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Research on the Smart Teaching Model of College English Based on Rain Classroom

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Abstract: Currently, education has entered the era of informatization 4.0 where smart teaching technology is reshaping the ecological pattern of higher education. As an indispensable part of basic courses in universities, the reform of smart teaching in college English has become a focus for numerous educators. This study comprehensively analyzes the challenges faced by smart teaching in college English, the adaptability of Rain Classroom to the needs of college English teaching, and focuses on exploring the empowerment mechanism of Rain Classroom in the entire teaching process of pre-class preview, in-class discussion, post-class consolidation, and feedback. Research has shown that this platform can assist teachers and students in effectively breaking through the temporal and spatial barriers of traditional college English teaching, significantly improving students' language input and output efficiency, and providing reference for smart foreign language teaching practices.

1. Introduction

In recent years, the global education sector has undergone a significant transformation, with artificial intelligence technologies such as DeepSeek and ChatGPT emerging as leading examples. These technologies have driven the sector toward digital transformation and intelligent development. Against this backdrop, the development of a new teaching model which is driven by smart teaching technology to meet the needs of foreign language education has emerged as a pressing priority for front-line educators. The study focuses on the smart teaching platform "Rain Classroom" and explores the specific implementation pathways of smart teaching tools in college English courses. The objective of this study is to furnish both theoretical and practical insights to facilitate the intelligent transformation of foreign language education.

2. Major Challenges Facing Smart Teaching in College English

With the rapid emergence of various smart teaching tools, college English classroom teaching reform is facing unprecedented opportunities for development. However, in practice, smart teaching in college English still faces a number of structural challenges.

2.1. Insufficient Understanding of Smart Teaching

Currently, some college English teachers have significant misconceptions on smart teaching. They simply view smart education as the use of smart teaching tools such as tablets, language smart classrooms, and Rain Classroom during teaching, rather than as a systematic transformation of teaching methods. This cognitive limitation directly leads to a dilemma in the integration of smart teaching and college English. On the one hand, in the practice of smart teaching, teachers overly focus on the tools themselves, without considering the integration of smart tools with language teaching, and fail to touch on deep level teaching reforms such as teaching mode innovation (such as blended teaching based on POA) and spatial expansion (like virtual language laboratory). On the one hand, smart teaching has been labeled as "clout-chasing" and "fashion-chasing", leading to some teachers blindly following the trend of intelligent teaching in education, or simply copying demonstration cases without restructuring the teaching process according to their actual needs. In addition, due to a lack of comprehensive understanding, some teachers view smart teaching as a burden, believing that it wastes both teachers and students' time and does not produce actual results. This resistance to reform hinders the advancement of smart teaching.

2.2. Inadequate Use of Smart Teaching Tools

Some teachers only use the basic functions of smart teaching tools (such as check-in, automatic grading, and online testing) during the teaching, without a deep understanding and comparison of the compatibility between various teaching tools and the college English, resulting in low utilization of the platform's core functions (such as teacher-student interaction, learning data analysis, and adaptive recommendation). Smart tools only are used in some teaching stages (such as only using U-Campus during the preview stage or using the Pigai website when writing), without forming a complete smart teaching process. This is one of the reasons why the effectiveness of smart teaching of college English is not significant. The digitization and intelligentization of education is not simply about applying digital technology to existing educational and teaching scenarios, but about reconstructing application scenarios based on real needs and achieving innovation in effective human-machine integration [1].

2.3. Lack of Connection between Online and Offline Blended Teaching

At present, there are three core issues in college English blended teaching. Firstly, structural defects exist in teaching design. Online resources merely replicate traditional classroom content through digital transformation. Some teachers superficially convert offline teaching materials (such as vocabulary teaching and sentence pattern teaching) into PPT files or recorded lectures for online delivery, without redesigning them within smart learning concept or unit-based themes. This approach results in double burden to students, ultimately reducing smart education to an electronic replica of cramming. The second issue is the discontinuity in the connection of teaching processes, where offline classrooms cannot be organically integrated with online learning content or there is a lack of teaching approaches to check the effectiveness of online learning. The rational use of intelligent technology to optimize teaching has not been achieved, and the effect of blended teaching has not been fully realized. Thirdly, there is a significant conflict between the passive learning model of traditional teaching and the requirements of blended learning. Students are not active enough in online independent learning (such as completing online tasks and participating in group discussions), and the learning effect is less than expected.

