

Optimization and Development of Intelligent Management in Education in Teaching Management of Universities

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Abstract: In response to the current problems of outdated management concepts, lack of personalized teaching, unreasonable evaluation systems, and outdated curriculum settings in university teaching management, this article would use educational intelligent management systems to study the optimization and development of university teaching management. By constructing an intelligent management system for education, this article describes the use of student registration management, course scheduling management, and teaching management functions. This article applies it to the teaching management of universities to better carry out intelligent teaching, exam management, and course management, promote the upgrading of school management concepts, and provide a more reasonable evaluation system. This article conducted a survey on students from School A and found that they rated the application of educational intelligent management systems in university teaching management at 9.29 points or above (out of 10 points), and the average score of the 20 students selected after use was 9.535 points. This article applies intelligent management of education to teaching management, which can raise teaching management's bar and increase its efficacy over time. It can also help develop exceptional talent and raise educational standards.

1. Introduction

In traditional university teaching management, the entire teaching process is not only inefficient, but also very prone to errors, which has a serious impact on teaching management. Through information processing, higher education can effectively integrate teaching and student management, and maintain security and accuracy throughout the entire use process. Through information management, school administrators can also stay informed of the school's various management processes at any time, and through this process, the following staff can also have a better understanding of the school's management system, greatly improving work efficiency.

The application of educational intelligent management system can make teaching management more effective, simplify the operational steps of teaching management, reduce teaching management costs, and improve teaching management level. At the same time, it can also make management more fair and transparent, with clear rights and responsibilities, and make management

personnel more responsible. Intelligent management can also make management information public, involve teachers, students, parents, etc., in teaching management, enable everyone to view management inspection instructions, and provide good services.

2. Related Work

Teaching management in universities refers to the process of planning, organizing, coordinating, and monitoring teaching through management and evaluation processes, in order to achieve educational goals and improve teaching quality [1]. A virtual reality-based vocal instruction management system was suggested by Sudu Langteng. In order to decrease the computational complexity and time needed to extract the primary melody of the human voice, he improved the spectral properties of vocal signals using the pitch saliency function calculation approach. His proposed model has the potential to enhance the main melody model's recognition accuracy, lower the false alarm rate during melody localization, and boost the overall accuracy of vocal main melody extraction [2]. Balkaya Selen studied the factors that affect the behavioral intention of primary and secondary school teachers to adopt learning management systems. In order to observe the impact of individual and organizational level characteristics, multiple sets of structural equation modeling analysis were conducted. He reported on the differences in relationships and compared the evaluations of users, non users, and teachers in different fields [3]. Nguyen Nhu-Ty believes that learning management systems are an important means of knowledge acquisition and learning management in the digital age, and explores the factors that affect learners' satisfaction with learning management systems. He discovered the impact of announcement systems, teaching information, interaction, and technological quality on the usefulness of learning management systems, and the impact of learning management system usefulness on their satisfaction [4]. In summary, many scholars have conducted research on teaching management in universities, but there are still some shortcomings in student satisfaction. This article would use intelligent management in education to solve them.

The term "intelligent management of higher education" is a management approach that enhances university administration and instruction by fusing information network technologies for higher education with traditional classroom instruction [5]. Fu Chao believes that with the application of big data, there have been significant changes in university education management. Universities also need to optimize and adjust their education management work to ensure that student management can meet the management needs of the big data era, effectively improve various education management work, and provide students with a better learning environment [6]. Ahmed Alim Al Ayub aims to focus on enhancing intellectual content creation methods for learning management. He suggested a technique for creating automated material using semantic techniques and embedded artificial intelligence, utilizing learning management systems and incredible recommendation mechanisms to improve traditional learning management systems and restructure the value of online content distributed on the internet [7]. Tan Weizhi aims to analyze the potential risks caused by using algorithms and computational models to quantify and calculate education in artificial intelligence education applications, analyze their root causes, propose risk management suggestions, and advocate for teachers' dominant position in artificial intelligence education applications based on the principle of putting people first [8]. Overall, intelligent management of higher education can effectively assist students in learning and improve their satisfaction with teaching.

