



Research on University Information Governance through a Virtual Reality-Based Multimedia Information Data Decision Model

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Abstract : In the information environment of social development, education informatization is the direction of reform, and the application of computer multimedia technology to network information technology is the direction of university education development governance; This paper studies the university informatization governance under the traditional information decision-making and multimedia information decision-making models. The paper compares the efficiency of university informatization governance application and informatization system under two data decision models; The coupling degree values under the two decision models are analyzed; Through the conclusion, we can find that the development of college informatization under the multimedia information data decision-making model is more coupling, and the data mining analysis and reform of informatization education governance can better meet the needs of teachers and students. It provides more data theoretical support and research direction for the diversified development of modern education. It also promotes the development of higher quality and efficiency of university information governance.

Keywords: multimedia; Data decision model; promotion of information technology; University governance; Virtual Reality

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1 INTRODUCTION

With the rapid development of the Internet and big data, multimedia information data is applied in all walks of life. After years of development, many colleges and universities have accumulated a large amount of relevant data. By using the reasonable application of multimedia information to university information service, it can effectively make up for the shortage of traditional methods and improve the efficiency and quality of university information service. Therefore, we need to build a whole university-level data management process system through multimedia information and data governance. Research on data integration mode in colleges and universities, Virtual Reality (VR) technology provide new ideas for university data integration work, try to establish a unified standard management of university data organization structure, through the main data model, provide unified cloud-based data integration and sharing platform, realize internal data integration and sharing in

colleges and universities, for teaching, scientific research, management data decision support, improve the level of informatization in colleges and universities.

Lu Ying (2022) The popularization and application of information technology has greatly changed the traditional social way of production and life, and has been closely linked with various fields of society, among which, the development of big data and artificial intelligence particularly highlights [1]. Yu Gao (2020), as proposed in the Education Informatization 2.0 Action Plan issued by the Ministry of Education, will "basically achieve the development goals of" three high, two high, and one major "by 2022". Based on the premise of the development background of "big data + artificial intelligence", this paper further analyzes the current development status of colleges and universities in the process of realizing education informatization, and combined with the actual development experience of education modernization, and puts forward the targeted realization path [2] of university education informatization. Liu Haotian (2020) Big data technology is a product of the information age and an effective technology to process all kinds of massive data. In contemporary times, all kinds of data is not only numerous, and very complex, must establish perfect information library, to meet the needs of people, artificial intelligence technology is using computer technology, and simulate the people's thinking, ensure that the machine can imitate people's thinking and action to complete the specified work. Combining big data and artificial intelligence can ensure that they can give full play to their respective advantages, and their application in university information services will be of great benefit. There are many resources in big data, which can be used to ensure the continuous update and upgrading of artificial intelligence technology, so that the operation and work efficiency are constantly improved. The powerful computing power of artificial intelligence can ensure that various data is more effectively processed with [3]. Liu Junming (2019) The emergence of big data and artificial intelligence technology has brought about a change in information technology. With the rapid development of science and technology, artificial intelligence and big data technology are also becoming more and more mature. Colleges and universities also began to introduce these two technologies into the education cause of the school. In order to improve the information service level and efficiency of the school, colleges and universities integrated them, using the characteristics of the two technologies, application and development, opening up a new world. By analyzing the characteristics and benefits of big data and artificial intelligence technology, this paper expounds the specific application of these two technologies in efficient information services, [4]. Yang Xiao (2019) with the change of The Times, the arrival of big data and artificial intelligence, bring a lot of convenience to people's life, can be widely used in all walks of life, especially in college education, big data and artificial intelligence technology to a certain extent, accelerate the development of modern college education, make universities can effectively manage students, on the education mode also has a great promotion.[5] is explored by university information services mainly focusing on big data and artificial intelligence. Fan Di (2019) Driven by science and technology, people's lives have changed a lot nowadays. Various new technologies derived from information technology provide great convenience for people's lives. Big data technology and artificial intelligence are no longer unfamiliar topics to people. Since these technologies entered universities, they began to provide information services for universities. This paper will first elaborate on the characteristics and relationship of big data and artificial intelligence. Based on this basis, the role of big data and artificial intelligence in university informatization is studied, hoping to help more people understand the value [6] of big data and artificial intelligence. Zhou Xiao (2019) The arrival of the era of big data and the application of artificial intelligence technology have created new opportunities for the construction of information services in universities. Big data and artificial intelligence also actively practice the route of integrated development. On the basis of explaining the shortcomings of traditional information service mode in colleges and universities, this paper analyzes the application of big data and artificial intelligence in university teaching mode, student management, teacher and academic mechanism construction, and scientifically predicts the future development trend of information service in universities in [7]. Huang Hui (2019) The integration of big data and artificial intelligence technology has opened up a new world for the informatization of colleges and

