The Construction of Smart Classroom Model in Rural Primary Schools under the Background of Internet

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Abstract: My country has a vast territory, and there is still a big gap between basic education in various regions in terms of hardware facilities and teachers. Especially in some rural areas, the lack of educational resources has become one of the bottlenecks restricting local economic development. The purpose of this paper is to study the construction of the smart classroom model in rural primary schools based on the Internet background. On the basis of summarizing the development dilemma of the new model of "Internet + rural primary education" and summarizing the influencing factors, the targeted countermeasures to solve the practical dilemma are explored from the aspects of integrating high-quality resources, improving Internet technology and increasing capital investment. The new connotation that literacy should have under the background of "Internet +", reconstruct the concept of a new model of "Internet + rural primary school education", and design the process of smart classroom teaching mode in rural primary schools. Taking a rural primary school as the research object, and comparing the total scores of the smart classroom teaching experimental class and the traditional teaching control class, the value-added score of the fifth-grade experimental class is 8, and the value-added score of the control class is 1. It can be concluded that the experimental class and the control class have great changes before and after the experiment.

1. Introduction

The task of modern distance education in rural primary and secondary schools is an excellent practice to realize the modernization of rural education by using educational information technology. Differences in different fields and teachers' informatization teaching ability still have problems such as insufficient scientific research and low allocation of teaching application software resources [1-2]. With the advancement of science and technology, agricultural work has been unable to meet the requirements of the times for the development of students [3]. In the Internet + era, it is very

important for teachers and students to keep pace with the times, and the cultivation of information-based education is very important [4]. As future successors, students must have information literacy. Smart classrooms are classrooms built on information technology platforms. Students can quickly and easily acquire knowledge through information technology. The information in the resource library is constantly updated, allowing students to It can comprehensively grasp the latest and optimized knowledge, so that students' information literacy can be improved [5-6].

With the country's continuous emphasis on poverty alleviation through education, how to use information technology to promote the balanced development of urban and rural education to achieve education equity has become the focus of education and a research direction [7]. Thomas B observed the English reading performance of four different types of English as a second language (ESL) learners in rural primary schools in grade 7 using English as the language of learning and instruction (LoLT). The primary preference for English as LoLT in schooling disadvantaged most ESL learners and perpetuated inequalities in learning outcomes. This situation is more severe in some school settings, such as in rural settings [8]. Harun H focuses on the rural primary school environment in Kerian, where most students use Malay as the language of instruction. Find out the mistakes rural primary school students make in their writing, and understand the reasons or sources of errors that lead to the writing problems of primary school students. Some adjustments in the education system and full involvement of the education sector are aimed at better reducing the number of underperformers, especially in English writing, to improve English proficiency in rural schools [9]. The smart classroom teaching mode is an important way to improve students' information literacy.

With the goal of using information technology to promote the balanced development of basic education, and relying on the exploration project of rural informatization teaching mode, this paper proposes the application mode of rural smart classroom. Through the application and practice of smart classrooms for a period of time, high-quality educational resources have been introduced to rural schools, which has truly realized that urban and rural children have a class together, and helped weak schools to improve the quality of teaching. Questionnaire surveys were conducted on rural primary school students, and at the same time, structured interviews were conducted with school managers, and the "Internet +" development of rural primary education was summarized from the teaching effect of smart classrooms in rural primary schools and the satisfaction of smart classrooms in rural primary schools.

2. Research on the Construction of Smart Classroom Model in Rural Primary Schools under the Background of Internet

2.1. The New Model of "Internet + Rural Primary Education"

(1) New connotation of rural primary school teachers' literacy

Internet teaching has transformed the dominant position of teachers and students. It is not just "teaching" and "learning". Teachers not only pay attention to the instillation and inheritance of knowledge, but also train students to learn how to find problems, analyze problems and analyze problems through Internet technology. To solve problems, how to use Internet technology to innovate learning methods, rural primary school teachers should combine the characteristics of the Internet to design special teaching activities, and at the same time have the ability to use Internet means to collect, organize, process and share high-quality educational and teaching resources, and have the ability to interactively transmit knowledge through the Internet. Skills, and have the ability to handle the relationship between "life-student dialogue", "teacher-student dialogue" and "human-machine dialogue" [10-11].

(2) Smart Classroom

As a place for cultivating talents, smart classroom has also changed from focusing on technology to focusing on teachers' teaching and students' learning itself, in order to meet the needs of the reform and development of new courses, and support the cultivation of students' core literacy as the fundamental purpose [12]. In the intelligent environment created by informatization, teachers need to be innovative in the process of teaching, and students need to cultivate creativity in the process of learning, so as to understand the organic connection between technology and human civilization, and have the practical ability to solve problems, innovative consciousness and behavioral performance [13].

