Logical Approach, Realistic Situation and Behavioral Selection of Higher Education Governance Empowered by Big Data

Wenshu Chang[1]

[1] Law School, Shanghai University, Shanghai, China

Correspondence: Wenshu Chang, Law School, Shanghai University, Shanghai, China.

Abstract

Big data has become an important tool to promote the transformation of higher education governance. In internal mechanism, the governance of higher education empowered by big data can continuously optimize the governance structure of higher education, enrich the governance subjects of higher education, expand the boundaries of higher education governance and update the governance rules of higher education. In terms of value logic, the governance of higher education with big data empowerment is mainly reflected in shaping data thinking, reconstructing value cognition, surpassing technical rationality and realizing characteristic development. At present, the governance of big data empowerment higher education mainly has practical difficulties, such as lack of institutional guarantee for data application, weak research ability of data technology, information risk in data based governance and technological governance ignoring the needs of the subject. In the future, the governance of big data empowerment higher education needs to further standardize data governance and improve the modern university system with Chinese characteristics. Mining data value to stimulate the internal power of higher education governance; Based on the whole data, realize the collaborative governance of higher education; In-depth interpretation of data, highlighting the people-oriented value orientation.

Keywords: big data, higher education governance, modernization of governance, data thinking, value cognition, technical rationality, following several governance

The Decision of the CPC Central Committee on Some Major Issues concerning Comprehensively Deepening Reform clearly states that the overall goal of comprehensively deepening reform is to improve and develop the system of socialism with Chinese characteristics and modernize China's governance system and capacity. Higher education, as the axis of post-industrial society, bears unprecedented mission and social responsibility in the development of national modernization. Realizing the modernization of higher education governance is the key to promoting the modernization of national governance system and governance capacity. Therefore, we should not only examine the development of higher education governance from the height of national governance, but also grasp the future trend of higher education governance from the macro background of The Times. At present, Big Data not only promotes the vigorous development of emerging industries and industrial restructuring, but also contributes to the reform of social governance system and mechanism. From a technological tool to promote social modernization, Big Data has gradually developed into a kind of Data thinking, which has become a new milestone in the information age. From data technology to data thinking, big data has penetrated into all aspects of social life, impacting traditional governance models and development concepts. In this context, how to apply new technologies, new methods and new thinking to the field of higher education governance has become a key issue to be urgently solved in the era of big data.

1. The Internal Mechanism of Higher Education Governance Empowered by Big Data

Data is the basic element of information. Big data, which is characterized by large capacity, multi-dimension, high processing speed and low value density, has both technical attributes and social attributes. Big data, with its ability of highly collection and in-depth analysis, collects a large amount of educational data and obtains educational information, refracts the value logic behind educational events and predicts the future development of education scientifically. Big data has become an indispensable technological means to promote educational modernization. It is also a governance tool to promote the flattening of higher education governance structure, the diversification of governance subjects, the opening of governance boundaries and the modernization of governance rules. (Releasing

the potential and value of big data is crucial for realizing the modernization of higher education governance, enhancing the international competitiveness of higher education and building higher education system with Chinese characteristics.

1.1 Big Data Optimizes Higher Education Governance Structure

Big data includes both its own logical structure and the organizational structure that uses it. Big data assigned to the process of higher education management, the internal logical structure and large data of higher education is both the governance structure of mutual fusion and mutual promoting process (big data influence on higher education governance structure is by changing the management information analysis, application, feedback and sharing, optimization of higher education management process, to promote higher education governance structure optimization.

First of all, data information exchange can break the closed hierarchical structure of higher education governance (driven by big data technology, traditional higher education governance from extensive to accurate, from block segmentation to flexible integration, from passive participation to active integration. From the vertical point of view, higher education governance power from the "school - school (department) - department" in turn, further expand the academic departments at the grass-roots level of administrative authority, make its own the daily teaching and scientific research power, and through the data technology consultation and decision making, actively participate in major matters of the excitation departments participate in the enthusiasm and creativity of university governance (from the horizontal point of view, From the perspective of large data, educational data can flow conveniently and efficiently among different functional departments, which helps to break through the limitations of bureaucratic management and experiential decision-making in higher education governance structure, and achieve the optimal governance effect through the cooperation of various departments.