universities to serve, and greatly promoted the development of university informatization. With the help of big data and artificial intelligence, colleges and universities informatization has been greatly improved in student management, teaching mode and other aspects, improving the quality of education in colleges and universities. Based on the advantages of big data and artificial intelligence in education, this paper expounds the specific application of [8] in information services in universities. Under the application of big data and artificial intelligence technology of Su-Yue (2019), the new student mechanism derived from it provides a new idea to solve this problem. The academic performance of college school students is not just a simple score, many colleges and universities adopt different scoring principles to comprehensively evaluate students' performance. Teachers input students' results into the teaching platform through comprehensive evaluation, and the information-based academic mechanism generates course grade points, so as to manage students at a hierarchical level. Relevant teachers give students timely suggestions through the final results to improve students' learning quality [9]. Yu Hang (2020) In recent years, the continuous development of information technology has affected China's education reform to a certain extent, and the information teaching level of colleges and universities will have a great impact on the teaching efficiency of colleges and universities. In order to fully meet the actual needs of modern teaching work, teachers should innovate the information teaching mode and teaching means of colleges and universities on the basis of the integration of multimedia resources, so as to improve the efficiency of the information teaching in colleges and universities in China by [10].

2 CURRENT SITUATION OF THE DEVELOPMENT OF COLLEGE EDUCATION INFORMATIZATION

In recent years, the education model of colleges and universities has undergone great changes. In the teaching process, each school has also actively applied a large number of educational products of artificial intelligence and big data, greatly improving the teaching quality. But in the actual teaching process, there are still many problems. At present, the information of teachers and students can not meet the current situation, and the application of information technology is still not enough. The development of information technology in education requires teachers to use advanced information technology to improve teaching quality. However, in the actual teaching process, the application of information technology is still insufficient, mainly in the aspects of lesson preparation, teaching and management. In the context of the current development of information technology, teachers can use various teaching methods to apply, and can improve the existing curriculum introduction by recording short video lessons. Combined with the current teaching situation, the main reason lies in the lack of software and hardware facilities for each advanced sample. There is no way to improve the advanced teaching mode.

3 COMPREHENSIVE MANAGEMENT OF UNIVERSITY INFORMATIZATION

3.1 Comprehensive Management of Public Security Prevention in Colleges and Universities

At present, most schools have completed the construction of data centers, but there are still many problems in data management, quality, collection, sharing and other aspects of information. As a necessary task of university informatization, the completion of university informatization data governance requires all business systems to solve the existing data unification and exchange problems, integrate the teaching and learning of teachers and students, campus daily life and other related services, and complete the sorting, management and integration of the data resources of the new and old business management systems. The specific objectives are to achieve the following, unify the standardization of data, and ensure the consistency of data; Sort, classify, manage and integrate the current campus data to ensure the quality of data; The connection between various

departments of the Divine Doctor Girls' School forms the shared data of the management system and realizes the data sharing; Provide the most even data governance and management for school informatization.