2.2. Process Design of Smart Classroom Teaching Mode in Rural Primary Schools

(1) Before class before class

Teachers prepare lessons by obtaining relevant resources, making micro-videos, reviewing homework, and test questions, etc., which are pushed by students through teachers' tablet computers, and students are evaluated before class. After the students complete the assessment, the understanding analysis system of the cloud platform will send a training analysis report to the teacher. Intensive exchanges between tools are used to identify school-based thinking, a useful tool of distributed science in the most effective schooling [14-15].

(2) Mid-class stage

Teachers should use positive strategies to stimulate students' enthusiasm for writing in smarter classrooms. First, teachers encourage students' interest in learning and focus their attention on creating situations as an integral part of the science-based learning process in classroom learning. Faculty guide students through research training so they can learn to explore positive questions. In the functional link, organize homework, guide students to cultivate teamwork spirit, and enhance teamwork and communication skills. In the process of interaction, there are many dimensions of interaction between students, teachers and students[16-17]. After students complete the level training activities, teachers can conduct school tests to test students' understanding level at that level and adjust the curriculum in time [18].

(3) After-school stage After-class

Teachers arrange homework and record low-class videos according to the school location of the students, and publicize them to students through forums. Teachers can manage the completion of student assignments at any time. After students complete their homework, the program will put the wrong questions into the wrong question bank for students to practice again. Students can analyze knowledge independently in the classroom, and use micro-video to check and fill in the gaps, summarize and improve their own learning ideas.

3. Investigation and Research on the Construction of Smart Classroom Model in Rural Primary Schools under the Background of Internet

3.1. Research Objects

In order to understand the development status of the new model of "Internet + rural primary education", firstly, a rural primary school in M city was randomly selected as a sample school, and then the development of rural primary education in M city under the background of "Internet +" was analyzed by questionnaire method and interview method. The status quo was investigated.

3.2. Research Methods

In this experiment, based on the results of the simultaneous pre-test, two classes with similar grades were selected as the experimental objects in the fourth grade. The experimental class used the smart classroom teaching mode, and the control class used the traditional teaching mode. After the same pace of teaching activities, two experimental classes in the fifth grade were tested.

After one semester of teaching practice, this paper conducts interviews with three teachers of the smart classroom experimental class and some students in the experimental class, and conducts a questionnaire survey on 50 students in the experimental class. Through comparative analysis, combined with classroom observation and communication with school leaders and parents, the preliminary teaching practice effect of smart classroom in rural primary schools was obtained. The t-test formula used in this paper is as follows:

$$t = \frac{\overline{X} - \mu}{\frac{\sigma X}{\sqrt{n}}} \tag{1}$$

$$t = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 2}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \tag{2}$$

where s is the sample standard deviation and n is the number of samples.

4. Analysis and Research on the Construction of Smart Classroom Model in Rural Primary Schools under the Internet Background

4.1. Analysis of the Questionnaire Survey on the Students in the Smart Classroom Experimental Class

Table 1. Statistics of questionnaire survey results

Satisfaction survey	Number of people	Percentage
Very satisfied	39	78
Satisfy	6	12
Generally	5	10
Dissatisfied	0	0

According to the statistics of the questionnaire survey results as shown in Figure 1, 16% of the students have a willing attitude, 4% of the students have an indifferent attitude, and no one has a reluctant attitude. It can be seen that most students have a positive attitude towards the smart classroom teaching model. Very satisfied, they want to continue their learning through Smarter Classroom. 78% of the students are very satisfied with the smart classroom teaching mode adopted by the teachers of each subject this semester, 12% of the students have a satisfied attitude, 10% of the students have a general attitude, and no classmates have a dissatisfied attitude, as shown in Table 1 shown. It can be seen that the teachers of each subject are still very attentive to this new teaching mode this semester and continue to explore. However, there are still some shortcomings. Teachers need to be more skilled and innovate constantly, and strive to make the smart classroom teaching model achieve more ideal results for teachers and students.
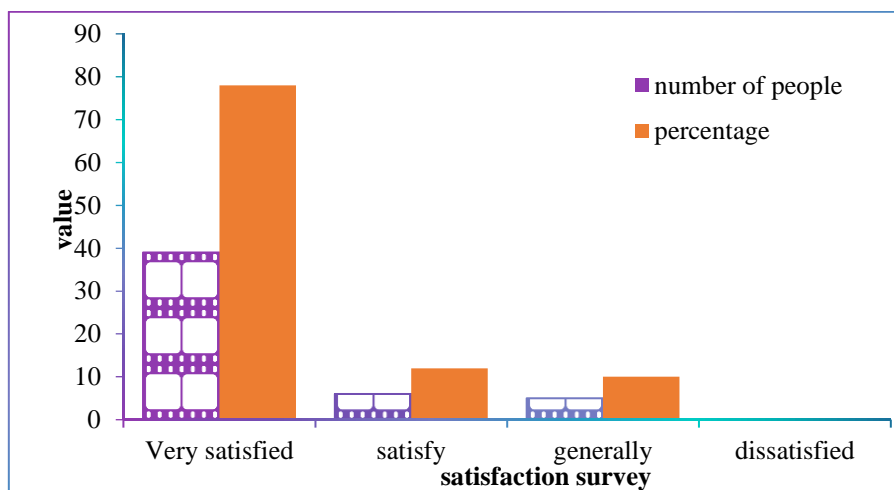
Figure 1. Student satisfaction survey on smarter classroom

