overall level of higher education has entered the first square in the world. After experiencing rapid growth in quantity, the task of accelerating the construction of high-quality higher education system is more prominent.

3) Economic and social development needs. At present, the outstanding problems facing the promotion of China's high-quality development include unbalanced and inadequate development, and the innovation capacity does not meet the requirements of high-quality development. The solutions to these problems require constant reform and innovation in higher education.

4) Promote scientific and technological innovation. Scientific and technological innovations such as artificial intelligence are driving fundamental changes in the paradigm of education, and the ways and connotations of learning, the ways of human communication, the time and space of education, knowledge and information resources are all being reconnected and defined.

The importance of changes in higher education management is as follows:

1. Talent training. The reform of higher education management is of great significance for training high-quality talents to meet the requirements of the new era. Through the reform, the personnel training model can be optimized, the quality of personnel training can be improved, and the development needs of the country and society can be better served.
2. Scientific and technological innovation and service. Higher education institutions are important bases for scientific and technological innovation, and management reform helps to enhance the ability of colleges and universities to serve the major strategic needs of the country, enhance their scientific and technological innovation and serve the economic and social development.
3. Education equity and quality. Through management reform, education equity can be further promoted, education quality can be improved, and people's sense of educational attainment can be enhanced.
4. International competitiveness. The reform of higher education management helps to enhance the international competitiveness of China's higher education, promote China's higher education to the world, and contribute Chinese wisdom and Chinese solutions to the construction of a community with a shared future for mankind.
5. Digital transformation of education. The digital transformation of education is an important breakthrough to open up a new track of education development and shape a new advantage of education development, and is of great significance to the construction of a lifelong education system serving the whole people and a learning society.

Therefore, the reform of higher education management is a key link in the process of Chinese-style modernization, which has a far-reaching impact on improving the quality of education, cultivating innovative talents, and serving the strategic needs of the country [10-12].

Pedagogy provides the theoretical starting point of higher education management, especially in the aspects of educational purpose, educational value and human development in the process of education. The management of higher education must follow the basic laws of education, aim at training senior professionals, emphasize the adaptability of teaching content and subject development, and integrate scientific research into the teaching process. Management provides the foundation of organization theory, leadership theory, decision theory and system theory for higher education management. Higher education management emphasizes the rationality of organizational structure, the effectiveness of leadership and the scientificity of decision-making, while system theory helps managers understand the operation mechanism of higher education institutions as a whole system.

From the perspective of economics, higher education management focuses on the allocative efficiency of educational resources, cost-benefit analysis and the relationship between education and labor market. The research team of education economics analyzes the issues of higher education management from the perspective of economics, such as the source of funds and expenditure structure, and the reform of income distribution system. Sociology and political science provide organizational system theory for higher education management, emphasizing that the reform and system change of higher education are mainly reflected in the change of organization

and system. These theories help researchers to explore the practice of higher education management, including organizational theory, institutional theory and policy analysis. Higher education policy research is an important part of the theoretical foundation, involving the policy value orientation, value conflict and value evolution. Policy research not only analyzes the policy text, but also focuses on the deformation of the policy implementation process and evaluates the effect of the policy [13,14]. The construction of higher education management theory should not only have academic height and theoretical depth, but also have practical guidance. The book *New Theory of Higher Education Management* attempts to construct a new theoretical system of higher education management, starting from the basic categories of higher education management, such as positioning, essence, elements, laws, practice, environment and efficiency, and embodies the combination of theoretical constructiveness and practical guidance. Modern education management theory has important theoretical value to the reform of higher education management system. It promotes the change of the concept of the reform through the transfer of ideas, and provides the ideological basis and methodology guidance for the reform of higher education management system [15].

### 3. Current Situation of Management Reform of Higher Education in China

**Scale and system construction.** The scale of China's higher education has expanded unprecedentedly, and the system construction has been continuously improved. The growth rate of the number of colleges and universities and the number of students has accelerated significantly, and higher education has moved from elite to popularization.

