


Research Article

Improvement of Mobile Learning Model in Flipped Classroom in English Classroom Teaching: Based on Big Data Analysis

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This paper innovates the improvement of the mobile learning model of flipped classroom in English classroom teaching on the basis of big data analysis technology. Through the case study, the big data analysis technology is used to analyze and explore the learning characteristics of students and combine with teachers' teaching experience to dynamically adjust the teachers' teaching strategies. And on the basis of the new model, an assessment model for students, teachers, and school leadership is proposed as a way to build a new and harmonious teacher-student relationship.

1. Introduction

Education is a major matter related to the future development of our country. Nowadays, while the economy is developing rapidly, China's education reform has been on the uphill road and in deep water, paying more attention to quality education, focusing on the essence of education and improving the quality of teaching is the key construction project of China in the reform of higher education [1]. And English is one of the essential teaching subjects for multinational enterprises and teaching education in the modern economic globalization development today. However, since the native language of Chinese people in China is Chinese, learning English can be difficult, and this becomes the reason why many students cannot be interested, not only because the learning of English itself is difficult, but also because there are problems in the English classroom today, such as delayed and circuitous teaching links and difficulty in stimulating students' interest in the teaching introduction, so it is extremely important to innovate the learning mode in English classroom teaching. The mode of learning in the English classroom is extremely important [2].

With the improvement of science and economic technology and the change of education system in China, big data analysis technology has been widely used in the field of

English teaching. How to innovate teaching models and improve students' independent learning ability and interest in learning in English classroom teaching is the primary issue to think about in modern English classroom teaching, and it is also important to think about how to instantiate the development of modern technology into English classroom teaching so that the teacher groups can assess students' learning effects in English classroom teaching in a timely, accurate, and quality-weighted manner.

In the past two years, due to the successive epidemics, offline class suspensions have become the norm in epidemic areas, but according to the national education policy of emergency response, China has now achieved the solution of nonstop online learning despite offline class suspensions, which is also an opportunity for China to further innovate its teaching model and be able to fully promote online learning through online video learning and live lectures [3]. Compared with traditional English classroom teaching, online teaching, live teaching, watching, and replaying videos can make English classroom teaching content no longer a "one-time English classroom" of "fast food consumption". The teacher can record videos for students who do not understand the class to watch again and again, so that they can give feedback to the teacher on the problems of the students in that section

or the whole teaching session [4]. At the same time, the use of big data analysis and other technologies to assess the degree of students' mastery of knowledge and to explore the laws that exist, allows teachers to better identify students' weaknesses and teaching problems in learning English, so as to change the teaching mode or consolidate students' weaknesses, etc. The innovation of online teaching and the application of English classroom teaching cases to practice, based on the original mobile learning, using the educational theory of flipped classroom and analyzing and researching new teaching models and assessment models through big data technology will definitely help to improve the quality of teaching. Improving intelligent teaching and learning in the English classroom with the flipped classroom mobile learning model will not only innovate teaching concepts and teaching models, but also improve the students' overall English proficiency, which is of great significance to English classroom teaching [5].

2. Current Situation and Problems in Today's English Classroom Teaching

Many problems exist in English classroom teaching in China today, from the object point of view, among which there are teachers' problems and students' problems; from the cause point of view, there are subjective reasons and objective reasons. Next, we will analyze the problems on English classroom teaching today from teachers' and students' perspectives, so as to find countermeasures and introduce the flipped classroom and mobile learning model from the perspective of teaching.

2.1. Emphasis on Test-Taking, Not on the Application of Language in Real Life. Although China's education reform policy has long been to move away from test-based education to quality education, we do not have a well-developed system to address the problem of test-based education [6]. Since the beginning of the imperial examination, the examination has existed as a talent competition for selection. As a result, many traditional teachers are influenced by the thinking of "exam-oriented education" and focus only on explaining knowledge and instilling knowledge into students in the English classroom, without paying attention to the application of English knowledge in real life. They do not pay attention to the fact that the essence of English education is to let students learn to use English, speak English, and express themselves in English as a second language, which leads students to learn English only in the process of English grammar and examinations, and deviates from the essence of learning English. This has led many students to become "dumb English".