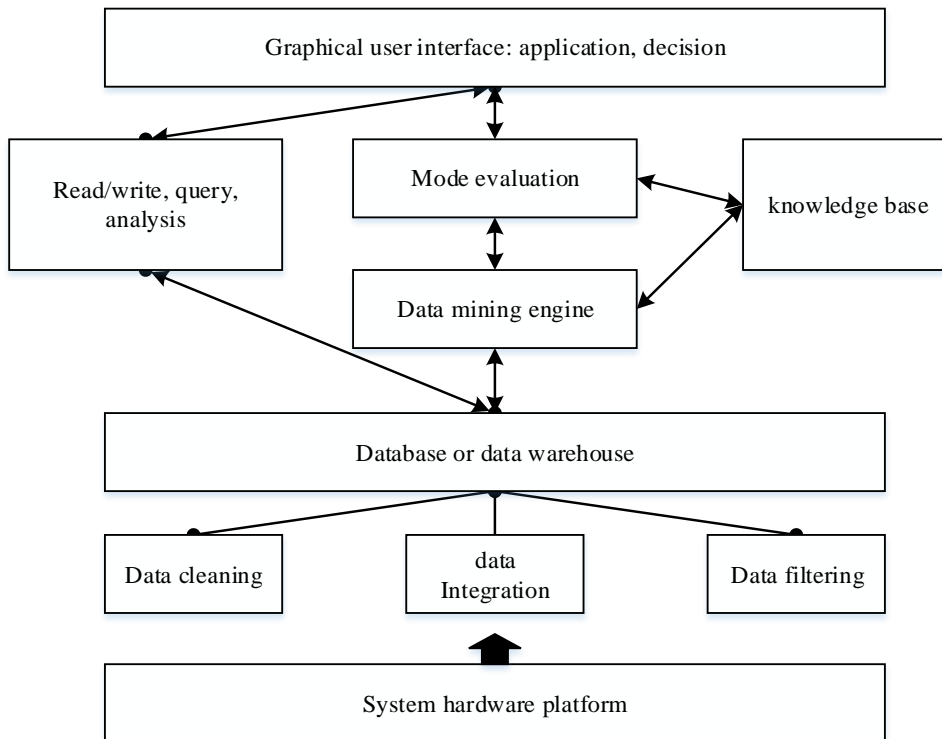


Figure 1: Model of University Informatization System.

As shown in Figure 1, this is the model diagram of the university information system under multimedia data mining. Compared with the traditional information system model, the data module under multimedia data mining can find hidden knowledge and rules from the long-term accumulated data, provide excellent problem-solving methods for system users, provide decision-making support for management, and give play to the governance ability of the university information system.

3.2 How to Ensure the Authenticity of University Information Data

How to ensure the authenticity of the data sources? Under normal circumstances, what the data reflects is likely to deviate from the actual situation. For example, how to analyze students' classroom attendance, self-study, sports and other problems through data, we should effectively prevent credit card behavior. Therefore, we must jointly judge the students' daily learning situation through fingerprint recognition, iris recognition, face recognition and other big data sources, in order to ensure the authenticity of the data.

3.3 How to Protect the Security and Privacy of University Data

The large amount of leakage of personal information has seriously affected our daily life. How to collect these data from these data. What data can be used for analysis, how to save the data, and

if the results are analyzed. These must have clear confidentiality rules, and we must ensure that teachers and students are informed and agreed to provide some relevant data to the school for data analysis. At the same time, we should also ensure that these data are not disclosed, and do a good job of protecting teachers and students and schools to prevent criminals from having ulterior motives.

3.4 How to Construct University Informatization Performance Evaluation

In the era of rapid development of informatization, the development of university education information should also keep pace with the development pace of The Times. In view of the development of university education informatization, university teaching and research personnel should pay attention to the development direction of education informatization of performance evaluation. In preparing to build the school multimedia information evaluation, we must grasp the elements of all aspects, to analyze from the four aspects of applicability, cost, efficiency and utility, to improve the compliance degree of multimedia university informatization. In view of the evaluation of university informatization, we must pay attention to the evaluation of the application and transaction of information elements in the evaluation index. Under the guidance of objective and accurate evaluation results, the university informatization can have further resources, integration, demonstration guidance and innovative development.