**Quality improvement.** The quality and level of China's higher education has been continuously improved, its universities have been rising in the world rankings, and a large number of basic research and scientific and technological innovation achievements have been created in many fields [16].

**Management system reform.** China's higher education management system reform has made great achievements, but at the same time, many problems have been exposed. Reform the management system, while strengthening macro-management, resolutely streamline administration and delegate power, and expand the autonomy of schools in running schools.

**Administer education according to law.** China's higher education legislation has made remarkable achievements, establishing the legal person status, civil rights and autonomy of colleges and universities, and laying the foundation for the modern university system with Chinese characteristics.

**Open to the outside world.** China's higher education continues to open wider to the outside world, and international cooperation and exchanges are more extensive and in-depth, which has enhanced the international influence of China's higher education [17].

**Current challenges.** Despite the remarkable achievements, China's higher education still faces some challenges, such as the lack of close connection between higher education and economic and social development, the quality of personnel training is not high enough, and the scientific research and innovation capacity of universities is not strong enough.

To sum up, the history and current situation of China's higher education management reform show that China's higher education has realized the transformation from scale expansion to quality improvement while constantly adapting to the national development strategy and social needs, but it still needs to carry out in-depth reforms in management system, personnel training, scientific research and innovation to realize the modernization and internationalization of higher education.

### 4. Concept of Innovation Higher Education Management

Smart education is not only an important goal of the digital transformation of education, but also the future direction of education development [18,19]. In keynote speech at the World Digital Education Conference, Minister of Education pointed out: "Developing digital education and promoting the digital transformation of education is the trend of The Times, the need for development and the direction of reform, and it is also the aspiration, responsibility and contribution of educators". To effectively promote smart education, concept is the leader. In addition to adhering to the effective concepts of service management, system management, culture management and innovation management, colleges and universities should also innovate educational management concepts, such as attaching importance to digital thinking, suitable services and man-machine collaboration [20].

Wisdom education is the inevitable choice of education from the traditional era to the digital era. The development of smart education is based on digital transformation and digital upgrading, which promotes the transformation of the structure, function and culture of the education system by making full use of the advantages of digital technology in the education ecology, so that the education system has stronger operational vitality and higher service value. Specifically, the digital transformation of education refers to the integration of digital technology into

all levels of the education field, promoting educational organizations to transform teaching paradigms, organizational structures, teaching processes, evaluation methods and other all-round innovation and change, to achieve education quality and equity and support lifelong learning, so as to form a good education ecology with openness, adaptability, flexibility and sustainability. Therefore, in the era of wisdom, higher education management should not only pay attention to service thinking, innovative thinking, systematic thinking, but also pay attention to digital thinking [21,22].

Thinking determines behavior, and behavior determines results. Digital thinking is about understanding today's world in digital terms. In the digital age, in theory, anything can be expressed in terms of a structured set of numbers, and connections between things can be achieved through structured digital interactions. Moreover, digital thinking does not simply use numbers to think about problems, but takes numbers as the core factor of production and digital economy as the engine to recognize things systematically rather than locally, allocate resources, and reconstruct value as a whole and ecological thinking [23]. In the process of higher education management, we should pay special attention to the following aspects. One is digital awareness. Higher education administrators need a strong sense of numbers. Administrators of higher education should form the habit of recording data in their work, discover, collect and sort out data, and then find problems from the data, and use data to analyze and solve problems. The second is the structure of data. Knowledge does not work if it is disorganized in the mind; it can only work if it forms a structure in its own mind. The same is true of data, which can only be useful if it has a structure. The process of data structuring is firstly to summarize, sort, advance, disassemble, improve and supplement the messy data to form the core argument; Secondly, the structure is disassembled to form sub-arguments. Finally, it is to find out the causation and dependence relationship. The third is to empower thinking. Smart education involves the reconstruction of the role of the elements of the education system and the relationship between the elements, and the redefinition of the educational environment, educational strategy and educational means, which requires the participation of every teacher and student. Therefore, under the background of intelligent education, higher education administrators should have enabling thinking in the process of using digital technology. Empowerment mainly includes being good at delegating and stimulating the energy of teachers and students; Create a possible space for teachers and students to exert their autonomy; Arouse the enthusiasm of teachers and students and guide them to do the right thing. In addition, digital thinking also includes boundary-breaking thinking, collaborative thinking, product thinking, technology thinking and so on.