4.2. Comprehensive Comparative Analysis of Performance

It can be seen from the statistical results that the average pre-test scores of the fifth-grade experimental class and the control class are 80 and 81, respectively, and the average post-test scores are 88 and 82, respectively. The average pre-test scores of the fourth-grade experimental class and the control class are Both were 78, and the average post-test scores were 85 and 80, respectively. The results showed that there was a small difference between the experimental class and the control class in the previous two grades, that is, the level of the two classes was comparable. After a period of teaching, the value-added score of the fifth-grade experimental class was 8, the value-added score of the control class was 1, the value-added score of the fourth-grade experimental class was 7, and the value-added score of the control class was 2. The figures 2 from these calculations can show that after the smart classroom teaching, the scores of the experimental classes of the two grades have improved significantly, and the scores of the control class are not much different from the previous scores. The test scores of the experimental classes of the two grades were higher than those of the comparison classes, indicating that after the introduction of smart classrooms into the classroom teaching of township primary schools, the overall performance of students has improved.
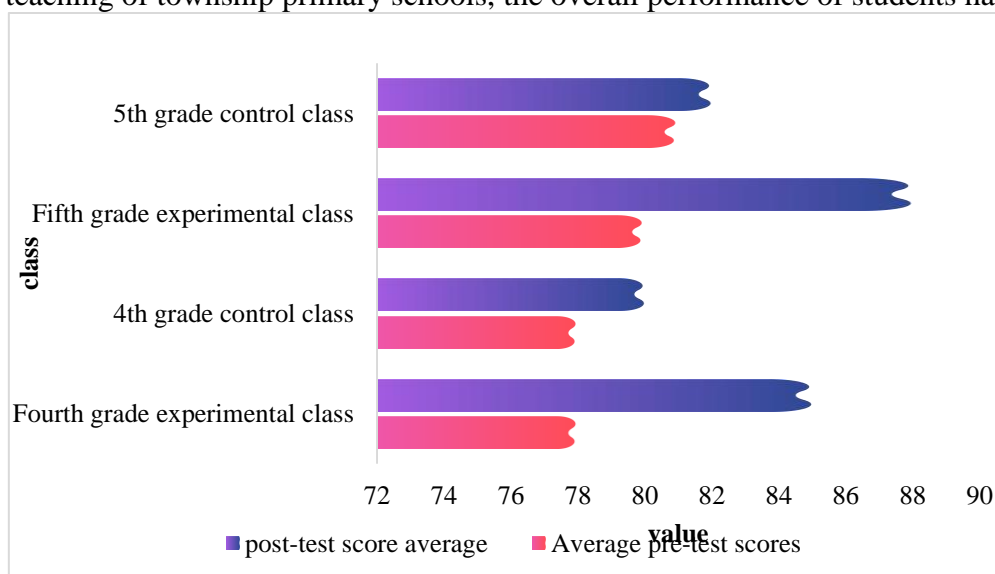

Figure 2. Comprehensive comparison of performance

It can be seen from the performance analysis table that the students in the two classes of the fourth grade and the two classes of the fifth grade are at the same level before the experiment, and the test scores of the students with learning difficulties in the experimental class and the control class of the two grades are also similar. After the same progress of teaching activities, the scores of the weak students in the experimental class were significantly improved after the smart classroom teaching, while the control class still adopted conventional teaching, and the scores of the weak students in the control class did not change significantly, which also shows that the smart classroom Teaching can help students with learning difficulties to improve their grades effectively.

5. Conclusion

During the rapid development of my country's economy, many social problems have arisen, and the uneven distribution of educational resources is one of the problems that needs to be solved urgently. The development of education should be compatible with economic development. A country's investment in education will ultimately be reflected in the human capital and innovation ability of its citizens. Although this paper has achieved satisfactory results in the practice of the smart classroom application model, due to the limitations of some objective reasons, this paper still has some shortcomings in the research, which are summarized as follows: Since the smart classroom model has not been widely used Large-scale application, the collection of practical effect data is relatively small, which has a certain impact on the detection of the practical effect of smart classroom applications. Since this paper only studies the overall performance of the smart classroom, there is basically no research on which subjects the model has better application effects and which knowledge points are more suitable for this model. At the same time, the question of whether there will be differences in the application effect between different disciplines has not been further explored.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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