3.5 How to Apply University Information Services to Student Management

The most critical group in the college information service is the college students. At the beginning of enrollment, you can use big data and artificial intelligence technology to make information statistics of various data for the newly enrolled students. Student management is a very complex work. If big data and artificial intelligence are used in student management, the efficiency of student management can be greatly improved. Due to the complexity and arduous task of student management, great requirements have been put forward for the quality of management personnel, and there are a large number of students. When students are managed, a variety of data will be generated. For example, the dormitory distribution of students in school can be divided according to their majors, specialties, nationalities and other aspects to provide the best solutions for students in school. These massive data can be efficiently managed using big data technology and artificial intelligence technology. When managing students, we need to use big data and artificial intelligence technology to reasonably arrange students' lives in all aspects. At the same time, AI technology can also be used in campus security management. Through the help of face recognition technology, intelligent access control and other intelligent systems, we can timely find many potential security problems around the campus, provide students with a high-quality learning environment, and effectively protect the safety of teachers and students.

4 MULTIMEDIA INFORMATION AND DATA DECISION MODEL

4.1 Analysis of University Informatization Application Under Different Decision-Making Models

In the development of university information system, the screening and statistics of massive information is an important task. In massive data, students' data information is mined through multimedia information data decision-making. The workload caused by huge data accumulation seriously lags behind the data analysis efficiency under the traditional data decision-making model; It is more convenient to mine and predict students' behavior and psychology in big data and multimedia information data decision-making, which provides a more advantageous decision-making method for teachers' management and reasonable placement. The following table is obtained by

comparing the university informatization application analysis under traditional decision-making and multimedia information decision-making models:

Group	Teaching evaluation	Student characteristics	Curriculum	Employment forecast
Traditional data decision model	42.36	44.85	50.77	53.61
Multimedia information data decision model	81.42	83.33	79.41	85.41

Table 1: Application of university informatization governance under different decision-making models.

As shown in Table 1, from the data in the table, it can be found that the teaching evaluation under the multimedia information data decision-making model, the analysis of students' characteristics, the rational setting of courses and the employment prediction of students are better. Explain that the use of big data and multimedia data for decision-making has advantages in analyzing data and classifying data, promoting the development and governance of informatization; The following figure is obtained by visualizing the data in the table.

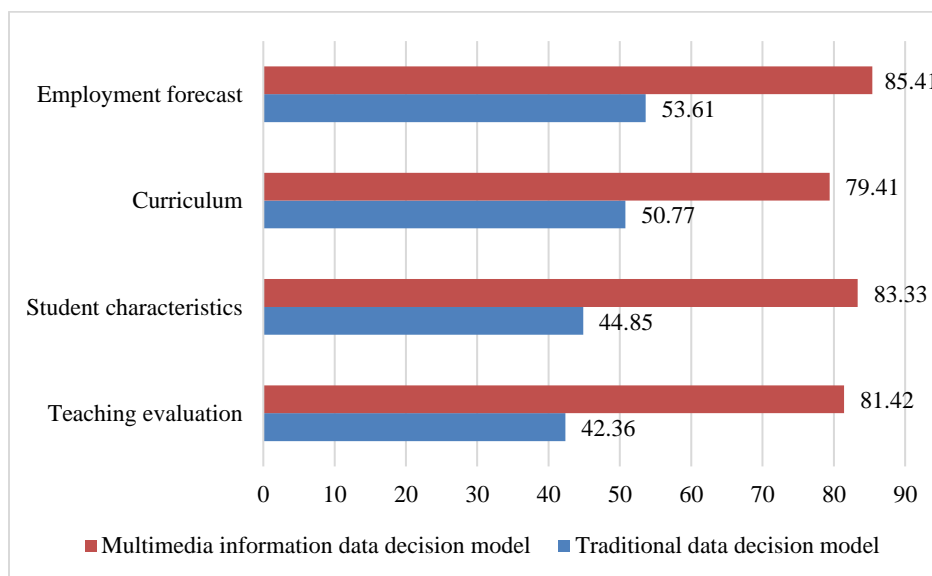


Figure 2: Visualization of university informatization governance application under different decision-making models.

As shown in Figure 2, the application of university informatization governance based on the multimedia information data decision-making model is more consistent with the development of university informatization. Under the overall planning and decision-making of data, university informatization governance is more convenient for the school managers and decision-makers to make educational reforms, and make more reasonable management of students' practical courses, employment placement and assessment.

