Analysis of the Improvement Path of University Leadership Based on Campus Big Data

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Abstract: Leadership is the foundation for improving the ability of universities to run schools. The formation of campus big data environment provides new opportunities and ideas for improving college leadership. This article gives a path for campus big data to help colleges and universities enhance leadership and takes the construction of student big data decision models as an example to illustrate that big data can play a positive role in improving college leadership.

1. Introduction

With the development and needs of the times, college education has ushered in new opportunities and challenges. All colleges and universities can meet the needs of society for high-tech talents only by improving their ability to run schools. Leadership is the foundation for improving the ability of universities to run schools. The leadership of college leaders has improved, and the overall quality of teaching in schools can have a qualitative leap, thereby increasing the charm of education.

At the same time, with the continuous development of information technology, technologies such as the Internet of Things, cloud computing and big data have been widely used, the continuous construction of digital campuses and "smart campuses" in universities, and the continuous increase of campus management application systems and campus card service platforms, the data accumulated in the campus information environment is also gradually expanding, and a relatively complete campus big data environment has been formed.

This paper first gives the path of campus big data to help improve the leadership of colleges and universities, and then takes the construction of student big data models to improve the management ability of college leaders as an example to illustrate that big data can play a positive role in the improvement of college leadership.

2. Big data environment of campus construction

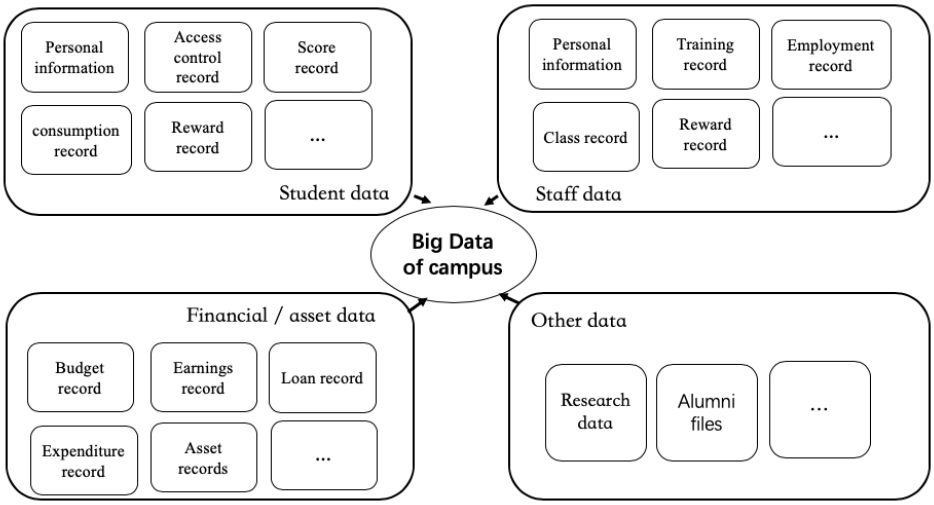

Figure 1. Big data environment of campus

In recent years, the informatization level of various universities has been continuously improved, and data platforms including student consumption data, student performance data, academic affairs attendance data, library loan data, access control data, network access log data, etc. have been gradually formed. These data platforms constitute the big data environment of the campus, and provide a data foundation for analyzing, processing, and mining the potential laws in the big data environment of the campus and improving the school's management decision-making ability.

3. Build big data models to improve college leadership

Decision-making is an important function of management and an important embodiment of leadership. Decision-making runs through the entire process of university construction, involving all stages and aspects. Whether leaders dare to make decisions and make good decisions is crucial to university construction. Once any of the tasks is improperly made or wrong, it may cause opportunities to slip away. Or it may lead to a situation of "losing all in one accident". Only correct decision can guarantee the progress of university construction.

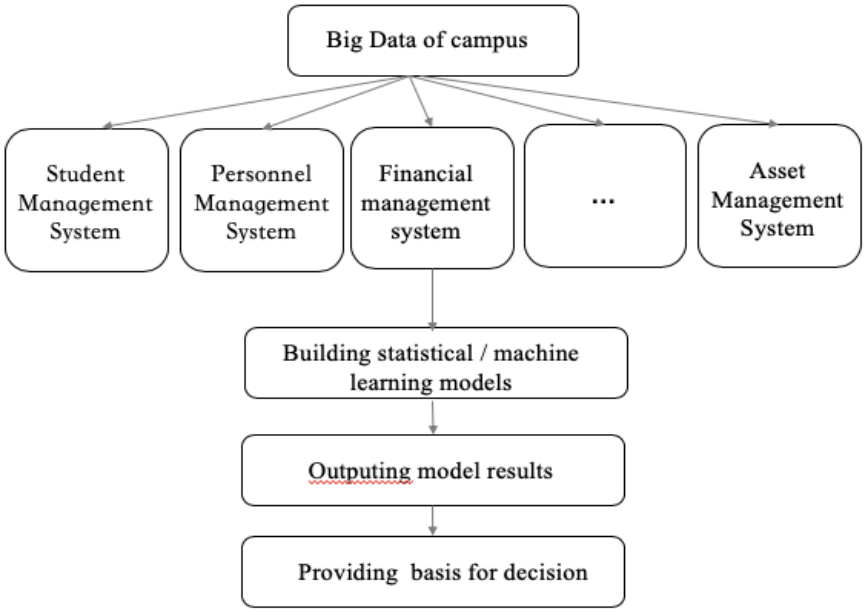

Figure 2. Flow chart of big data decision

Due to the timeliness, complexity and systematic characteristics of modern decision-making, leaders also need to properly handle the relationship between the present and the future, the local and the overall, to ensure that each decision is authoritative, reasonable and scientific, and This requires the leader to have a very strong and comprehensive quality.

