

Research on the implementation status and improvement strategies of cloud classroom personality teaching in elementary schools

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ABSTRACT

Currently, the development of students' personality and the cultivation of innovative talents are regarded as an important task of education for each country, the personalized teaching has become the goal of the new curriculum reform in China. With the continuous development of cloud computing technology, network cloud platform education resources are being used more and more in the teaching process, the "personalized teaching of the cloud classroom" in primary schools has gradually become the highlight for the reform and research of the basic education in Nanjing. Since it was officially launched in 2010, Nanjing has 1380 high-quality courses in the cloud classroom, trained 775 backbone teachers, explored new teaching models, accumulated a wealth of teaching cases. At the same time, in the implementation process, it also faces many problems and challenges related to educational concept, technology and application. This study use the literature design and case study method to define the relevant conceptss in analyze the teaching. The result of this study shown that the use of cloud classroom teaching can provide teachers visual expression tools for the smooth implementation of teaching, reduce the teaching burden of teachers, and provide students with a teaching environment rich in pictures and texts, stimulate learning interest and improve learning efficiency.



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INTRODUCTION

In the context of the "big data" era, cloud technologies and the Internet have spread to every aspect of human life. Working styles and thinking are changing dramatically as a result of changes in study and lifestyle. With the application of new technologies, new ideas, and new models in education and teaching, changes in the field of education are also far from reach. Educational trends that lead from school to home, library, workplace, and university are becoming more common (Bell, B. S., & Federman 2013). The educational concept of "personalized teaching" and the methods of teaching autonomy, collaboration, and research are gradually adopted by teachers and incorporated into the teaching practice in the classroom.

[Outline of the National Medium- and Long-Term Education Reform and Development Plan of China \(2010-2020\)](#) is presented as follows: Updating the concept of talent training to "establish a diverse talent concept, respect individual choices, encourage personal development, and cultivate talent in an electrical way concept, respect individual choices, encourage personal development, and cultivate talent in an electrical way". Since the official launch of the cloud class project in 2010, Nanjing's development and implementation of cloud class projects have shifted from a pilot school to a comprehensive stage of promotion and application, exploring the personalized teaching environment of a cloud classroom, promoting balanced education development in Nanjing, and promoting educational equality to provide a new angle of theoretical analysis. Basic school cloud classes move from knowledge learning to knowledge and comprehensive capability development from single class learning into many ways to learn, paying attention to each student's level of knowledge and learning. fully realize a more personal learning, attempting to overcome the disadvantages of traditional classroom teaching's high consumption and low efficiency, and improving teaching quality.

The goal of education is to make people become themselves. One of the most important symbols of the success of personalized teaching in the cloud classroom is to begin with the individual learning needs of students, in accordance with their interests and learning nature, and to cultivate their spirit and innovative abilities. Confucius in ancient China and Socrates in ancient Greece summed up the practice of teaching as "teaching can be considered the idea of personal teaching." In the 17th century, the famous Czech educator Kwamenius suggested that education should be based on human nature. In "Emil on Education," the 18th-century French thinker Rousseau emphasized the possibilities and conditions for children to move freely, and teachers should fully respect children and give them more freedom to learn, think, and express. Dewey, an American educator, proposed the educational principle of "child-centrism."

In 21st-century China, with the progressive advancement of quality education, a large number of domestic scholars taking advantage of the concept of private teaching abroad have carried out relevant research on personalized teaching in the classroom. [Deng \(2012\)](#) and [Xu et al. \(2020\)](#) outline the concept of "personalization" and deal with the personalized teaching mission of three levels of objectives, processes, and structures: cultivating the subject of individualization in accordance with the laws of individual physical and mental development and paying attention to the systematic nature of personalized instruction.

There is currently no system in place for teachers to analyze student learning in depth. Instructors are only able to predict instruction by making subjective, generic judgments based on experience and their hazy thoughts and feelings about students' learning. Teachers' personal factors have a big impact on this kind of instruction. Information technology is thus a crucial component of classroom instruction. Also, it is wasteful for teachers to use questions and assessments to determine if students have understood what they have learned in a traditional classroom setting. Thus, the usage of a cloud in the classroom, in the cloud classroom environment, enables teachers to have a better understanding of the learning level of the students. Today, "personalized teaching" has become the focus of the reform of Chinese subject-class teaching. However, in teaching practice, personalized teaching is difficult to realize. Can Nanjing cloud class teachers adapt to the new concept? What problems are still to be solved during the application process? How can these problems and difficulties be solved? This research and summary of the problem have both theoretical and realistic guiding values.