Secondly, accurate data analysis can promote more accurate and efficient governance structure of higher education. Big data opens up a path for us to randomly obtain information, and sorts and analyzes massive data based on mathematical algorithms to improve the accuracy of data analysis. Adjusting and optimizing the governance structure with the help of big data technology is not only a challenge to the modernization of higher education governance posed by technological change, but also a beneficial exploration of higher education governance model. The innovation of governance tools is an important prerequisite and key factor for the precision of higher education governance. Education information through large data precision, dynamic and scientific analysis, can make the higher education management departments and responsibilities clear, interaction between the subject and efficient, and use the deep learning, knowledge mapping technologies such as the abstract of the governance process into specific data index, then promote governance process is concise and efficient, to further improve the governance structure of higher education.

Finally, the open sharing of data can promote the diversified balance of higher education governance structure. The data growth rate of big data is extremely fast, and the processing speed and flow speed of data are also fast, which can provide all-round and multi-perspective data support for higher education governance. In the internal governance structure of higher education, the openness, integration and sharing of multi-level, multi-dimensional and multi-structure educational data can help to guarantee the right of the governing bodies, such as staff and students, to know the important matters and important systems of the university, and ensure that the multi-subjects get equal and open participation rights in the governance of higher education. In the external governance structure of higher education, the embedding of big data technology can make education administrative departments and social organizations exert influence on higher education governance through a variety of digital channels, and help universities to accept the supervision and constraints of stakeholders.

1.2 Big Data Enriches the Main Body of Higher Education Governance

Higher education governance is not only the affairs of colleges and universities, but also related to the vital interests of the public. It needs to mobilize social forces to participate in all aspects. Big data changes the original information transmission mechanism, greatly improves the availability and openness of information, and enriches the governing body of higher education. With the support of big data, government-led public education institutions, enterprise-oriented social organizations, and the public can participate in higher education governance and effectively interact and collaborate with big data.

First, big data can provide new support for higher education governance to maximize public interests. With the rise of big data, the symbolic value of educational data itself has derived economic value, scientific value and other values, and become an important resource to realize the cooperation between universities and enterprises. On the one

hand, enterprises play an important role in the in-depth development and application of information technology, and deepen the industry-university-research cooperation with colleges and universities by virtue of their own advantages. On the other hand, the accurate analysis of complex information groups and interest chains by big data is conducive to the rational allocation of social public resources and the greater degree of resource sharing between universities and social organizations. Big data interactive technology can enable social forces to actively express their rights and interests in higher education governance and actively participate in higher education governance decisions.

Secondly, open data information opens up a new path for different subjects to participate in higher education governance. In the era of big data, thousands of data can be readily available in a moment, so that students, parents and social organizations can understand the real form of higher education governance through effective educational data, and participate in higher education governance as the main identity and consciousness. The integration of big data and media enables the public to express their voices and demands through various media platforms such as Weibo, wechat and Douyin. The rapid dissemination of information can often attract wide attention in a short time, thus improving the efficiency of problem solving. Big data connects different subjects into a data whole with the interconnection of information technology, dynamic high efficiency and objective sharing of data. By clarifying the role positioning of complex subjects and exploring the law and mode of effective interaction between different subjects, a pattern of pluralism and co-governance of higher education in the era of big data is formed.

Finally, pluralistic big data entrusts new responsibilities to the governance of pluralistic subjects in higher education. The main feature of higher education governance with big data empowerment is the diversification of governance subjects, which is also the essence of higher education governance modernization. The government is the key to the effective implementation of data governance in higher education. It is necessary to comprehensively consider the application and management of big data technology in macro planning and top-level design, and provide institutional guarantee for the development direction, interest integration, evaluation and accountability of data governance in higher education. Colleges and universities are important subjects of data governance in higher education. They should actively establish the consciousness of data governance and embed big data technology into the organizational structure, management system, resource allocation, discipline construction and many other aspects of colleges and universities. Society is also one of the subjects of higher education. Social forces with active and dynamic spirit are not only important forces to express their own interests and influence public education decisions, but also important forces to participate in higher education governance.