2.4. The Evaluation System Relies on Summative Assessments

Presently, there is a lack of a scientific evaluation system for college English smart teaching. On the one hand, the excessive emphasis on summative evaluation (dominated by final exam scores) results in a low proportion of formative evaluation, which often becomes a mere formality (scored by attendance records). On the other hand, online platform learning data (such as video viewing duration and quiz scores) are simply quantified, ignoring actual learning outcomes and failing to comprehensively evaluate both online (discussion participation) and offline (oral performance) performances. These dilemmas seriously hinder the sustainable development of smart teaching in public foreign language education at higher education institutions

3. The Advantages of Rain Classroom in Empowering Smart Teaching

The Rain Classroom Smart Teaching Platform was jointly launched by Tsinghua University and XuetangX in 2016. With innovative technological approaches such as data-driven and intelligent methods, this platform provides efficient information support for teaching processes, representing a significant research achievement of the Online Education Research Center of the Ministry of Education. Currently, Rain Classroom has been applied to over 1,500 universities nationwide, including over 80% of the “Double First-Class” universities [2]. With its unique innovative advantages, Rain Classroom has become one of the most influential smart teaching platforms in China.

3.1. User-Friendly Operation and Low Barrier to Entry

The design of Rain Classroom is user-centered, allowing teachers and students to get started quickly by simply reading the user manual. After downloading and installing the Rain Classroom app, teachers can add teaching activity designs to the courseware. During lectures, teachers can launch the courseware in a multimedia classroom to activate Rain Classroom. Students don’t need any separate software installation—they join the smart classroom by scanning the classroom QR code via WeChat and simultaneously view teaching content displayed on the classroom screen through the Rain Classroom mini-program. The simple operation mode of this tool saves time for both teachers and students, while the smooth interactive experience also enhances user engagement.

3.2. Multifunctional Integration and Teaching Adaptability

After nearly a decade of version iterations (from 1.0 to 6.2, with over 300 cumulative updates), Rain Classroom has evolved into a comprehensive platform integrating diverse functions. Its functions include, but are not limited to: word cloud generation, Bullet Curtain interaction, live streaming lectures, Tencent Meeting integration, etc. Bullet Curtain submissions and real-time red envelope rewards functions highly align with language courses’ demand for interactivity and engagement, effectively boosting student participation in class.

3.3. Data-Driven Precision Teaching Support

One of the standout features of Rain Classroom is the precise and powerful teaching and learning data analysis function. Through Rain Classroom, teachers can monitor key indicators such as student attendance, learning progress, answer accuracy. This enables them to adjust teaching schedules more effectively and maximize teaching quality within the limited classroom time.

4. Construction of a Smart Teaching Model for College English Based on Rain Classroom

College English teaching possesses distinct disciplinary characteristics. Firstly, as a language course, its essence demands high-frequency interaction and practice. Secondly, the course objectives emphasize the integration of multidimensional abilities, requiring systematic training in listening, speaking, reading, writing, and translation to enhance comprehensive language application skills. Furthermore, English teaching needs to focus on cultivating students' cross-cultural communication skills and critical thinking abilities. Foreign language education and teaching, as courses designed to cultivate learners' language communication and learning abilities, can benefit most from digital technology [3]. Against the backdrop of intelligent transformation in higher education, we must adapt to contemporary demands by leveraging platforms like Rain Classroom to construct a smart teaching model, and achieve personalized, interactive, and intelligent language learning.

