

Design and Construction of Smart Classroom Guided by Classroom Teaching Reform in Colleges and Universities

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Abstract: The effectiveness of classroom teaching is the focus of attention in every university. In the contemporary era of "Internet + teaching", the way of classroom teaching is constantly changing. Based on this, this paper explores the new teaching mode of smart classroom. This paper analyzes the connotation of smart classrooms, and discusses the design and construction methods of smart classrooms oriented by classroom reform in major universities, hoping to provide reference for relevant workers.

1. Introduction

The classroom teaching activities based on information technology are flexible and have high teaching effectiveness. It has become the most common method of classroom teaching in the field of education. With this mode of teaching, students' learning scope and space can be expanded to a certain extent, and the interaction between teachers and students has become more frequent and frequent. Therefore, in order to ensure the quality of teaching, colleges and universities should actively promote the transformation of classroom teaching, and build a smart classroom based on this.

2. The connotation of the wisdom classroom

The smart classroom is a new form of education that is quite different from the traditional lecture mode. In the smart classroom, teachers can use modern means to control the classroom teaching process, improve the convenience, efficiency and intelligence of the classroom; so that students can complete the pre-reading, class discussion, and test at any time. Let students' self-thinking ability and self-learning ability be fully exercised[1].

Smart classroom devices can fully reflect the application layer, network layer and sensing layer of the Internet of Things. The various devices in the classroom can be connected to the Internet, and information exchange and electronic communication can be realized. In this way, people and things in the classroom are connected, and the teacher can intelligently modify the items in the classroom through the system. Identify and monitor management. With the application of smart classrooms, college teachers can more comprehensively control classroom teaching activities, rationally allocate various resources in the classroom, and lay a solid foundation for the effective development of classroom teaching activities.

3. The classroom teaching-oriented construction method of college smart classroom

At present, the teaching models adopted by Chinese universities have certain drawbacks in sign-in, interaction and testing. The completion of the name-based list of paper students is still the classroom sign-in mode of most colleges and universities. This form is not only inefficient but also has a lot of room for cheating. The phenomenon of naming and calling is repeatedly prohibited, and the statistical results are not high. In the interactive question-and-answer session between teachers and students, teachers can not fully look at each student, and can only analyze and judge according to the general situation; this will not only make teachers can not really understand the effectiveness

of this classroom teaching, but also affect the subsequent data mining. And statistics, which are extremely unfavorable for teaching activities. The unsmooth and incomplete communication between the teachers and students exposed in the traditional teaching mode has seriously affected the improvement of the quality of classroom teaching in colleges and universities. In order to improve the quality of classroom teaching, colleges and universities need to vigorously promote the transformation of classroom teaching. And based on the specific needs of classroom teaching changes, complete the design and construction of smart classrooms.

3.1 The construction concept of college wisdom classroom

The construction of smart classrooms in colleges requires comprehensive interaction in classroom teaching. In this process, it is necessary to make the center of teaching activities transition from teachers to students; to transform the classroom teaching activities based on teacher teaching into classroom teaching activities based on student learning. Moreover, the wisdom classroom contains a large number of electronic information devices, both teaching philosophy and teaching strategies will change. Therefore, in the process of construction, smart classrooms should be allowed to meet the needs of the development of diverse teaching models. Make sure that online learning mode, cooperative learning mode and mixed teaching mode can be carried out in the smart classroom. In addition, the construction of smart classrooms in colleges and universities should meet the functional requirements of the implementation of teaching strategies, so that teachers and students can use the teaching system to achieve resource acquisition and interactive application.

3.2 The construction method of college wisdom classroom

The construction of smart classrooms in colleges should be guided by the promotion of classroom teaching reform. Therefore, in the process of construction, it is necessary to infiltrate technologies such as computer technology, the Internet and big data analysis into the work, and integrate it into classroom teaching to realize the transformation of the traditional teaching mode. Based on this, the author briefly discusses the construction needs of college smart classrooms and the methods to realize the core functions of smart classrooms from the following aspects.