In smart education, data analysis technology provides a basis for scientific education decision-making, the application of big data makes the implementation mechanism of education governance more refined, real-time data feedback makes the supervision mechanism of education governance real-time, data sharing promotes the democratization of education governance coordination mechanism, and data push drives the humanistic education governance service mechanism [24]. Therefore, digital technology promotes the transformation of education paradigm from "supply-driven" to "demand-driven", and on-demand service is one of the basic characteristics of future education governance. "Management is service" has become people's consensus. The implementation of smart education needs to establish a service concept, demand-oriented, and provide suitable services. The needs of the education system are diverse and multi-level, such as the needs of human society, national strategic needs, social talent needs, teachers and students' development needs, etc. Only by appropriate services can the fundamental purpose of digital transformation be realized. In the management of higher education, we should pay special attention to the following aspects. First, output-oriented. The development of the digital economy, especially the rapid development of digital technology, has a profound impact on the demand of the talent market. The demand for digital born jobs, digital empowered jobs, and digital derived jobs continues to grow, while some common jobs, such as conductors, ordinary bank staff, foreign language translators, full-time drivers, are gradually dying out. The major setup of the university is to meet the needs of the society, and only the social needs can the major be established. Therefore, higher education administrators should conduct in-depth social investigation and prediction, not only to stop or add some majors according to social needs, but also to explore some new majors ahead of time through prediction.

Accordingly, the personnel training system should also be reformed. The second is intelligent service. Intelligent service refers to the service that can automatically identify the explicit and implicit needs of users and meet the needs "proactively, efficiently, safely and green" [25]. Specifically, intelligent services are on-demand and proactive services achieved through intelligence. In smart education, college administrators should first capture the original information in the process of education and teaching, and build a demand structure model through the data accumulated in the background. Secondly, data mining and intelligent analysis should be carried out to provide accurate and efficient services for teachers and students. Third, personalized service. Personalized education starts with digitization and becomes digital. With the development of society, especially the increasing diversity of social needs in the digital era, education has moved from large-scale education to ecological, decentralized, networked and life-oriented personalized education [26]. Moreover, digitization has created conditions for the development of personalized education. In the digital age, the individual realizes self-representation or

composition through the form of information; Educational objects are in situations and relationships, and big data necessarily includes the knowledge of these specific relationships or situations. At the same time, any individual can digitize the things he is interested in and post them on the Internet, which will become an important source of knowledge. Any individual can also obtain the cognition of the research object through the corresponding channel or technology. The large scale and precision of big data provide modern technical conditions and theoretical support for personalized education. In the face of personalized education, higher education administrators must provide personalized services, which must also be based on big data. The personalized service in higher education management should respect every teacher and student, love teachers and students, and make teachers and students have a sense of trust in administrators; To understand the different needs of teachers and students, we should not only understand what teachers and students want, but also predict what they do not want; It is necessary to carry out differentiated customized services to meet the different needs of students and make them grow healthily in personalized education.

Artificial intelligence is the study of how to make computers do the work that only humans can do in the past, or do the complex work that requires human intelligence to complete. With the continuous development of technology, many aspects have become possible, such as the development of "algorithms". Algorithm is a concept that can connect computer information processing with human cognition, and can be regarded as a new way of cognitive expression. It connects the expression of natural language with that of machine language, thus linking the cognitive function of human brain with that of machine information processing [27]. Then robots with intelligence, semi-autonomous or fully autonomous work came into being, forming a complex relationship between human and man-machine. Man-machine collaboration has become the main working mode of the future society, which brings challenges to the management of higher education. Higher education administrators must change their ideas and clearly recognize the following two aspects, so as to better realize man-machine collaboration. First, the two main bodies of management. In the past, the main body of management was human, but in the digital age, the management mode of man-machine and man-machine coexistence has gradually formed. Human-machine coexistence will be a typical feature of an intelligent society. Humans and machines must not only coexist, but also cooperate, sharing the same work area, but each carrying out different tasks. How to face the man-machine dual agents and maximize the role of the dual agents is an important issue that needs to be explored. The second is the advantages of man and machine. Machines are good at making informed decisions with large data sets; People are good at making decisions with less information. People can give a large number of data calculation and deduction, induction, analogy and other reasoning to the machine, the need to choose, decision, evaluation of creative work needs to be undertaken by people.