4.1. Pre-Class Preview: Data-Driven Precise Teaching Design

Due to limitations of time and space, traditional previewing methods suffer from difficulties in monitoring student progress. However, Rain Classroom helps to realize the intelligent reconstruction of the preview process. Firstly, teachers can design tiered previewing tasks tailored to different lesson types (such as reading lessons, listening and speaking lessons). Taking reading classes as an example, for a unit "environmental protection", the basic level task can be set as text comprehension questions (such as listing examples of green lifestyles); the advanced level task can be set as open-ended discussions (such as analyze the impact of carbon footprint on ecology); and the interactive communication task can be set as Q&A sessions in the comment section. Secondly, it provides real-time feedback on student learning progress. The system automatically compiles answer accuracy rates and problem hotspots into charted data, enabling teachers to dynamically adjust classroom teaching priorities. Students, in turn, recognize their learning gaps through this data, fostering a sense of urgency in their studies. Practice has demonstrated that this "preparation-feedback-adjustment" closed-loop system effectively enhances classroom efficiency.

4.2. In-Class Interaction: Constructing a Multidimensional Interactive Language Learning Environment

The interactive language perspective emphasizes that the teaching process should reflect not only the instrumental and structural aspects of language but also its interactive nature. Traditional classrooms face challenges such as insufficient interaction coverage and a pronounced emotional filtering effect. Rain Classroom's diverse interactive features, however, have reshaped the interactive ecosystem of college English classrooms.

First, teachers can interact with students through the random roll call function in Rain Classroom. This "blind box" style interaction method introduces uncertainty and fun to the classroom, effectively capturing students' attention, boosting classroom excitement levels, and stimulating active thinking. Second, teachers use the screen sharing function which is anonymous to display students' translations, compositions, and other learning achievements, which is conducive to enhancing the neutrality and objectivity of example teaching, and also enables students to maintain psychological security when receiving evaluation feedback from teachers or peers, thereby building confidence in English learning and a sense of knowledge acquisition. Furthermore, the bullet curtain submission function serves as another highly efficient way for teacher-student interaction. Rain Classroom has adopted the mainstream interactive mode from video websites and introduced the bullet comment function into classroom teaching. This function supports real-time submission

of opinions in the form of bullet curtain (such as commenting on characters in an article using keywords), and teachers can instantly collect and display feedback from the entire class. This breaks through the traditional one-way question-and-answer mode, builds a multi-dimensional and instant classroom dialogue network, helps create a relaxed, open, and inclusive classroom atmosphere, and maximizes class interaction within a limited time, promoting the exchange of ideas and enhancing classroom interest. It is an effective means to overcome "classroom silence". The real-time feedback system is also a crucial part of a smart classroom. Teachers can dynamically adjust the response time and interactive form based on real-time data in the background. The dual-dimensional model of "technology empowerment + emotional support" enables English classrooms to achieve important transitions: shifting from teacher-dominated instruction to collaborative teacher-student co-creation, from outcome-based evaluation to process-tracking assessment, and from uniform pacing to adaptive teaching.

4.3. Post-Lesson Reinforcement and Feedback: Constructing an Intelligent Language Learning Closed-Loop System

According to Skinner's reinforcement theory, effective after-class consolidation helps to enhance knowledge retention. The traditional single mode of written homework struggles to meet the diverse development needs of English language skills. The intelligent after-class system based on Rain Classroom effectively achieves deep consolidation and precise evaluation of language learning.