3. Intelligent Management of Education in Teaching Management of Universities

3.1 Intelligent Management System for Education

The Intelligent Education Management System (IEMS) is an intelligent education solution aimed at achieving digitalization, automated management, and intelligent management. At the same time, IEMS can also control students' learning behavior. Through the application of technology, the system can identify individual students and provide personalized learning suggestions and activities based on their learning behavior and grades, helping them learn better.

3.1.1 Student Status Management

This model mainly includes activities such as student personal information management, rewards and punishments, and student management. Student enrollment management can be simply divided into two parts: one is for each student to enter the system separately, and the other is to batch download student information documents into the system according to certain principles. Reward and punishment management also includes recording who was rewarded or punished, when, and why. Student management is usually completed by the student leader, and can also be divided into two parts. One part is to report the absence of students to the school, provide student numbers, etc.

3.1.2 Course Scheduling Management and Course Selection Management

The course scheduling management system is used by universities to organize courses based on past teaching activities, course nature, and the number of students in each department and major. It takes the class as a unit, coordinates and determines the teaching plan, selects designated teachers for classes, and creates courses [9-10]. Course selection management is mainly focused on students. After logging into the system, students can view the status of available courses on the browser and choose courses that are suitable for them based on their interests.

3.1.3 Teaching Management

Teaching management refers to the process of planning, organizing, and managing schools, institutions, or teaching activities [11]. Among them, the management of teaching teachers mainly involves the management of teaching teachers, reviewing and approving their course opening applications. It has the function of batch import and provides links to the learning management system, enabling the exchange of course or selected course materials with the learning management system. Table 1 describes the work of teachers in the classroom management module.

Table 1: Analysis of Teacher Teaching Management

Serial number	function	Description
1	Course lead teacher management	The management of the lecturer of the course is the management of the lecturer of the course. Through this function, the teacher of the course can be better managed, which is more scientific and reasonable.
2	Approval of course application	The approval of the application for the start of the course is the approval of the information to be started, including the information of the course, as well as the information of the instructor, the class time information, etc., and only after passing can students be allowed to choose courses.
3	Introduction of teachers as teachers	Batch import the information of the teachers in charge to facilitate the management of the teachers in charge.

3.2 Intelligent Teaching Management in Universities

3.2.1 Intelligent Teaching

IEMS can assist teachers in completing courses during class, guide students in learning during class, and also assist students in answering questions and resolving doubts after class. IEMS can assist students with preview, in-class, in-between, and post-class deep learning, as well as with changing their preferred learning style, enhancing their overall learning experience, as shown in Figure 1.

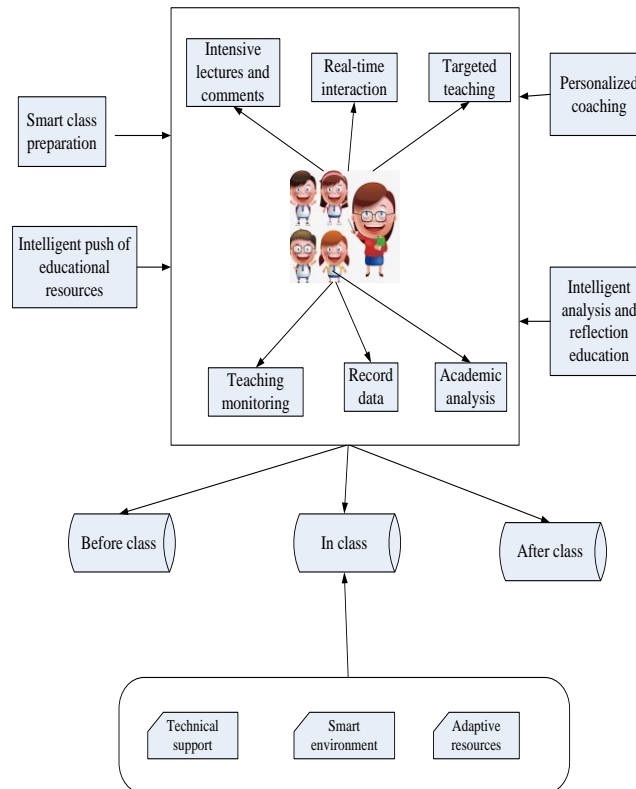


Figure 1: Intelligent teaching mode

Using IEMS for teaching can help teachers prepare lessons, enrich teaching content, and clarify teaching. It can also provide guidance to students' questions after class, greatly reducing the burden on teachers. By managing learning through technology, teaching can be shared and improved, improving teaching effectiveness and efficiency. At the same time, utilizing IEMS can automate the teaching process and provide students with more and more accurate learning support.