In according to [Jing, Wang, & Zhuo \(2017\)](#), the term of cloud classroom means online open classroom platform built on the integration of cloud computing, educational clouds, and integrated educational information resources. With the support of Internet technology and touch tablets, users can quickly and efficiently share audio, video, and data files with students, teachers, parents, and other users around the world with simple actions via the Internet interface. Cloud classrooms can not only effectively enhance the online classroom learning effect but also meet large-scale student needs, improve learning efficiency, and build competitive networking learning systems ([Juan, 2014](#)).

A cloud-based classroom system mainly consists of courseware production tools, real-time interactive classrooms, courseware-on-demand systems, learning management systems, and learning gates. Cloud teaching platforms absorb cloud computing features and increase network and mobile

terminal popularity; a variety of smart terminals, apps, and other additional learning software are emerging and becoming more diverse and mature (Chun, 2017). Cloud classes come from one-on-one digital learning, a global digital education innovation program. to meet personalized educational needs. Cloud classroom is a form of information teaching shaped by the integration of cloud computing and cloud systems with educational teaching, which mainly includes two parts: traditional offline classroom teaching and online cloud classroom instruction (Yun, Yang, & Xianjin, 2018). Representative projects include: schools in over a dozen states in America participating in the One-to-One Computing Project, as well as the BYOD project (Shanghai, 2010-2020). project "Improving Learning Strategies" in Quebec, Canada. Since 2007, China has launched a one-on-one digital teaching pilot in a variety of ways. In 2007, three pilot schools were established in Beijing. In 2008, the Shanghai Middle- and Long-Term Education Reform and Development Plan 2010-2020 proposed to "promote the development of complementary teaching methods such as "e-bags" and "cloud computing" (Bangqi et al., 2019).

The old offline teaching method is no longer capable of providing the necessary instruction due to technological advancements. It is crucial to encourage the growth of "Cloud Classroom" in the context of the "Internet+" era. Research on this initiative began later in China than it did for MOOC and Icloud classroom. The ongoing pilot school did not have a detailed follow-up survey, and the research focused only on relevant concepts, application advantages, and the level of research promotion, lacking depth. Personalized teaching in cloud classrooms since the late 20th century, China has given great importance to information education and continues to improve its systems. affirm the strategic position of information technology such as the internet, cloud computing, and big data, with a special emphasis on combining information with education (Jin, 2016). The rapid development of network information technology and the need for education reform in the 21st century make cloud computing more sensible to use in the classroom (Anshari et al., 2016). "Personalized teaching in the cloud classroom" refers to violating traditional school education or "union class" teaching by respecting the individuality of students and thus enforcing a targeted classroom lesson plan (Zhang et al., 2018).

Students and teachers can interact during the learning process, and teachers can provide guidance to each student at anytime, anywhere, on request, which is an effective way to improve the effectiveness of the teaching process in the classroom. According to Dong Su, director of the information department of the Nanjing Teacher Development Center, Nanjing's cloud-based curriculum covers all disciplines in elementary schools and all study segments. In addition to courses of study, they also include science and technology, physical education, the arts, moral education, mental health, and family education.

METHOD

Based on personalized teaching studies in its predecessor cloud classrooms, the research focuses on teaching methods in Nanjing's cloud classroom school programs, the development of teacher education technologies, and the status quo in the field of independent study. Class observation and case analysis, communication with teachers and students after class, and other methods are used to understand the implementation of personalized teaching in Nanjing cloud classrooms. Collecting books, magazines, and newspapers through libraries and gathering relevant theoretical research in networks forms the basis of this research. Observe the teaching process and behavior by entering the classroom. Focus on the personalized implementation of cloud-based teaching. And for primary school cloud classes, qualified teachers should conduct case analyses against example classes of teachers who are superior in cloud classes.