2.2. Only Focus on Teaching Students, But Not on How They Should Learn. With the reform of education, English teaching materials are constantly updated, and the use of new teaching materials makes English teachers who only pay attention to teaching methods ignore the lack of research on how students learn English, and the methods of teaching

students are not updated with the new teaching materials. For example, the English classroom in modern secondary schools can make many students drowsy, not only because of the students themselves, but also because some students cannot understand the natural inability to stimulate the enjoyment of learning English, so in the English classroom teaching English teachers should also adjust their teaching methods and take different teaching methods for different levels of students. In the same classroom, there are naturally poor students and good students, so how to achieve a balance for different students in the same classroom is one of the key points of intelligent teaching research in English education today. To address this issue, this paper will investigate on the basis of big data analysis [7].

2.3. Teachers Do Not Pay Enough Attention to Students and Do Not Fully Mobilize Students' Learning Motivation and Initiative. In modern English classroom teaching, many teachers may neglect to pay attention to students due to problems such as the pressure of classroom tasks, which leads to students' lack of confidence in learning English well. This neglect of students' motivational assessment can leave students without a sense of accomplishment and thus not paying enough attention to learning English well. Therefore, this paper addresses this problem by analyzing the data obtained based on big data analysis, uncovering its patterns, and proposing an assessment model based on big data analysis [8].

3. Flipped Classroom

The "flipped classroom," also known as the "upside-down classroom," is an innovative teaching model. It refers to the transfer of learning options from the teacher to the student, with the student deciding when and where to learn. The traditional classroom and the flipped classroom are shown in the following diagram, as shown in Figures 1 and 2.

As you can see in Figures 1 and 2, the biggest difference between a flipped classroom and a traditional classroom is that students first use wireless technology and Internet technology to study on their own, then complete the knowledge and assignments on their own, wait for the teacher to correct the assignments, and then consolidate and answer questions on the knowledge [9].

Aaron Sams and Jonathan Bergmann, two teachers teaching at Woodland Park High School in the United States, discovered a new form of teaching—the flipped classroom—in which these two teachers put their recorded teaching. In this teaching activity, these two teachers put their recorded videos online for students to learn independently in advance, and then the teachers communicate directly with all students in class to reinforce what they have learned in advance and to further solve any problems that arise during their self-study by answering the questions. Since the flipped classroom has more advantages than the traditional teaching model, Salman Khan's presentation at the TED conference in 2011 became more widely known until it was introduced to China, and more education

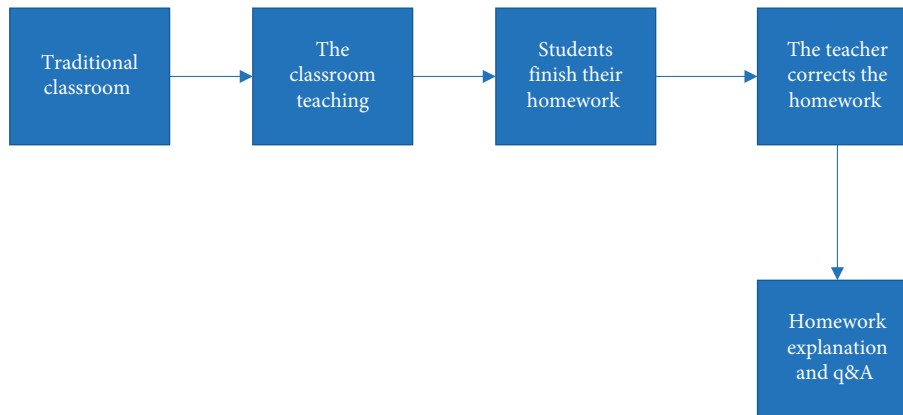


FIGURE 1: The teaching and learning process of traditional classroom.

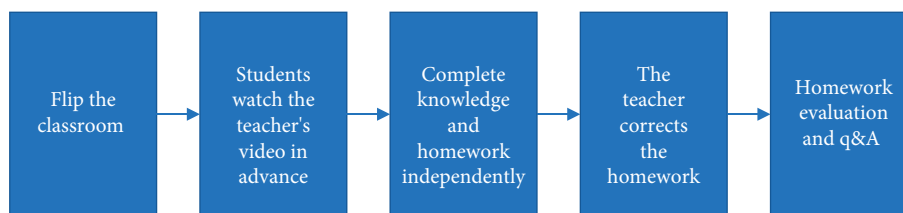


FIGURE 2: The teaching process of a flipped classroom.

scholars in China were aware of it, thus starting a wave of research on flipped classroom [10].

The flipped classroom flips the relationship between the internalization of knowledge and the transmission of knowledge in actual teaching activities, which is conducive to improving the students' ability of collaboration, self-exploration, and independent learning within group work, in line with the design theories and design ideas of system theory and architecture attention.