1) Wireless network environment construction

Building a wireless network environment is a key part of building a smart classroom. The application and smoothness of wireless networks is the basis for ensuring the development of intelligent teaching activities, and it is also a necessary condition for smart classroom applications. Teachers need to use the wireless network to realize the connection between the teaching control system and the teaching terminal, and thus achieve effective interaction between teachers and students. After such a wireless network environment is built, the wireless interaction carried out inside the classroom does not need to rely on cloud software and related services. Even if there is a network disconnection problem outside the classroom, it will not affect the operation safety of the classroom teaching and interactive teaching system. When conducting wireless network environment construction in colleges and universities, the frequency of data exchange should be carefully considered, and the WiFiID of each classroom can be kept relatively independent in topology [2].

2) Electronic whiteboard application

An interactive whiteboard should be included in the smart classroom. College teachers and students need to complete internalization and emotional communication of knowledge transfer in the classroom, so that the teaching ability of teachers and the learning ability of students are improved. The interactive whiteboard has a good visual effect and fully demonstrates the classroom teaching results. Moreover, the interactive nature of the electronic whiteboard can stimulate students' interest in learning and enhance the interaction and creativity of the classroom; teachers can also use this tool to create a good teaching situation for students, provide them with opportunities for cooperation and exchange, and achieve high efficiency. Teaching.

3) Random grouping function

Group discussion is the regular development mode of classroom teaching in colleges and universities. When grouping, teachers should conduct a comprehensive analysis of the students'

abilities and strengths, and then group them fairly. With the application of smart classrooms, college teachers can set grouping rules according to the content of the course, and then let students freely combine or scientifically allocate students to ensure that the comprehensive level of each group is in balance and avoid imbalances affecting the overall effectiveness of teaching. Moreover, when grouping, it should be ensured that students of different teachers do not bother each other. Designers should ensure that students in different classrooms remain logically independent when applying smart classrooms. Each classroom should have an independent login password in order to avoid the problem of “cross-course”.

4) Interactive teaching system

The interactive teaching system should meet the mutual display of the content of the teacher and the student. The teacher can push the teaching content in the control terminal to each student terminal, and the student can also interact with the teacher, and the classroom can share the display content of the terminal to the public screen in the classroom. The design should ensure that teachers and students can interact in a smart classroom based on intelligent terminals.

5) Terminal usage diversity

Relevant designers need to ensure that teachers and students can interact and interact by selecting a variety of teaching terminals. For example, the teaching terminal should support common operating systems such as Windows, MacOS, iOS, and Android; and it is necessary to provide corresponding access ports for electronic devices such as mobile phones, computers, and tablets. Related apps need to have version compatibility to support classroom local download and installation.

6) Intelligent management

The design and application of the intelligent management system is to enable teachers to further strengthen the management of smart classroom related infrastructure and electronic equipment. The intelligent management system should control the power supply of the classroom internal equipment and need to interface with the control center to ensure the effectiveness of the facilities and functions in the classroom.

7) Response system

In order to further realize the teacher-student interaction, it is necessary to equip the smart classroom application with a corresponding real-time response system. In use, teachers can make questions at any time, while students can participate in the answer. In the process of answering questions, the teacher can deepen the understanding of the students' learning situation, and in this way, exercise the students' self-learning enthusiasm and mobilize the classroom atmosphere. College teachers can find loopholes in the current teaching model based on implementation responses and make timely adjustments in subsequent work.

8) Big data analysis

The role of smart classrooms in teaching reform is not only the optimization of teaching models, but also the development of teaching activities is more flexible and scientific; its more important role can be achieved by means of system data recording and feedback. Big data analysis allows teachers to have a clearer understanding of the strengths and weaknesses of teaching activities. Using the results of big data analysis, teachers can achieve summarization and reflection, adjust the teaching rhythm in a timely manner, correct teaching methods, and improve the effectiveness of classroom teaching.

4. Conclusion

In summary, the Smart Classroom is an innovative teaching model. Based on the Internet and computer systems, the Smarter Classroom integrates the environment within the classroom to provide students with a highly intelligent learning environment. Therefore, in the design and construction work, it is necessary to do a good job in infrastructure construction, and adhere to the people-oriented concept, so that relevant design meets the requirements of teaching interaction, and thus meet the needs of classroom teaching innovation.

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