This research uses literary methods and case study methods to determine relevant concepts, analyze teaching cases, find out existing problems, analyze the root causes of those problems, and then advance improvement strategies. For example, reviews are useful when researchers want to evaluate the theory or evidence in a particular field or check the validity or accuracy of a particular theory or a competing theory (Snyder et al., 2016). Case-study research consists of in-depth investigations, often with empirical data gathered over a specific time period from a well-defined

case to provide analysis of the context and processes involved in such phenomena (Rashid et al., 2019).

RESULT AND DISCUSSION

Result

In cloud classrooms, the individualized teaching standards are student-centered, make clear the teacher's primary function, and respect and play up the subjectivity of the student. Assess student circumstances and assist them in using digital teaching tools to tailor their learning. The following are two examples of classroom scenarios using Nanjing clouds. The Nanjing primary school's present cloud classroom analysis is tailored to teach class facts, with specific teaching applications in the cloud classroom as well as upgrades and promotions to offer a solid foundation.

The individualized teaching standards in cloud classrooms are student-centered, make clear the primary function of the teacher, and respect and play the subjectivity of the student. Assess the circumstances of the students and assist them in using digital teaching tools to individualized their learning. These are two examples of Nanjing cloud classroom settings. In order to teach class information, the present cloud classroom analysis of the Nanjing primary school is tailored. It also includes individualized teaching applications in the cloud classroom, as well as upgrades and promotions to give a solid basis.

For these lessons, when the teacher's tasks are open, give the student the opportunity to play freely. In the third part, the teacher gives the student an open task, which can be expressed by the student using a study sentence pattern. We can see that students are enthusiastic and creative in their studies. The first group used artistic expression, and the second group played with plot roles. The subject matter is English for grade 4. The class arrangement 1 can be show in Table 1 as follows.

Table 1. The Class Arrangement 1

Teaching first link: play audio and introduce courses	
Teacher Activities	Students Activities
1. The teacher creates her voices according to the content of the teaching and imports new and interesting lessons	1. Students watch the video
2. The teacher took an apple and imitated the sound of snow white Asking: Do you like apples?	2. Students start thinking by looking at models
Teaching second link: Interaction between teacher and students	
Teacher Activities	Students Activities
1. Part 2a of the recording	1. Listen to the recording of part 2a
2. Distributed training part 2a	2. Complete exercise 2a
3. Show the training screen	3. Each group finishes recording
4. The teacher grouped students, open the voice-filling software, and the group completed the duplication in 3 minutes.	
Teaching third link: Students view	
Teacher Activity	Students Activity
Guiding students to expand their learning, so students learn to use: Do you like ... ?	Students make their own performances with the sentence patterns they learn.

Based on the Table 1, its show that when the teacher's tasks are open, give the student the opportunity to play freely. In the third part, the teacher gives the student an open task, which can be expressed by the student using a study sentence pattern. We can see that students are enthusiastic and creative in their studies. The first group used artistic expression, and the second group played with plot roles.

English language intelligence classes in SD Cloud environments are like the integration of information technologies such as the internet, cloud computing, and big data into English to create an informative English language education environment (Min et al., 2019). In these lessons, students learn through the cloud classroom audio, the teacher's voice replay, and the independent sound replay. The learning process is fun, but personalized embodiment is not enough. Teachers can consider pre-test improvements.

The lesson is simple, but the teacher has not followed the pre-tests, resulting in an inadequate hierarchy of the learning process. Teachers can use pre-tests to divide students into groups based on different levels of study, assign different tasks to each group, and personalize their instruction. Especially when answering questions, each group answered the same questions in turn to reduce learning efficiency. If each group was allowed to express itself freely according to different problems, the group would learn better together. The data of class arrangement 2 can be shown in Table 2.