1.3 Big Data Expands the Boundaries of Higher Education Governance

The autonomy of colleges and universities determines that the governance of colleges and universities has its own organizational boundaries, which constitute different external governance relations with the state, society, government and market. In the process of the governance of higher education with big data empowerment, the governance boundary of higher education is constantly changing. Under the influence of data technology, the boundary between higher education and external government, society, market and internal functional departments presents new characteristics and mechanisms of action. Therefore, on the basis of maintaining its relative independence and autonomy, higher education governance should actively adapt to the change of higher education governance boundary brought by big data.

First, big data helps clarify the power boundary between the government and universities in higher education governance. Through big data collection and information integration, the government can have a clearer understanding of higher education planning and resource allocation. In order to realize the modernization of higher education governance, the government should transfer the functions and responsibilities that should be undertaken by universities and social organizations, and strictly regulate the boundaries of its own governance power. Big data technology makes the government no longer the absolute owner of information, and the public can obtain information through a variety of channels to supervise and restrain the government's public power, which to some extent can eliminate the disadvantage of excessive concentration of government decision-making power. In the higher education governance, the government no longer simply manages by administrative order, but exerts influence on higher education as "server" and "guide".

Second, big data helps to fuse the boundaries of authority and responsibility of various functional departments of higher education governance. As a governance tool, big data can help define the open scope, sharing degree and management standard of internal data of different universities, make the process and method of data governance clear, avoid overlapping rights and responsibilities and ambiguous functions, and improve the effectiveness of higher education governance. The inside, which is based on scientific and objective data platform, not only can break the information gap between departments, improve the efficiency of the department information docking and

collaboration, and to do their job, a clear division of responsibilities of higher education to provide technical support to the formation of internal governance structure, further regulate and standardize the independent power of the basic academic organization, and provide intelligent services for education teaching.

Finally, big data helps clarify the functional boundaries of the participation of multiple subjects in higher education governance. Under the background of big data, the governance mode of higher education constantly includes new governance subjects and contents, making the governance boundary of higher education develop in a dynamic direction. "The development of big data technology provides an opportunity to build an efficient and interactive multi-governance platform, making data open platform and interactive platform become the technical carrier for realizing social governance", and also become a technical tool for social organizations to contribute wisdom and strength to higher education governance through pooling their wisdom and efforts. Social organizations actively undertake part of the functions transferred by the government and universities, and work together with the government and universities to build a clear boundary, coordinated and orderly multi-subject governance structure of higher education.

1.4 Big Data Update Higher Education Governance Rules

National governance activities in the era of big data not only focus on the modern transformation of governance concepts and macro institutional framework, but also focus on specific micro governance processes and mechanisms, rules and procedures. Big data is a kind of information technology, and the regulation of technology application is the key factor to determine the data governance of higher education. Higher education governance should not only regulate and restrict the big data technology itself, but also standardize and redesign the governance content, governance process and governance paradigm of big data embedded in higher education.

First, the rapid development of big data requires the updating of higher education governance rules. Driven by big data technology, higher education governance order and rule system have undergone a series of changes, gradually from macro to micro. On the micro level, each functional department collects data according to certain rules and standards, obtains valuable data information from a large amount of metadata, analyzes and integrates different structured data information, and formulates corresponding rules for data storage, management and application. With new rules and regulations as the basic basis, big data technology innovates the way of coordination between multiple subjects, so that data governance of multiple subjects can not only ensure data sharing, equal rights and responsibilities, but also take into account the improvement of governance efficiency.

Second, the wide application of big data requires the updating of higher education governance rules. On the basis of the rapid development of information and communication technology represented by big data, our society is also stepping into an information age supported and powered by information technology. The goal of implementing big data governance is to create value for the organization, which is embodied in obtaining benefits, controlling risks and optimizing resources. The premise of the effectiveness of big data enabling higher education governance is to standardize and coordinate potential risks and information resources brought about by the application of big data through effective data governance rules. The embedding of big data in the field of higher education will bring about great changes in the mechanism, object and way of higher education governance, which requires the continuous updating of higher education governance rules to dynamically match the application of big data.