3.2.2 Intelligent Exam Management

Examination management is an important part of teaching management in universities, including preparation, invigilation, grading, etc. Through educational management technology, exam management can be efficient and intelligent. This article utilizes IEMS to automatically plan and adjust based on exam content, candidates, invigilators, and other data, improving the efficiency and accuracy of inspections. At the same time, its use of intelligent invigilation devices can achieve remote monitoring and testing, improving the accuracy and fairness of invigilation. In addition, intelligence scoring can be based on exam scores and answers for scoring and statistics, improving the accuracy and efficiency of scoring. The exam management function is shown in Table 2.

Table 2: Exam Management Functions

Serial number	function	Description
1	Edit exam	Enter the basic information of the exam; exam name, exam paper name, exam schedule, invigilator teacher and exam student.
2	Activate the exam	When the exam time is up, the invigilator activates the exam, and the candidates can take the exam on the candidate client.

3.2.3 Intelligent Course Management

Course management is an important component of teaching management in universities. By using intelligent management tools, classroom management can be efficient and intelligent. Based on the features of the classroom, instructors' time, and the resources already in place in the classroom, the adoption of IEMS can significantly increase the efficiency and accuracy of lesson scheduling. At the same time, students can also choose appropriate courses based on their interests and requirements through intelligent course selection, greatly improving their autonomy and flexibility in learning. When using IEMS to manage classes, the system automatically sorts and checks teacher information, evaluates course difficulty based on requirements, and automatically recognizes course qualifications to make the course suitable for both teachers and students. When adjusting the class, the teacher initiates a meeting in the class through the system and conducts teaching.

3.3 Ways to Achieve Intelligent Management of Higher Education

(1) Improve the quality level of management personnel

When education managers can proficiently use modern methods to implement normal teaching management with the support of IEMS, it not only means that self-management can play a more effective role, but also creates a better educational environment for students. Therefore, schools should start from the perspective of teaching management personnel, educate and understand their use of IEMS through observation and daily communication, and cultivate their willingness to participate in skill management technology learning. When educational leaders have ideas and apply skills to implement educational management, the effectiveness of system application can be maximized. In order to fully leverage the full potential of IEMS, schools can also conduct job competitions to evaluate the level of IEMS operation among teaching implementers in each task, and through competition, stimulate managers' interest in using IEMS.

(2) Strengthen the scientific management of educational data

In the process of using intelligent technology for teaching, many teaching data, such as students' exams, assignments, speeches, and other material data, would be collected and analyzed. Data is created by IEMS applications, and these big data can be considered as the driving force behind the operation of IEMS. Only by successfully recording, inputting, and storing the data generated during the teaching process into a computer, and utilizing relevant technologies to transform digital textbooks into information systems, can it play its role. At present, many schools do not effectively collect and use student data. As a result, it is crucial to improve the scientific administration of educational data. Effective teaching data analysis allows schools to evaluate student and instructor performance as well as how equipment and resources are used by teaching personnel.

This makes it easier for teachers to understand teaching behavior and effectiveness, as well as for managers to manage teaching more easily.

4. University Experiment on Teaching Management Development and Optimization

4.1 System Performance Testing

Software testing experiments are very important for systems, and the purpose of conducting tests is to discover errors in the system. However, discovering errors is not the ultimate goal, and repairing software functions that have errors is the key [12]. The main goal of software engineering is to create high-quality software that meets customer needs. So, after discovering errors through testing, they should be checked and corrected, which is the purpose of debugging. The results of software testing are also an important basis for software reliability analysis. Therefore, performance testing was conducted on the educational intelligent management system studied in this article. The distribution of functional items and specific test results are shown in Table 3.

Table 3: Distribution of Functional Items and Test Results

Serial number	Functional module		Whether to test	Whether to pass
1	Teaching plan	Role information management	Yes	Yes
		Authority information management	Yes	Yes
		Log management	Yes	Yes
		Password management	Yes	Yes
2	Teaching management	Teacher class management	Yes	Yes
		Teaching plan management	Yes	Yes
		Student management	Yes	Yes
		Score management	Yes	Yes
		Evaluation and feedback management	Yes	Yes
3	Online exam management	Test question management	Yes	Yes
		Test paper management	Yes	Yes
		Exam management	Yes	Yes
		Evaluation management	Yes	Yes

As shown in Table 3, from the above tests, all functional test items have been tested according to the requirements.