Table 2. The Class Arrangement 2

Teaching first link: review the basic characteristics of the bars and cubes, introducing new lessons.	
Teacher Activities	Students Activities
1. Teachers use a 3D demo to review the faces of boxes and squares, prisms, and nodes and guide students to learn.	1. Students watch their own videos.
2. Teachers compare their differences with model teaching aids.	2. Students observe the model and begin to think.
Teaching second link: Explore new knowledge.	
Teacher Activities	Students Activities
1. Teacher asks: If you tell the length of the gift cube, width and height, can you know how many square centimeters of packing paper are needed?	1. Students calculate the surface area and volume of a cube based on data provided by their teacher.
2. If the paper remains were cubes, would the student count them?	2. Students send their results to the group's learning system to find out their correct level and error rate.
3. Calculation of the volume	
Teaching third link: Group presentation	
Teacher Activities	Students Activities
1. Teachers listen to student group reports, and 3D shows the calculation process.	1. The Pad screen shares calculations and presentation results.
2. The teacher corrected the mistake.	2. Methods for Group Reporting
Teaching fourth link: Application expansion	
Teacher Activities	Students Activities
1. Give different data and let each student calculate independently.	1. Exercise independently.
2. Use the learning system to get the student to the right level.	2. Recognizing their own errors.
3. Correction of different student	3. Independent expansion independent. expansion Exercise independently.

Based on Table 2, it can conclude that through 3D demonstrations and providing fixed formulas, teachers enable students to master basic knowledge. During the course of group training, students can discuss and interact to master knowledge; each student will have their own thinking

process. With cloud-based class statistics, teachers can instantly understand the level of knowledge acquired by each group of students. After correcting the mistake, each student performs the exercise in class before submitting the results. Teachers can understand classroom learning and personalize their teaching to each student's situation. The teacher then directs the student to combine mathematical learning situations at this stage to make comprehensive summaries and reflections based on the characteristics of the student's cognitive development in the summary stage (Gao 2020). The learning environment at Ruijin Road Nanjing Elementary School while attending classes can be shown in Figure 1 and Figure 2.



Figure 1. Each Student Performs the Exercise in Class Before Submitting the Results



Figure 2. The Learning Environment at Ruijin Road Nanjing Elementary School while Attending Classes

Discussion

Personalized teaching interviews in Elementary School cloud classrooms

Using the interview research method, work was done at five elementary schools in Nanjing. I used sampling to select teachers; I selected 12 teachers to be interviewed from Xiaozhuang Nanjing Elementary School, Xijie Nanjing, Haiying Nanjing, Ruijin Nanjing, and Cuiplingshan Nanjing. Each

interview will take about 20 minutes. The interview consists of four parts: 1. Ask the teacher about the basic situation and the personalized teaching attitude in the cloud classroom; 2. Ask the teacher about changes in teaching modes and technical choices; 3. Understand the teacher's willingness to train and learn; and 4. Ask the teacher to give advice.

Teachers 3 mention: "In the cloud classroom teaching environment, student class tasks and other learning conditions are easy to reach timely feedback on through on-site evaluation, making it convenient for teachers to understand in time and adjust the rate of teaching according to each student."

Teachers 2 say: Some teachers can use the interactive classroom cloud teaching platform to analyze each student's learning situation. However, teachers who are used to learning through experience, communication, and observation are finding it difficult to understand the learning status of all students. Personalized teaching in a cloud classroom is impossible to discuss unless you have test results to master learning and no need to understand learning.

Most teachers (11 out of 12 teachers) mentioned: "In terms of lesson preparation efficiency, most teachers think that subject preparation is very special, supported by a cloud classroom environment." Open network resources and interaction platforms for timely feedback provide a variety of options for teacher lesson preparation. In the preparation of classroom teaching materials, in addition to traditional teaching programs, teachers prefer to use networking teaching resources and interactive platform support resources. There are also some teachers who must collect, edit, and generate personalized teaching resources to meet their needs.

Teachers 7 mentions: "The teaching model has changed since the start of the required teaching in the cloud classroom, but teachers need to strengthen their learning and training."

Teacher 12 says: "In practice, the cloud classroom is not used very often, about 1-2 times a week." In addition to the conditions of use, the student's eye health should also be taken into account.

Teacher 6 says: How do you maintain a weak student base while promoting the development of the entire student body? Is teaching individualism practical? The special color of science and education and the special characteristics of information technology must be present, so how do we do it?

Case studies, classroom observations, and communication with teachers and students revealed the following: While personalized teaching in cloud classes at Nanjing Primary School has achieved some results, there are still some problems. Among those problems is that the teaching status is embarrassing and does not receive enough attention. Personalized instruction in a cloud classroom, which is a novel development in Nanjing's educational landscape, may foster students' all-round skills and help them grow as individuals.