4.2 Application Efficiency of College Education Informatization System Under Different Data Decision Models

In the informatization governance and management of colleges and universities, through the application and management of computer multimedia technology and big data technology, it plays a greater positive role in the development of education reform and decision-making management. As an important project in the informatization governance of colleges and universities, the education informatization system is the core content of teaching informatization, The structure of the student status management system will bring greater convenience to the informatization governance of colleges and universities. The following table is obtained by comparing the efficiency data of the education information system under the data decision-making model:

<i>Group</i>	<i>Student work management system</i>	<i>Enrolment and employment system</i>	<i>Salary management system</i>	<i>Student status management system</i>
<i>Traditional data decision model</i>	52.33	49.2	55.42	53.18
<i>Multimedia information data decision model</i>	82.56	84.13	88.47	86.24

Table 2: Efficiency analysis of university education informatization system under different decision-making models.

As shown in Table 2, it can be seen from several classified management systems in the table that the educational information management system under the multimedia information data decision-making model is more efficient and has a wider impact on the governance of the school; Under the multimedia decision-making model, the function of data mining is more abundant; The following figure is obtained by visualizing the data in the table:

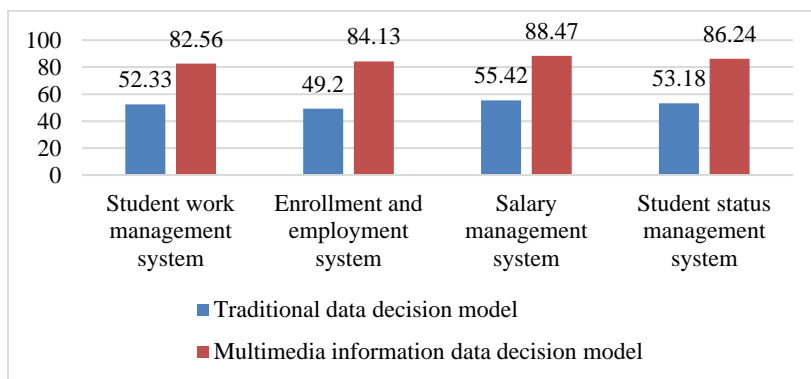


Figure 3: Visualization of efficiency analysis of university education informatization system under different decision-making models.

As shown in Figure 3, the education information system under the multimedia information data decision-making model can make greater use of and develop the rich knowledge and laws hidden in the university data statistics. These huge data, like the gold mine buried in the mountains, must be fully utilized and developed to help university decision-makers play a role. Through multimedia technology, data mining can improve the function of information system, make university governance work smoother, and maximize the utilization efficiency of education information system.

4.3 Analysis of University Informatization Coupling Under Different Data Decision-Making Models

Under the information environment, the management of schools also faces greater pressure; The sources of information received by students are more complex, and the types of information they receive are more diverse. In the information governance, more optimization is made to the university information management system through data mining and decision-making models to make it more coupling. Compared with traditional data decision-making models, it is more technical in terms of in-depth data mining. By comparing the coupling values of university information governance under traditional and multimedia information, the following table is obtained.

Group	Coupling degree of university informatization governance	
	Before coupling	After coupling
Traditional data decision model	46.58	51.33
Multimedia information data decision model	62.34	88.47
<i>t</i>	8.023	7.256
<i>P</i>	0.035	0.021

Table 3: Comparison of university informatization governance coupling under different decision-making models.

As shown in Table 3, it can be seen that the coupling degree of university informatization governance under the multimedia information data decision-making model is higher, with coupling. The effect of informatization governance in colleges and universities is more consistent with the campus development environment. The data mining based on big data and the data collection characteristics of multimedia provide excellent technical environment support for the development of informatization in colleges and universities; The data $t < 10.000$, $P < 0.05$; The data are statistically significant. The calculation formula is required:

$$\sum_{i=1}^{n,m} x_i, \sigma_x = \frac{1}{n-1} \sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \quad (1)$$

Among: \bar{x} is the arithmetic mean of the investigated sample sequence; μ is the average value of the reference sample sequence; N is the number of nodes of the investigated sample sequence; M is the number of nodes in the reference sample sequence; σ_x is the standard deviation rate of the investigated sample sequence. In order to better understand the coupling degree analysis of university informatization governance, the data in the table are visualized and processed as follows.