First, in terms of its advantageous performance, the flipped classroom can build a collaborative learning environment in the English classroom and help students to learn English in a quality and quantity way [11]. In the new teaching mode of flipped classroom, wireless terminals and Internet technology are used to internalize the knowledge in face-to-face classes, and the control of learning is in the hands of students, then the teacher in the real classroom is supplemented by guidance, and teachers and students conduct inquiry learning together, giving guidance and help to students who encounter problems in learning. It is also conducive to creating a learning environment and atmosphere where students and teachers have equal and harmonious self-drive, which can make the relationship between teachers and students more harmonious and more conducive to building a new type of teacher-student relationship. This kind of learning atmosphere is indispensable for English learning.

Secondly, flipped classroom in English classroom teaching can implement the purpose of tiered teaching in teaching activities. Within a class or a university grade, there are always differences in individual students, and each student has different abilities, which leads to different

intensities of receiving knowledge. But with the emergence of flipped classroom, compared to the traditional classroom of "teaching first and practicing later", the flipped classroom of "learning first and practicing later" is able to deal with the problem of different levels of students and different learning abilities. In the flipped classroom, students can decide how many times they want to watch the video according to their own needs, and they can also discuss with others after watching the video to solve their own questions, so that students can strengthen their knowledge through discussions with teachers and classmates on the premise of self-learning [12].

4. Flipped Classroom + Mobile Learning

4.1. Problems in Teaching Practice under the "Flipped Classroom" Learning Model. In this paper, we take the classroom teaching in English grammar class as an example, and find that the following problems exist in the learning process.

- (1) Students are not excited to learn, and they are not motivated by the lack of teacher supervision. In the case of the "flipped classroom" model, students were not as excited to learn English as expected, and instead watched the videos just to brush up on their learning tasks, which was the opposite of what was expected. However, most of the students were still able to complete the learning tasks as requested by the teacher [13].
- (2) In terms of teaching content, the length of the instructional videos was too long. The teaching format of flipped classroom is mainly through students'

independent learning and watching videos to complete the task, but many students are impatient in the process of watching videos and find them too long, so they cannot concentrate on watching the teaching videos, which leads to more inefficient learning and students have less confidence in learning English well.

- (3) Many students do not complete the tasks of watching the videos and assignments on time [14]. In the practice of flipped classroom, teachers assign students the content and knowledge to be learned in the next lesson before each lesson, but many students do not finish the task of watching the videos on time and independently, which leads to the delay of teaching progress and the overall teaching level decreases.

4.2. Mobile Learning. To address the problems of flipped classroom in college English grammar class, this paper introduces a new teaching model—the new learning model of flipped classroom + mobile learning. First, we introduce what mobile learning is.

The word “mobile” in mobile learning refers to the fact that students are free to learn at the time and place they want, not controlled by the teacher, and are mobile. Mobile learning is a new mode of learning that has emerged in recent years with the development of technology, and advanced communication in the world. Mobile learning is also defined by some scholars as learning with the help of mobile electronic devices. Mobile learning has the following characteristics [15].

- (1) **Mobility:** Mobile learning is a way of learning with the help of electronic devices, and students only need to download or connect to the Internet to achieve independent learning, which is very flexible for both the teachers and students.
- (2) **Autonomy:** Mobile learning is not constrained by time, place, and occasion, so students have a strong learning initiative. The use of mobile learning in the English classroom helps students develop self-discipline and autonomy in learning English and activates their internal drive to learn [16].
- (3) **Higher collaboration rate:** In order to avoid problems such as students only know English grammar or only English exams or writing, using mobile learning allows students to preview the class content they learn in advance, so that they dare to speak English and use English to express their thoughts in the real classroom [17]; at the same time, through collaborative methods such as group discussions, students can participate in the discussions and try to ensure that. We also make sure that every student does not fall behind in oral expression through collaborative methods such as group discussions.
- (4) **Fragmented learning:** Fragmented learning refers to the use of fragmented time to learn and internalize knowledge in daily life. Mobile learning is a new model of fragmented learning. In the mobile learning

mode, students can watch the teaching resources released by the teacher in their own leisure time, so as to achieve the purpose of self-learning, as shown in Figure 3.