Finally, the multi-governance of big data requires the updating of higher education governance rules. The application of big data in the field of higher education is still in its preliminary stage. On the basis of improving the governance structure, higher education data governance should pay attention to the operation process of the structure, and realize the transformation and transcendence of data governance from form to substance. Dialectically, big data not only promotes the formation of multi-subject governance structure in higher education, but also magnifies the conflicts among different subjects in governance objectives, governance methods and ideas. Therefore, the power distribution and decision-making procedures in the process of multi-subjects' participation in higher education governance need to formulate corresponding rules based on governance tools and means to achieve the coordination and balance of interests of various higher education governance subjects and avoid the disorder in the multi-governance structure.

2. Big Data Empowers the Value Logic of Higher Education Governance

The new round of information technology revolution led by big data is profoundly affecting the rules and system of higher education governance and becoming an important force for the development of higher education. With the development of society, big data has gradually penetrated into all aspects of the higher education governance system. To a certain extent, some values preset by big data itself, namely the expectations and meanings conferred by different technological actors, have also provided the possibility of reform for the higher education governance.

Grasping the value implication of big data from the theoretical level is helpful for us to correctly understand the value logic of the governance of higher education empowered by big data.

2.1 Shaping Data Thinking: The Logical Starting Point of Higher Education Governance With Big Data Empowerment

Big data is not only a kind of technology, but also a way of thinking. It not only changes the governance tools of higher education, but also updates the ideological field of higher education governance, which has a profound impact on the governance thinking of higher education. Big data thinking is one of the driving forces of higher education governance reform, and its overall relevance, openness and divergence and multiple symbiosis run through the whole process of higher education governance. Modernization of governance thinking is the prerequisite for modernization of higher education governance, so only by changing ideas and setting up big data thinking can we provide a new vision for higher education governance.

First, the holistic thinking of big data emphasizes that higher education governance analyzes data from a holistic perspective. In the era of big data, we need to overturn the previous thinking logic of "seeing the big by the small" and speculating the whole from the part. We need to change our thinking mode from simply seeking the causal relationship of things to exploring the diversified and open correlation between things. The rapid development of information technology not only reduces the cost of information transmission and sharing in higher education, but also improves the dynamics of the various processes of higher education governance. Higher education governance involves system and mechanism, talent cultivation, academic evaluation, cultural construction and other aspects. Data governance enables data of different forms and structures to flow in different governance subjects and educational scenes, and can form a complete closed loop of data governance for complex educational governance issues.

Secondly, the relevance thinking of big data requires higher education governance to integrate data from an open perspective. Higher education is a social subsystem with multiple values, functions and complex management. The realization of its basic function lies in the organic integration and collaborative innovation of different disciplines, departments and fields in higher education. The integration of relevance thinking into higher education governance can innovate the working mode and governance ideas of higher education governance. Big data based on correlation can get rid of the limitation of traditional thinking pattern and break through the traditional governance boundary, and then realize the comprehensive governance of higher education inside and outside from a more objective, scientific and inclusive perspective by exploring the correlation between data.

Finally, the pluralistic thinking of big data encourages higher education governance to cooperate from multiple perspectives. The advantage of data governance lies in the use of big data to enable all governance bodies to participate in decision-making and management, form consensus in cooperation and consultation, and achieve governance goals.   Big data provides the most basic technical support for multiple subjects to widely participate in higher education governance. The pluralistic thinking contained in big data provides conceptual support for democratic dialogue and equal communication among multiple subjects. The pluralistic mode of thinking can not only promote the transformation of higher education governance from top-down management to joint governance by multiple subjects such as government, universities, market and social organizations, but also make the collaboration of multiple subjects more intelligent under the impetus of data technology, so as to effectively improve the efficiency and level of higher education governance.

2.2 Reconstructing Value Cognition: Big Data Empowers the Value Concept of Higher Education Governance

Technology not only exists in its instrumental material form, but also in its humanistic spiritual form. Digital technology has more and more profound influence on people's life, study and work, and has entered people's spiritual world, affecting individual thought, consciousness and behavior. Big data empowerment of higher education governance is not only the technical force to promote the modernization of higher education governance, but also the technical spirit that permeates the whole process of higher education governance, shaping the ideological spirit and value concept of higher education data governance.