In the big data environment of campus, we can use big data technology to build statistical or machine learning models, mine hidden rules in the data, make predictions and judgments on future trends, and provide a basis for university leaders to make decisions. For example, the application of big data technology to the analysis and prediction of massive teaching management data leads to the promotion of teaching models and the realization of high-quality, personalized teaching alternatives.

Effective management is the focus of leadership. Successful leadership is inseparable from successful management. After the leader makes a decision, it is necessary to evaluate the effect of the plan after the decision, that is, whether effective management has been achieved.

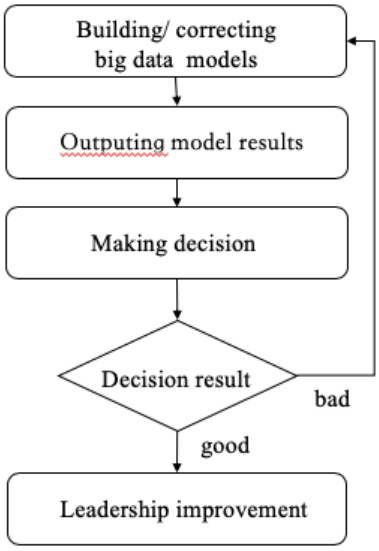

Figure 3. Flow chart of decision effect evaluation

The big data model helps university leaders make decisions. We then evaluate the effect of decision-making and continue to revise the model based on the evaluation results, so that the big data model assisted decision-making can achieve effective management, and then achieve the purpose of improving college leadership.

4. Example

The campus informatization platform comprehensively records student consumption, access control, grades, rewards and other data. This paper considers constructing different models through big data mining technology, and applying the model results to decision-making, in order to improve the leadership of colleges and universities in student management. The idea is as follows:

(1) Student behavior analysis and feature extraction. Use the student management platform to analyze student behaviors such as learning, consumption, and rest, observe and extract the characteristic variables in the data to prepare for the subsequent model establishment.

(2) The construction of student performance grade prediction model. Divide student grades into five grades: excellent, good, medium, pass, and poor. Use machine learning algorithms to classify and predict student grades using feature variables that may be related to grades extracted from student behavior analysis;

(3) Construction of student friend relationship detection model. From the perspective of a complex network, data such as consumption and access control are mapped into a dichotomy network consisting of a collection of student nodes and a set of time gaps and location pairs, and the method of multiple verification is used to statistically verify the student relationship to get closer to the true student friend relationship Internet, and analyze the basic characteristics of the student friend network obtained;

(4) Construction of identification model for poor students. Based on the relevant feature variables extracted from the analysis of student behavior, clustering algorithms are used to mine students' consumption behavior, and a poverty index model is constructed to calculate the poverty index of students to help identify poor students.

(5) Model debugging. Repeated verification and debugging of the model and algorithm to improve the accuracy of the model and the reliability of the results.

(6) Model result output. Summarize the results of the model, put forward suggestions and plans on student management, and provide college leaders with assistance in decision-making.

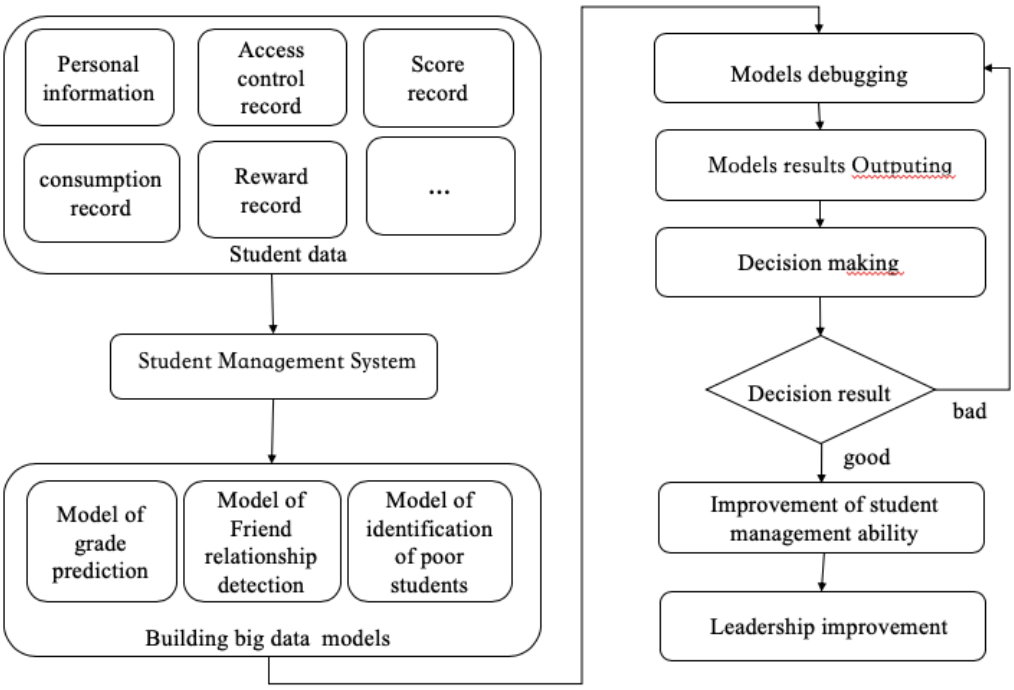

Figure 4. Flow chart of student big data decision

5. Conclusion

This paper gives a path for campus big data to help college leadership improve and builds a student big data decision model to provide new ideas for improving college leadership.

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