4.3. Flipped Classroom + Mobile Learning. Firstly elaborate the changes in English teaching. In “Exploring English Change” by Zhong Ping in 2020, he pointed out that “the key to English teaching is to explain the logic behind English clearly”. Since the epidemic, many places in China have been asking for online classes from time to time, and Mr. Zhong Ping also pointed out in his online course “Logical English” that “the teaching of English should be a whole, not modularized or blocked”. At the same time, China has made some changes in the reform of English in universities. For example, in terms of course content, the “Requirements for Teaching English in University Courses” also points out that English in universities should be taught by learning the theory of English teaching and learning the practical application of English and the essence of English knowledge. As one of the skills of cross-cultural communication, and also to clarify the strategies of teaching English and to keep up with the times, integrating the development of today’s economy and technological advances, and gathering a variety of teaching modes integration and teaching means of education system [18].

The definition and advantages of the flipped classroom and the mobile learning model are described in Section 2 and Section 3, respectively, and the problems in teaching practice with the “flipped classroom” learning model are also described in Section 3. In response to the problems of untimeliness, long teaching videos, and insufficient self-drive of students, this paper proposes a new teaching model that combines the fragmentation, mobility, and independent learning characteristics of mobile learning. This paper proposes a new teaching model—“Flipped Classroom + Mobile Learning.” Next, the new teaching model of flipped classroom + mobile learning is elaborated [19].

In terms of classroom assessment, teachers can analyze students’ learning and questions by observing the background data, and then adjust the teaching content according to the students’ learning data in the actual classroom, so as to start targeted teaching activities [20]. In addition, in the assessment of classroom teaching, teachers and students can not only communicate their knowledge online, but also evaluate students’ ability to express themselves in English through their language output offline, so that they can turn their knowledge into internal use and understand how to use different English expressions in different scenarios to improve their language skills.

In terms of classroom organization, the new teaching model of “flipped classroom + mobile learning” is also a good way to cope with the current trend of time compression and credit reduction in English learning. The traditional classroom teaching time is 45 minutes a class, with a 5 to 10 minute break between classes, which is very unfriendly to a class with complex content like English grammar. Therefore, the new teaching model of “flipped classroom + mobile

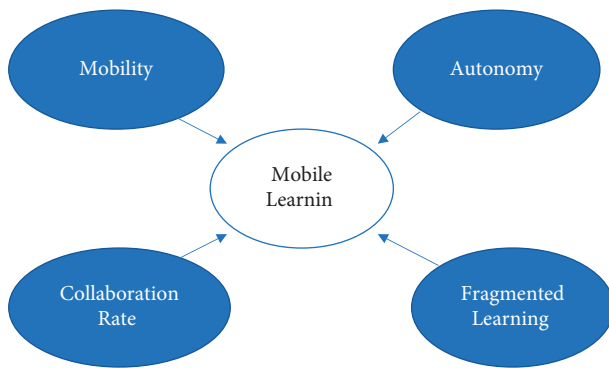


FIGURE 3: Features of mobile learning.

learning” will be a good choice for the content and time of the class, and more importantly, for the students in the same classroom group with a wide range of levels [21].

In this paper, the following pedagogical requirements and goals are proposed for this new model.

4.3.1. The Length of the Recorded Video Should Not Be Too Long. In a simple “flipped classroom” learning model, some videos are too long, even more than one hour. The excessive length of learning can lead to mental fatigue and lack of learning satisfaction, which can lead to students becoming less and less interested in the learning process [22]. Therefore, in the new mode of “flipped classroom + mobile learning”, teachers should divide several knowledge points into multiple videos when recording teaching videos, and ensure that the length of the videos for students’ self-study is about 10 minutes. Such fragmented teaching videos not only make teachers feel relaxed in the recording process, but also make students easily get a sense of achievement and satisfaction in the learning process, thus making English learning more interesting and ensuring students’ learning efficiency and learning effect [23].

4.3.2. Teaching Content Should Be Focused, Not Learning for Exams. From test-based education to quality education, many teachers still have the inherent “test-based education” mentality, which leads many teachers to emphasize where to focus on exam points and where to focus on nonessential points when teaching [24]. This has led to a situation where many students only know how to take the test but not how to apply it in their lives. Therefore, in this new paradigm, it is recommended that teachers can change their thinking and focus more on students’ ability to apply in real life. For example, in the explanation of English grammar, it is not necessary to explain only how to analyze the definite clause and how to write it well, but also to tell students how the definite clause will appear in real conversation, how to express themselves in the spoken language with the definite clause, and so on. If we can combine the knowledge of English with real-life conversations and make the boring English lessons active and interesting, then students will have more interest in learning English and naturally their academic performance will improve. Therefore,

it is important to change the previous thinking in the teaching practice activities under the new model.