First of all, quality improvement is the core value of big data empowerment higher education governance. With the deepening of the embedding of information technology into higher education governance, governance technology and governance value are shaping and merging with each other. In the face of the ever-changing influence of data technology, the governance of higher education needs to deal with the complicated interests in many aspects scientifically. However, no matter how change management technology, higher education management has always been to effective development of talent training and the steady improvement in the quality of the premise, with the

tools of technology to better guide of higher education to achieve the pursuit of truth, and in the service of the social responsibility of the advanced culture, to create scientific knowledge and cultivate talent outstanding professionals, provide advanced precise knowledge resources for the development of social modernization.

Second, people-oriented is the core concept of governance of big data enabling higher education. The development of society makes us pursue more and more tool renewal and technological transformation, in order to achieve deeper natural transformation and higher efficiency of social governance. The instrumentalization of rationality has gradually penetrated into people's ideas and cultural spirit. People's pursuit of technical rationality inevitably leads to the loss of humanistic spirit. As a special social and cultural organization, "higher education does not aim at pure utility, but at educating, developing, enriching and sublimating people's spiritual civilization with culture". Therefore, in the era of big data, higher education governance should always adhere to the people-oriented governance concept, and make use of corresponding technical means to release more humanistic care in each link of governance, so as to meet the diversified needs of education subjects.

Finally, collaborative governance is the core of governance of big data enabling higher education. With the support of big data, we can obtain relatively comprehensive data. Our vision is no longer limited to the influence of a single data, but to observe things from different angles. The essence of advanced data governance is to express the demands of different stakeholders to the maximum extent through the collection and analysis of data information and the presentation of data, so as to provide sufficient information support for collaborative governance. The change of the governance concept and values of higher education also promotes the development of the governance structure of higher education towards pluralism and co-governance. In order to coordinate the rights and responsibilities and interest relations among different subjects, the higher education governance involving multiple subjects should integrate big data thinking into the higher education governance concept and improve the ability to use data technology to coordinate higher education governance.

2.3 Beyond Technical Rationality: Reflection on the Value of Higher Education Governance Empowered by Big Data

Technological rationality is a kind of practical rationality and technological spirit rooted in human material demand and eternal dependence on nature. In the era of big data, higher education pursues normative, reasonable and functional governance, and is keen on improving the governance efficiency of higher education through technology. As technological rationality gradually dominates the governance of higher education, the institutional construction of higher education obviously lags behind technological innovation and the governance concept is subject to instrumentalism. Big data empowerment higher education governance should surpass technical rationality and realize the regeneration and unification of big data and higher education governance in technical rationality and value rationality.

First of all, the governance of higher education with big data empowerment needs to be based on institutional design. Big data empowerment higher education governance puts forward new demands for the corresponding top-level design. On the one hand, the rapid development of higher education benefits from the technical support of big data, and the embedding of information technology opens up a new governance path for higher education governance. On the other hand, the potential crisis and risk of technical rationality make higher education data governance face negative effects, so we need to regulate it in the form of legislation or standards. From the perspective of big data itself, the application of big data in the field of higher education governance is still in the initial development stage. In a word, new problems arising from big data in the application of enabling higher education governance need to be guaranteed by corresponding regulations and operating guidelines.

Secondly, the governance of big data empowerment is inseparable from the constraints and guidance of value rationality. Data governance leads multiple subjects to participate in higher education governance but also intensifies contradictions and conflicts among different interest subjects. The value of higher education governance lies in satisfying the interest needs of multiple subjects in higher education and coordinating the interest contradictions among different subjects. The value pursuit of the governance of higher education empowered by big data emphasizes more on pluralistic openness, decentralization and autonomy, and expands the public interests of higher education. No matter how drastic changes the development of science and technology brings to the governance of higher education, the technological governance has an insuperable bottom line. In the governance of higher education, it is clearly reflected in the shaping, enlightenment and liberation of human beings. Only by abiding by the bottom line of value rationality can the technological rationality in data governance be restricted.

Finally, we should deeply understand the nature of governance of higher education with big data empowerment in governance practice. The essence of higher education lies in the inheritance, integration, development and innovation of advanced knowledge. Higher education governance aims to realize the sustainable development of universities

and fulfill the mission of higher education. The era of big data is an era of explosive growth of knowledge and information, as well as the era of rapid development of science and technology. The richness of knowledge and technology greatly exceeds any previous period, but it also brings unprecedented challenges to social development. Therefore, in the process of higher education governance, we need to rationally grasp the technical rationality and explore the technical wisdom in practice.