4.2 Student Satisfaction Survey

This article uses an educational intelligent management system to study school teaching management, which can bring many benefits. In order to further demonstrate students' satisfaction with the optimization of learning and teaching management based on educational intelligent management systems, 20 students were selected from A university for investigation [13]. Because the school previously used traditional teaching management for students' teaching, now it uses an intelligent management system to score the pre use and post use school teaching management intelligently, with a score of 1-10. The higher the score, the higher the satisfaction of students. The specific comparison results are shown in Figure 2.

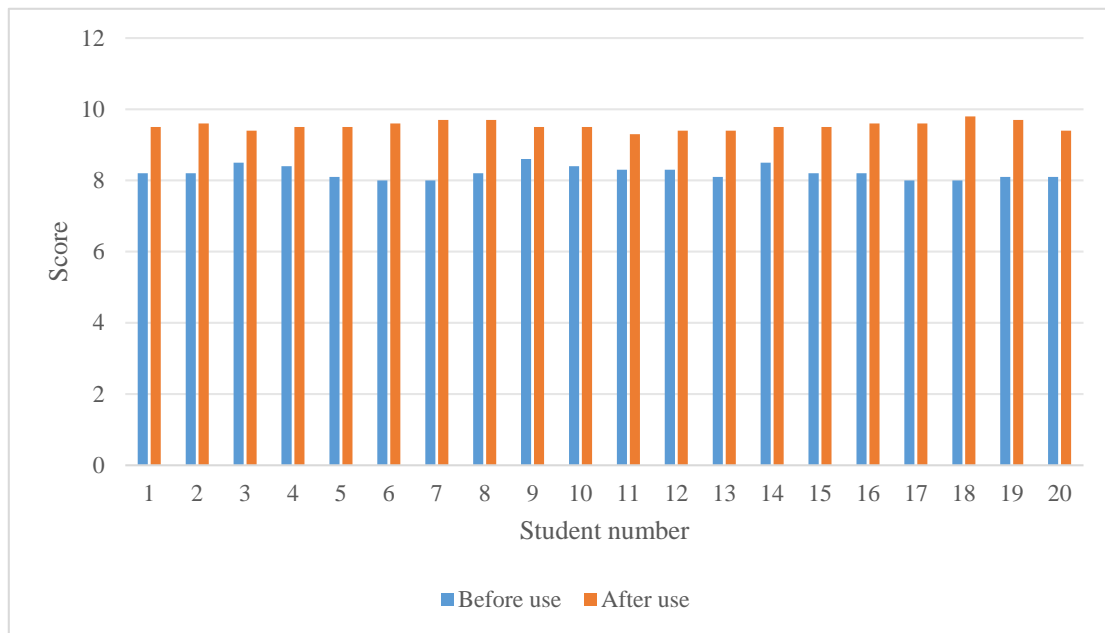


Figure 2: Student Satisfaction Survey

As shown in Figure 2, 20 students were selected from School A and their satisfaction with the intelligent management of their learning and teaching was rated. It was found that when the educational intelligent management system was applied to school management, students' satisfaction was higher than before. Among them, after use, students scored above 9.29 points, while before use, students scored below 8.61 points. The average score of the 20 students selected was 9.535 after use, while the average score before use was 8.22, which is 1.315 points lower than after use.

5. Conclusions

The optimization and development of educational intelligent management in university teaching management is a topic of great concern. The intelligent management of education has progressively emerged as one of the key influencing factors of teaching management in universities, thanks to the rapid growth of information technology. Building IEMS will enable universities to better oversee the intelligent process of teaching, which will enhance teacher quality, optimize resource allocation, boost productivity, and encourage innovative and reformative teaching practices in classrooms. Overall, universities can better adapt to the demands of the information age, enhance the quality of instruction, support the growth of university teaching management work, and support the development of university teaching management in the direction of greater science and intelligence by optimizing and developing educational intelligent management. These benefits can better fulfill the demands of students and foster their development while also increasing the efficacy and efficiency of teaching management in higher education.

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