4.3.3. Guiding Learning to Use Fragmented Time to Study and Stimulate Students’ Inner Drive. As mentioned earlier, the teaching videos recorded by teachers should not be too long to prevent students from mental fatigue in the process of independent viewing, which leads to the problem of inattention, so a teaching length of about 10 minutes is the most appropriate video length [25]. At the same time, teachers should also instruct students how to use the fragmented time to study, how to make the best effect of learning in the fragmented time, and how to drive students’ intrinsic interest in learning according to their learning situation, so that the students can achieve the best learning efficiency.

4.3.4. Selecting the Right Mobile Learning Platform. Under the new model of “flipped classroom + mobile learning”, the teacher team should choose a suitable mobile learning platform to prevent students from picking up smart terminals such as tablets or cell phones and opening entertainment software such as Akiyay and Tencent Video instead of teaching videos. Therefore, it is necessary to use a suitable mobile learning platform, and a professional mobile learning platform is especially important here. You can choose such learning platforms as China Muzi, Learning Pass, etc., or you can choose a learning platform developed exclusively by your own school to publish teaching videos [26].

4.3.5. Be a Good Supervisor for Students. In the new model, students have more independent control over their learning, but after all, there are too many temptations in real life, so as teachers should be good supervisors of students, while students are not only teachers’ students, but also parents’ children, teachers and parents should maintain good communication, and jointly supervise students to complete the teaching videos on time and in quality, teachers and students working together to complete their studies is the vocation of teachers.

4.3.6. Pay Attention to Students’ Feedback. Under the new model of “flipped classroom + mobile learning”, teachers should always pay attention to students’ feedback and opinions. It is recommended to let students give their opinions and questions in the discussion forum after each lesson, so that the teacher and students can work together to improve the quality of teaching. Therefore, in the new model, teachers should pay attention to students’ feedback, build a new type of teacher-student relationship, collaborate to accomplish teaching tasks and learning goals, and strive to make every student achieve the best learning effect and the highest learning efficiency in every lesson.

5. Big Data Analysis

Big data analysis refers to the technique of analyzing and processing a wide variety of data related to the behavior of any recorded individual or group [27]. The term big data is common both on the Internet and in real life, but to

understand what big data analytics is, you have to start with big data. First of all, big data contains two layers of meaning, the first layer is that the various activities of human beings will produce the corresponding data records, these data records are remembered and stored by the network, it becomes the superficial sense of “big data”; the other layer is from the technical level, big data actually refers to the big data technology, that is, big data analysis and processing technology. This paper uses big data analysis to analyze the new teaching practice model of “flipped classroom + mobile learning” because the essence of big data analysis is to visualize the value of the data obtained, so that we can see the pattern and visualize the learning effect of students in this model. In addition, the new teaching practice model of “flipped classroom + mobile learning” combined with big data analysis technology can also fully collect students’ learning data and dig deeper into their characteristics, and adjust teaching strategies based on the data analysis results, so that teachers can more fully grasp the learning situation of students and the differences between students’ learning abilities. At the same time, it is also a new attempt for online English teaching mode [28].

6. English Classroom Teaching Case Design Based on Big Data Analysis

6.1. Sources of Big Data in English Teaching Classroom. In this paper, according to the different sources of big data, education big data can be divided into national education big data, regional education big data, school education big data, classroom education big data, curriculum education big data, and individual education big data according to the top to bottom and large to small [29]. In order to fully consider this paper as a study on the improvement of “flipped classroom + mobile learning” model based on big data analysis, the big data adopted in this study are mainly classroom education big data and individual education big data.

6.2. Analysis and Mining of Big Data of English Teaching Classroom. The research object of this paper is a college English grammar class composed of students of different majors, and the data collected are class education big data and individual education big data. The research is about the new model of “flipped classroom with mobile learning” in English classroom teaching based on big data analysis technology. In the teaching practice of the new model, teachers need to continuously adjust the teaching objectives based on students’ feedback and midterm and final grades, that is, based on the results of big data analysis and mining. In other words, based on the results of big data analysis and mining, combined with the characteristics and advantages of the flipped classroom + mobile learning mode, teachers need to innovate and optimize the teaching design methods in teaching practice. The next paper selects the data on the content of the definite clause in the English grammar class to analyze the problems and observe the weaknesses of students in the teaching process under the new model [30].