2.4 Realizing Characteristic Development: Big Data Empowers the Value of Higher Education Governance

In the era of big data, different types and levels of higher education data are different, corresponding to different governance modes and organizational systems, which coincide with the characteristics of accurate analysis, openness and diversity of big data. We need to make use of the powerful data integration and analysis ability of big data to rationally allocate educational resources and plan development goals by constructing the big data platform of higher education, so as to meet the diversified development needs of higher education.

First, big data is conducive to improving the modernization level of higher education governance.   "Any data needs a material background, and data reflects the statement of matter and its relationship." Data governance and data innovation driven by big data provide technical support for in-depth analysis of complicated data in the teaching process of higher education, making it possible to accurately and scientifically explore the laws of education and teaching. For example, big data technology can carry out in-depth interpretation of students' course selection, evaluation information of courses and teachers, as well as relevant homework and test results, improve the attractiveness of courses of different disciplines to students, rationally arrange disciplines and make long-term plans for the development of disciplines and specialties. Under the influence of data technology, teaching mode and learning mode, education service mode and management mode are constantly innovating, thus promoting the modernization process of higher education governance, which is also the external motivation to realize the development of higher education characteristics.

Secondly, big data meets the diverse needs of teachers and students in colleges and universities. With the support of big data, teachers interpret students' learning performance and learning effect through learning analysis technology, and carry out teaching reflection and curriculum design; Students make full use of educational resources through online Learning platforms and communication software, so that their Learning behaviors transcend the boundaries of time and space and truly realize "Ubiquitous Learning". Through the analysis of students' personal learning data and life data, big data provides data support for teachers to provide refined and personalized guidance to students.   In short, the diversified and personalized information resources provided by the big data platform can provide all-round help for teachers and students' work and study, which is also the inherent requirement for realizing the characteristic development of higher education.

Finally, it is necessary to realize the characteristic development of higher education with the help of big data. Information technology with big data as its center has been applied in the field of higher education, but how to use big data to make colleges and universities "according to their own characteristics and advantages, reasonable positioning, accurate positioning, settle on the standard, carry out dislocation competition, achieve characteristic development" needs our extensive attention. China's Education Modernization 2035, issued by the CPC Central Committee and The State Council in February 2019, proposes to establish a sound policy system for the classified development of institutions of higher learning to guide their scientific positioning and characteristic development. Through the integration of the data related to higher education, big data analyzes the micro-differences in the governance form of each university, provides technical support for the realization of the characteristic development of higher education, optimizes the structure of higher education, and promotes the development of higher education to better adapt to the needs of economic and social development.

3. The Real Dilemma of Higher Education Governance Empowered by Big Data

Big data has extraordinary application value in higher education governance structure and system, governance subject, governance boundary and governance rules in the way of technology empowerment, and has become a technical tool to promote the modernization of higher education governance system and governance capacity. However, the essence of technology is the instantaneous interaction of specific people, matter, energy, information and social culture. The embedding of big data technology in the field of higher education brings both new opportunities and new challenges to the governance of higher education.

3.1 Data Application Lacks Institutional Guarantee and Technical Value Is Limited

System is more important than technology, and big data technology needs certain institutional constraints to give full play to its value. The process of higher education governance with big data empowerment is subject to the existing

institutional system of higher education. Only when the institutional logic of data technology is consistent with the existing governance system, can the effectiveness of higher education data governance be fully brought into play. The gradual deepening of the application of big data in the field of higher education governance has put forward higher requirements for the institutional guarantee of data application, but the current institutional construction of higher education data governance needs to be improved.

First of all, the application of big data in the higher education system has not yet formed institutional standards. There are different types of data information in higher education management, such as the recruitment of students examination, student management, faculty, degree discipline, financial assets, scientific research level, etc. The features such as these data are complex and miscellaneous, multi-dimensional, dynamic and make the data access, circulation, storage, analysis and application process more complex. It is necessary to adopt unified system standards in higher education governance to make the data governance process more standardized and standardized. However, higher education has not yet established a perfect data governance system, which not only affects the authenticity and effectiveness of data, but also reduces the scientific and reasonable governance of higher education empowered by big data, limiting the potential of big data as a governance tool.