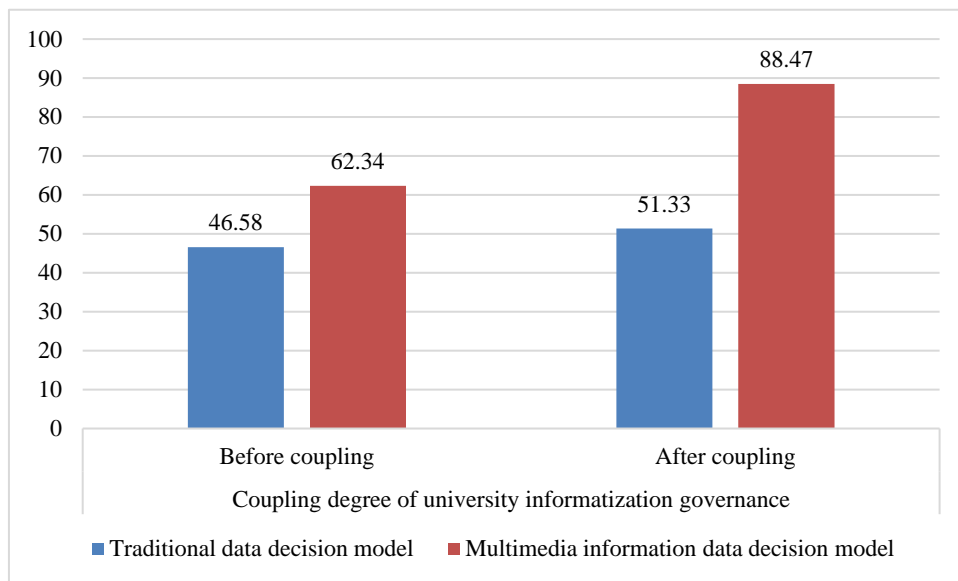


Figure 4: Comparison and visualization of university informatization governance coupling under different decision-making models.

As shown in Figure 4, the coupling degree of university governance is higher under the multimedia information data decision-making model; In the current construction and development of colleges and universities, the use and management of campus resources, teachers and students' resources and decision-making management need to meet the requirements of the development of the times. With the change of big data and multimedia technology, the informatization process of education is accelerating, and students are receiving more diversified informatization. In the face of the diversified and diversified development of the university environment and knowledge transfer environment, the use of new intelligent data decision-making processing university information system management is more intelligent and high-quality.

5 SUMMARY

Nowadays, the development of college informatization will become a valuable asset of colleges and universities. Due to the lack of traditional college multimedia information in the early stage, multimedia information cannot better serve colleges and universities. With the rapid development of network information construction, multimedia information has been integrated into our work and living habits. Multimedia informatization will be better integrated into the management of colleges and universities. Through the research in college informatization construction, It can well sort out the problems existing in college informatization, effectively promote the construction of college informatization, and provide accurate services for all aspects of college management. College informatization services can greatly improve the level of education management, and can predict problems through various data analysis, which can help ensure the sustainable development of the school. It is also conducive to the improvement of current education in many aspects. The functions of the university information management system need to be further improved. The compatibility of each system is limited, and there are some problems with data redundancy, which will lead to the ineffective use of information and the failure to provide reference for decision-making. As the function of the information management system is relatively single, it cannot play the role of data decision-making. Therefore, we should actively integrate the existing data resources to achieve resource sharing. Zhang Ning (2020) The degree of university education information management is one of the main standards to measure the level of sample teaching and scientific research in higher universities. Scientific and effective information management and evaluation can play an important role in the process of promoting the reform of higher education [11]. Tian Hao (2021) Artificial intelligence technology is one of the rapidly developing artificial intelligence technologies in recent years, and it has gradually begun to be applied in all walks of life. The application of artificial intelligence technology in the information service of colleges and universities can realize the network security guarantee, the file management and the intelligent laboratory control of colleges and universities. Artificial intelligence originated in the 1950s, and has experienced several ups and downs due to many technical bottlenecks. With the support of new artificial intelligence technology, [12] has been represented by big data.

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