In the video on the teaching of definite clauses, firstly, before starting the teaching of definite clauses, examples of Chinese definite clauses are given, and then the differences between Chinese and English definite clauses are compared, so that students can deeply feel that there are differences between English definite clauses and Chinese definite clauses, and the main difference is in the grammar. Next, in the next video, an overview of the definite article is explained, and these basic concepts such as what is a prior word and a relative word are made clear, followed by the classification of the definite article, what is a restrictive definite article and what is a nonrestrictive definite article. These contents are all fragmented by the new mode of mobile learning and flipped classroom learning, and the length of the video does not exceed 10 minutes.

6.2.1. Overall Student Quiz Data Analysis. First is the data analysis of the overall students. In this paper, the data from the quizzes on the grammar of the definite article in college English grammar are selected for analysis. In this paper, there are 10 questions on the grammar of the definite article. The first 5 questions were on choosing the appropriate relative pronoun; the 6th to 8th questions were on translating the definite clause into Chinese, and the 9th to 10th questions were on translating the given Chinese using the definite clause in English. The total number of students in the class was 43. Questions 6 to 10 were scored out of 10, and those above 7 were considered correct and those below 7 were considered wrong. The quiz data are as follows, as shown in Figure 4.

6.2.2. Data Analysis of Different Students in the Score Range. Secondly, the multiple-choice questions set in this paper are 5 points each, and the full score of multiple-choice questions is 25, among which the Chinese and English translations of the 6th to 8th questions are 10 points each. In this paper, the distribution of students in the 0–25, 26–50, and 50–75 score ranges was calculated to show the weaknesses of students in the learning process. The distribution of the number of students in different score ranges is shown in the figure below, as shown in Figure 5.

6.2.3. Students’ Overall Chapter Learning. In this paper, the study is based on the research of the new mode of English classroom teaching and learning, so the video recording process is a complete teaching of college English grammar, not only limited to the definite clause in college English grammar, in order to better observe the students’ interest in the new mode of flipped classroom + mobile learning or whether the task-driven nature is reasonable, so this paper extracts a part of the chapter learning completion. In order to better observe whether the students are interested in the new mode of flipped classroom + mobile learning or whether it is task-driven, this paper extracts the learning completion data of some sections for analysis, as shown in Figure 6.

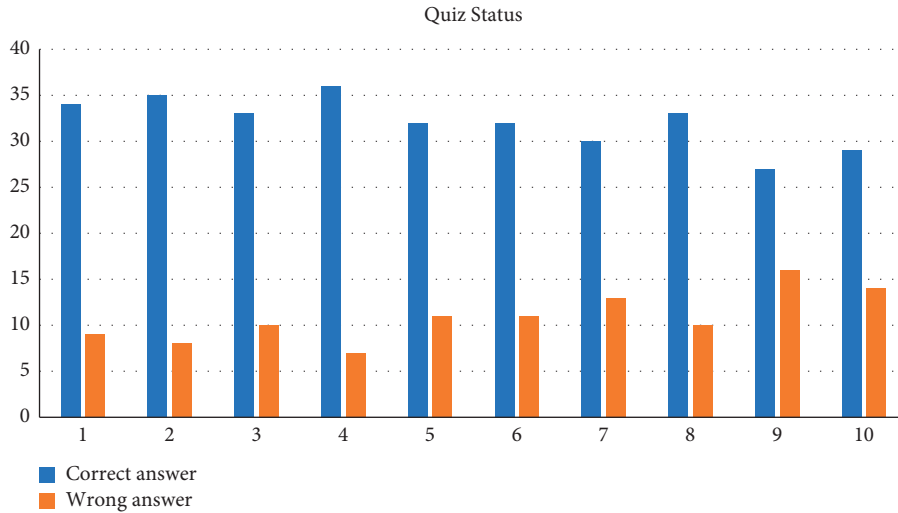


FIGURE 4: Quiz on the grammatical points of definite clauses.

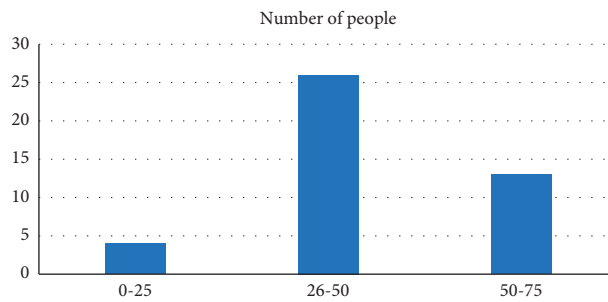


FIGURE 5: Distribution of the number of students in different score ranges.