Secondly, under the application of big data, the rights and responsibilities of multiple governance subjects in higher education need to be regulated urgently. Outside of higher education governance, big data provides a new opportunity for the government, enterprises, society and other multi-subjects to participate in higher education governance. Within the governance of higher education, big data has inspired new modes of interaction between different departments, departments, teachers and students in universities, and these new changes need to be guaranteed by sound institutions and policies. At present, higher education data governance fails to make clear institutional norms for the interest relationship and division of power and responsibility of different governance subjects and departments, which makes the rapid development of governance technology and stagnant institutional design form a strong conflict. In other words, only the simultaneous development of institutional construction and technological progress can promote the governance of big data empowerment of higher education to give full play to its technical value.

Finally, the institutional construction of big data to promote the characteristic development of higher education lags behind. Big data era, different levels and types of colleges and universities occupied position in the development of the society and the responsibility, development goals and subject orientation is different, the difference and difference can use big data information, digital precision analysis of the present, to promote the development of higher education features possible. The core of the governance system construction of big data empowerment higher education is to break through the institutional defects of traditional education administration and single-center governance with big data holism thinking. However, the current application of big data in higher education governance is still in the initial stage. While breaking through the dependence of traditional higher education governance path, the institutional system to adapt to the governance of big data enabling higher education is not yet sound, and the mechanism construction and rules and regulations behind the governance of big data are relatively lacking.

3.2 Data Technology Research Capacity Is Weak and Data Governance Drive Is Insufficient

The rapid development of information technology stems from the continuous creation of human wisdom and the choice of realistic needs, which is reflected in the vertical deepening and horizontal expansion of technology, which is also the internal driving force of technological upgrading and evolution. The main driving force of the higher education governance empowered by big data is that the iterative upgrading of data technology constantly injects new vitality and possibilities into the higher education governance. Therefore, the research ability of big data technology has a profound impact on improving the level of data governance. However, the weak research ability of data technology has become a big dilemma of data governance in higher education.

First, the lack of big data higher education governance research talents. Data governance is a new research field. The governance of big data empowerment higher education aims to improve the governance mechanism of higher education through the innovation of governance tools, and then promote the modernization of higher education governance system and governance capacity. However, at present, few colleges and universities offer relatively complete interdisciplinary majors such as data governance or data education governance in management or education, which makes the academic research on data governance in higher education lack of professional support.

Second, the governing body lacks the ability to analyze the governance of big data higher education. Only through analysis and interpretation can massive educational big data become available educational governance resources. Facing the rich education in higher education field data, the governance body needs changing governance thinking,

in the multivariate data structure change education phenomenon and explore the education problems behind the data, data with a broader thinking build a multiple governance of higher education system, implementation management thinking from prevention to forecast, from problem oriented to the data oriented, from causal relationship to the close relationship of three shifts. However, due to the lack of professional understanding of the new data governance structure and pattern, it is difficult to form data consciousness to analyze educational phenomena and make educational decisions based on empirical data, and lack the ability to analyze problems with big data thinking.

The third is the lack of technical advantage into the ability of governance efficiency. Effective integration, in-depth analysis, transmission and sharing of data can reveal the internal logic and external causes of higher education governance problems. However, in the process of applying big data to the governance of higher education, information barriers, data invalidation, information distortion and other problems make the decision-making of higher education governance more dependent on artificial causal inference, rather than the relevant analysis of empirical data. In the process of the practice of the application data governance, higher education governance body if the way of data governance, goals and levels and cycle number management concept the concept of lack of sufficient cognition and practice ability, it will be difficult to convert efficient technology tools to higher education management efficiency, this limits the big data can assign higher education management efficiency improvement.

3.3 Data - Based Governance Has Information Risk and Hinders the Release of Data Governance Efficiency

As an artificial force, science and technology has implied an element of risk since it was created by human beings. Big data empowerment higher education governance aims to complete the reconstruction of higher education governance process and governance system through technology embedding, improve the efficiency of higher education governance and reduce governance risks. Although higher education data governance has been well implemented, there are also many risks in the process of concrete operation, mainly in the following aspects.