Of course, human-machine coexistence also brings new problems. At present, no one can clearly predict the various potential impacts of artificial intelligence, and if they are still developed to a certain extreme state, humanity will face countless data-dependent and algorithm-driven smart devices, and a society unconstrained by ethics or moral norms [28]. Higher education management will face a series of problems such as survival and ethics brought by man-machine coexistence, which need us to set up new concepts and gradually study and solve.

With the development of smart education and digital technology, various projects in colleges and universities are increasing rapidly. For example, around a certain scientific research task, university administrators can organize relevant researchers to form a project team, responsible for a series of work from project application to completion; Focusing on the various problems in teaching, the administrators of colleges and universities can organize professional teachers and administrators to form project teams to conduct in-depth discussions on related problems. Around the discipline competition, university administrators can choose related projects and form project teams to complete various matters in the competition process until the end of the competition; Focusing on cultivating certain abilities of students, college administrators can guide teachers to form project teams, recruit students in the whole school, and systematically train students' relevant abilities [29].

It needs to be further emphasized that the university should incorporate the project team into the organizational system as a governance unit, recognize its status, give it power, give it financial support, and incorporate it into the budget. Since the project team involves teaching, scientific research, funds, manpower and other aspects, colleges and universities should establish corresponding committees or functional departments to be responsible for its management. This is a new thing and the key to creating a matrix organizational structure that needs to be explored [30].

Informatization is the foundation of digitization, and digitalization is the upgrade of informatization. The digital age is the post-information age. The role of informatization is to increase efficiency and extend human capabilities. Digitalization is the use of information technology to subvert tradition, reconstruct and create a new way of production and life in the virtual digital space [31]. Without informatization, there can be no digitalization at all, but without informatization that subverts the traditional model, it cannot be counted as digitalization [32]. For example, the existing network and computing center and other institutions are mainly responsible for campus information facilities and network operation, part of the data collection and management, and other functional

departments are only involved in a certain aspect of school business information operation. Therefore, colleges and universities should aim at establishing digital management institutions, coordinate and upgrade the existing information management institutions, and be fully responsible for the digital construction of colleges and universities. The main responsibility of the university digital management institution is to be responsible for the university digital strategic planning, the formulation of institutional norms and the construction of the standard system under the leadership of the digital construction committee with the participation of senior leaders [33-35]. Responsible for the whole process management of digital construction projects; Undertake the construction and management of data resource governance system; Responsible for centralized management of campus network security; Responsible for guiding the digital construction of all units; Formulate assessment system and organize implementation.

## 5. Conclusion

In the digital age, education is the fundamental force for human beings to cope with artificial intelligence. It is inevitable for human education to enter the stage of wisdom education. Through wisdom education to cultivate people, fully explore people's potential, knowledge education into wisdom education, the corresponding higher education management transformation and reform is the key. How to ensure that everyone can enjoy high-quality educational resources fairly, how to effectively use modern tools to improve teaching efficiency, these are the direction of higher education to improve management efficiency in the digital era. Administrators of higher education should change with The Times, broaden their horizons, innovate their thinking, actively respond to the needs of the development of higher education in the digital era, improve management efficiency, and promote the high-quality development of higher education, so as to contribute to the early realization of higher education power.

## 6. Conflict of Interest

The authors declare that there are no conflict of interests, we do not have any possible conflicts of interest.

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