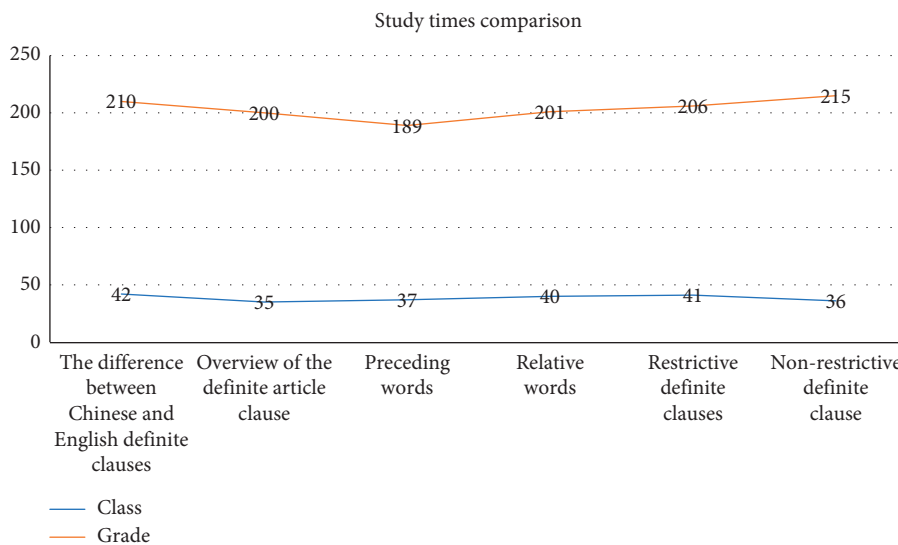


FIGURE 6: Comparison of learning trends by class and grade level.

6.2.4. *Students' Feedback on the New Model.* Under the new model of “flipped classroom + mobile learning” and supported by big data analysis technology, the evaluation page is given after each video chapter, allowing students to evaluate the teacher’s teaching style, knowledge

explanation, and the reasonableness of the length of the video. The evaluation score is 100 points, above 70 is considered as approval, and below is considered as disapproval. The data is shown as follows, as shown in Figure 7.

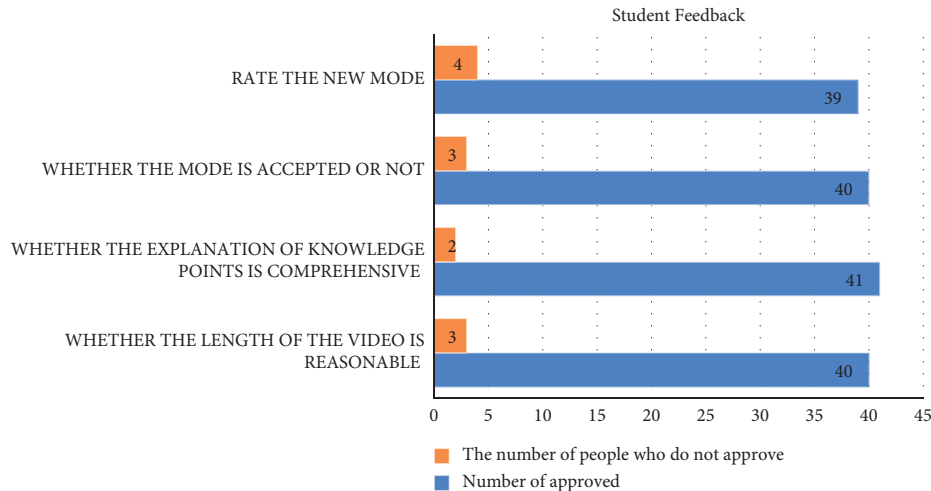


FIGURE 7: Students' feedback on the evaluation of the new model.

7. The Construction of Precision Teaching in English Classroom Based on Big Data Analysis

This paper analyzes the evaluation system of teachers' teaching development based on the premise of improving the "flipped classroom + mobile learning" model, and proposes the expectations and requirements for accurate teaching based on big data analysis.

The first step to solve the problem is to understand how the problem arises. On today's teaching evaluation system, the lack of teaching big data support and an information system to comprehensively and objectively evaluate teachers' teaching effectiveness is the primary problem. Generally speaking, teachers carry out teaching activities according to syllabus and credit hours, which is not wrong, but due to different teachers and schools, there are differences in teachers' teaching activities, teaching contents, teaching methods, and teaching research, etc. The evaluation methods for teachers are also various and independent, which makes it difficult to achieve comprehensive analysis and accurate judgment of teachers' teaching results. This makes it difficult to analyze and accurately judge teachers' teaching [9] results. At the same time, students' feedback and evaluation responses are not properly addressed, which affect the "teaching-learning" relationship between teachers and students and leads to deviations in teaching and learning, and as a result of poor communication, some students directly become "biased" or bored. Or directly lead to aversion to learning. Therefore, in order to solve this problem, we need to build a feedback system for teachers' evaluation of teaching.