First, data security risks. In the process of promoting the modernization of higher education governance with the help of big data technology, some real education problems are transferred to the virtual space of network and presented through multi-structured data. At the same time, the source and application of data are more and more extensive, and the security of data information has become the core problem of data technology development and research. Although data privacy protection technology has been developed to a certain extent, security vulnerabilities of big data technology always exist. Once the massive data information is leaked and maliciously used by others, it will bring sudden risks to every individual in colleges and universities, and even cause public information security problems and increase the instability of higher education governance.

Second, the risk of data dependence. The relationship between man and technology is not one of slavery and enslavement, but one of two-way dependence. Big data, as a "man-made" technology, is generated in human behavior. As a technical tool in higher education governance, it can materialize many elements and relations of data governance. Big data empowerment higher education governance not only provides new technical support to solve the problem of education governance, but also strengthens the mutual connection and dependence between different fields, different subjects and different things, which is easy to "pull one and move the whole body". The higher education governance process is prone to rely on data information due to the convenience and efficiency of data technology. In addition, the value of data itself is limited, so any deviation in data analysis and interpretation will lead to new governance problems.

Third, data ethical risk. Data ethical dilemmas brought by the application of big data technology continue to penetrate into education, increasing the risk of educational essence deviation and moral responsibility covering in the process of governance. Although the generation of data and the application of technology are objective, the analysis and interpretation of data and the use of technology by different governing bodies are inevitably subjective. The symbolization and digitalization of educational information cannot fully reveal the value and significance of educational phenomena. Digital analysis and evaluation also materialize people's accomplishment and potential to a certain extent. Therefore, the governance of higher education with big data empowerment should not only pursue scientific and effective governance tools and orderly governance procedures, but also consider the ethics and value pursuit of governance results.

4. Concluding Remarks

The rapid development of higher education benefits from the technical support of big data. The embedding of big data into higher education governance is not only an improvement of governance tools, but also an innovation of governance thinking. It is the basis and premise of promoting the sustainable and healthy development of colleges and universities to construct a university governance structure that meets the needs of society and conforms to

internal logic. However, technology itself is a "double-edged sword", which will automatically generate new crises and challenges while enabling higher education governance. Face the loss of data management system, data technology research ability is weak, the information in the following several governance risk and skill for success, we should set up the correct view of data, based on the overall data and mining the data value, depth data interpretation, make full use of big data to carry out the plural democracy management, enhance governance decisions more scientific, to improve the efficiency of higher education data governance, Promote the informatization development of higher education. At present, we have moved from the industrial age to the information age, and now ushered in the wave of the era of artificial intelligence. Higher education has also ushered in unprecedented changes. The application of big data in higher education governance is still in its preliminary stage, and there is still a long way to go. Education is a future-oriented enterprise, and higher education should ride the wind and waves, meet the trend of The Times, grasp technological change, and pursue outstanding development in the future.   In the future, we have every reason to believe that higher education can harness technology and surpass data, open up the path of higher education modernization in the era of big data, and lay a solid foundation for building a modern socialist country and realizing the great rejuvenation of the Chinese nation.

References

Li, L.-G. (2020). A theoretical framework to explain changes in university governance: from academy government-market to university-state-society. *Tsinghua Journal of Education, 41*(4), 1-9.

Qiu, Z.-Q. (2005). Inter-construction between technology and organization: a case of information technology application in manufactories. *Sociological Studies*, (2), 32-54.

Shen, Y.-P., & Chen, L.-Y. (2016). Study on the niche dilemma and optimization strategies in the modernization of higher education. *China Higher Education Research*, (3), 61-65.

Xuan, Y. (2015). Higher education governance in China: system construction, logic scrutiny and future outlook. *Journal of National Academy of Education Administration,* (9), 3-10.

Zhang, Y., Chen, E.-L., & Liu, J. (2021). Thinking on technology governance of school education ecology. *Journal of the Chinese Society of Education*, (4), 17-21.

Zhao, Z.-H., & Yan, S.-X. (2012). *From governance to good governance: research on university governance from the perspective of ecology*. Suzhou: Soochow University Press, p. 121.

Copyrights