The government hopes to realize the modernization of education driven by education informatization. It is also hoped to manage educational resources and standardize the development of educational resources, so that users can access educational resources in various ways. However, despite the implementation of schools and classrooms, the frequency of use is not high. The following problem is a less-than-sufficient standard for project development, with no evaluation of practical teaching applications; the purchase of electronic teaching materials, digital resources, and platform applications will appear impractical, unusable, and so on.

The third problem is that there are not enough communication activities for teaching applications and there is a lack of teacher training. Every year, the city of Najing holds one or two live presentation training sessions for dissertations and case evaluations. The number of teachers involved is limited, training materials are rare, and there is a lack of success story communication. This is why many teachers have to do it themselves. Teachers do not have training and guidance in systematic education and teaching theory, the application of educational technology and learning, or student personal research.

The fourth issue is that teaching evaluation is limited to a single subject; comprehensive protection is insufficient. Through interviews, it was found that the most recommended advice made by teachers was the expectation that the education management department would change the single evaluation mechanism and give teachers more policy inclination. In fact, elementary school teachers

have heavy tasks, tremendous pressure, and not much time to invest in a new teaching model. Because the personalized cloud classroom preparation time for its teaching is extended after a period of teaching application, some teachers do not want to explore it actively. In addition, the personalized teaching applications in the cloud classroom are a comprehensive system. Even if problems are discovered during the application process, they are challenging to solve independently, which is a severe setback for the pilot teacher's desire to pursue his or her passion.

Students Aspect

On student aspects, since the launch of personalized teaching in cloud classrooms, many schools have been enthusiastic at first. Still, they are concerned about the impact of personalized instruction on test values and the teaching sequence. Lack of understanding of project development and lack of sustainable investment in the education sector have resulted in a lack of effective development of world-class research projects. In addition, the focus of the education sector has not yet shifted from educational information to personalized teaching research. Due to a lack of construction, coordination, and order, the Department of Education has not yet formed a personalized teaching working group in the cloud classroom.

Teacher Aspect

For a long time, teachers in China have had heavy teaching duties and too much pressure. Due to insufficient time and energy, many teachers are reluctant to try out personalized teaching programs in cloud classrooms. And the integrated abilities of some teachers also need to be enhanced, but there is a lack of enthusiasm to investigate themselves.

CONCLUSION

The research brushed aside the personalized teaching profile of the cloud classroom at Nanjing Elementary School. The status of personalized teaching in the cloud classroom implementation was investigated. It was discovered that the benefits and drawbacks of personalized teaching in the cloud classroom are in elementary school teaching. Based on this research, the following conclusion can be drawn: the personalized pilot project of teaching in the cloud classroom is intended to promote educational reform against the backdrop of an increasingly mature new technology in order to meet the personalized teaching needs of elementary schools. In teaching, teachers focus on student-centered cooperative and interactive learning to help students learn independently and to enhance their personalities. Then personalized cloud classroom teaching is applied to the classroom with new technologies, concepts, and a new model of emphasis. Student interest in learning can be stimulated, new teaching models are gradually formed, and teachers are no longer the only authorities in the classroom. Further promote equality and the development of balanced urban and rural education. China is pushing innovation in the concept of universal education through information technology. The Department of Education seeks to personalize cloud classroom teaching to address the shortage of teaching resources and teacher shortages in rural areas. Through a network of cloud classrooms, teachers develop educational equality in ways such as resource sharing, which will contribute to the development of balanced urban and rural education.

In this study, the researcher found that many teachers, having become accustomed to terminal operations and smart platforms, hope to solve the problem of a lack of teaching resources to conduct personalized teaching in cloud classrooms. Once resources are integrated, teachers can guide students to focus on learning, quote or upload a planned task, and provide strong support for students to practice on their own after independent learning. Cloud classrooms should encourage school teachers to upload and generate teaching and learning resources, build teaching resources, and build and share them to meet the personalized teaching needs of more students and teachers. Improving the teaching ability of teachers in the information age is a prerequisite for promoting information technology and the depth of teaching. Teacher training in the cloud classroom is in great need of development. In interviews, I learned that teachers are full of hope for training and have confidence in strengthening teaching with information technology. Due to time and resource limitations, several parts of the case studies and teacher interviews that were lacking may be studied in greater detail during the research

but did not take into account the actual condition of rural schools. It is therefore highly advised to conduct additional investigation.

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