In recent years, due to the synthesis of information and big data, many education data have the requirement of using big data analysis technology. At the same time, the development and progress of China's education system over the years, has long accumulated a huge amount of education big data, how to use these big data well, to the tip of the knife for the development of a new model of contemporary education

will be a very important issue. At the same time, the use of big data technology to build a teacher evaluation system and student feedback system is an essential part of building a new type of teacher-student relationship, and is a key point for "teaching and learning" to go hand in hand. In addition, it is also very important to use the feedback system for teaching English to address the problems of language bias and the fact that most students can only use but not speak English. Therefore, this paper proposes a research direction of assessment model based on big data analysis based on the new model of "flipped classroom + mobile learning".

8. Assessment Model Based on Big Data Analysis

The assessment model based on big data analysis in the new learning model of "flipped classroom + mobile learning" is shown in the figure below. In this model, an evaluation model with interactive feedback between students and teachers is proposed.

First, after a certain degree of learning in the new mode of "flipped classroom + mobile learning", students give feedback on English classroom teaching or video teaching through the information-based comprehensive evaluation system, and then, through the interaction between students and teachers, teachers reflect the feedback results to school leaders. Then, through the interaction between students and teachers, teachers will reflect the feedback results to the school leaders; then, through the school leaders and teachers' feedback, they will discuss and make improvements, and then feedback to the evaluation system, and students can finally view the school and teachers' solutions to the problems raised through the evaluation system. This mutual feedback evaluation system not only breaks the traditional teacher-student model of "teaching and learning" and "learning and teaching," but also strengthens the communication and exchange between teachers and students, as well as the exchange and discussion between school leadership and teachers, which greatly facilitates the mutual understanding between students and teachers, and teachers

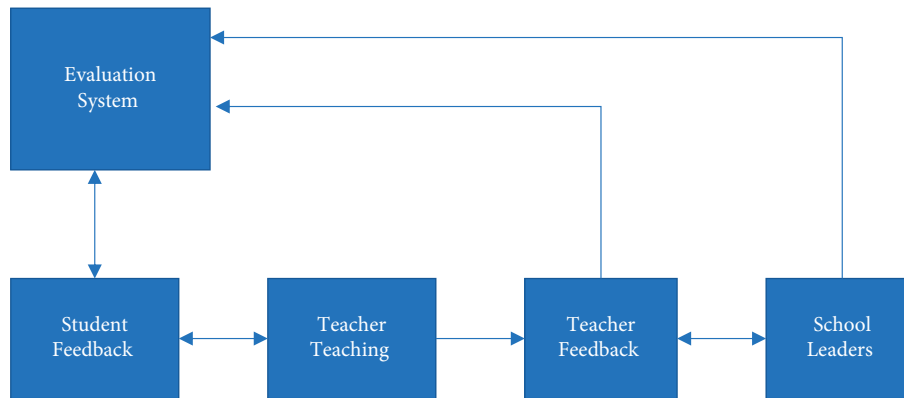


FIGURE 8: Assessment model based on the new learning model using big data analysis.

and school leadership. This model greatly facilitates mutual understanding between students and teachers, and between teachers and school leaders. For the students, the assessment model helps to improve their learning effectiveness and efficiency, encourages them to express their ideas, and helps to develop innovative and bold thinking; for the teachers, the implementation of the assessment model helps to create a harmonious teacher-student relationship, allowing teachers to understand students' ideas and learning problems, and allowing school leaders to hear teachers' voices, as shown in Figure 8.

9. Conclusion and Outlook

Based on the learning model of flipped classroom, this paper proposes a new learning model—the improvement of flipped classroom + mobile learning model; in addition, it also analyzes and digs into issues such as students' adaptation level under this model by using big data analysis technology, and through the analysis of big data, the conclusion shows the students' acceptance of this new model. In addition, we also analyzed and explored the adaptation level of students in this model through big data analysis. Finally, based on the research of the new model of flipped classroom + mobile learning, an evaluation model, an interaction model between teachers and students, and between teachers and leaders, is proposed. This evaluation model will facilitate the construction of a new and harmonious relationship between students and teachers, and teachers and schools.

Data Availability

The dataset can be accessed upon request

Conflicts of Interest

The authors declare no conflicts of interest.

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