The Rain Classroom resource library boasts a diverse range of test question types, capable of meeting the training requirements for listening, speaking, reading, writing, and translation in English teaching and learning. When assessing students' mastery of basic English language knowledge points such as vocabulary, grammar, and sentence patterns, teachers can choose standardized question types such as multiple choice and gap-filling to set homework and utilize the automatic grading function to obtain assessment results promptly. Teachers can also assign open-ended discussion questions in Rain Classroom, supplemented by uploading pictures, videos and other multimedia to promote deep learning through multi-sensory stimulation and foster students' critical thinking. This not only meets the basic language training needs but also helps enhance students' core competencies such as language communication and cultural understanding. This is an effect that traditional teaching struggles to achieve. Rain Classroom also boasts a function for replaying classroom content. Due to the high information density and learning intensity in English language learning, some students have limited instant processing capabilities and cannot absorb all knowledge in a short time. The replay function of Rain Classroom provides a platform for these students to engage in delayed learning. They can use the Rain Classroom mini-program to identify their weaknesses and fill in knowledge gaps after class. This is the convenience brought by smart teaching tools to today's language learning. In addition, Rain Classroom automatically generates detailed classroom reports (including attendance rate, interaction level, classroom progress, etc.) after classes and synchronously posts them to both student and teacher interfaces. For students, being able to view their individual classroom performance and class ranking effectively stimulates their learning enthusiasm; for teachers, the platform provides overall class learning data analysis and individual student performance, which serves as an effective means of monitoring teaching effectiveness and an important basis for providing personalized tutoring.

5. Implementation Suggestions

To enable smart teaching tools to better empower college English classroom teaching, teachers need to focus on several key application strategies. Firstly, shift the educational teaching philosophy. Some teachers have cognitive biases towards smart teaching tools, believing them to be flashy but

impractical, and even rejecting them outright. Currently, language intelligence provides an unprecedented practical interactive scenario for the application of foreign language characters, and foreign language education in Chinese universities (including public foreign language teaching) has encountered a rare development opportunity [4]. Against this backdrop, college English teachers should embrace the opportunities presented by the digital era with an open and inclusive attitude. In teaching practice, teachers should rationally understand the value of technology, neither blindly pursuing nor completely denying it; deeply integrate digital technology, and organically incorporate smart tools such as Rain Classroom into the entire teaching process. It is particularly important to emphasize that teachers will not be replaced by technology in the wave of digitization, but those who are adept at using technology will definitely be more competitive. Therefore, college English teachers should proactively update their teaching concepts, adopt a dialectical perspective toward technological change, extract the essence to empower teaching, and promote high-quality development of foreign language education through adhering to fundamentals and innovations.

Secondly, we must strengthen our confidence in reform and deeply promote innovation in college English teaching models. The "College English Teaching Guidelines (2020 Edition)" explicitly requires colleges to fully utilize modern information technology and actively create a diverse teaching and learning environment. At present, some colleges and universities currently encounter bottlenecks in blended teaching practices, leading to doubts occur among front-line teachers. But it is essential to recognize that "blended teaching models break through the constraints of time and space, increasing opportunities for students to engage in language input and output, which is of great significance for developing students' English proficiency under the limited hours of college English courses" [5]. As the basic law of educational reform indicates, no teaching reform can be achieved overnight. Teachers, as the backbone of the reform, must maintain strategic resolve while also embracing tactical flexibility—while adhering to the general direction of blended teaching, they should dynamically adjust implementation plans based on continuous teaching reflection and data diagnosis (such as learning analysis reports from Rain Classroom), ultimately achieving a double spiral rise in teaching quality and learning effectiveness.

Thirdly, continuously optimize the evaluation system of college English courses. Traditional evaluations primarily rely on summative assessments centered around final written exams and teachers' classroom observations. These assessments have the disadvantage of overly emphasizing the testing of reading and writing skills while neglecting students' learning processes, making it difficult to scientifically reflect students' true comprehensive English proficiency. Therefore, in the reform of smart college English teaching, teachers should pay more attention to collecting and analyzing data on learning processes, such as attendance, homework completion, online task performance, and classroom participation, and reasonably allocate the weight of scores for each learning module, such as listening, speaking, reading, writing, and translation. This not only makes course assessments more reflective of students' learning outcomes but also enhances students' belief and identification of this course model.

Fourthly, enhance teachers' digital literacy. When a variety of digital tools flood into the teaching field with unprecedented convenience, the leap in education quality faces the paradox of "abundant technology but insufficient effectiveness". However, how to maximize the use of these tools to improve the quality of education and teaching remains a critical issue that needs to be urgently addressed. Curriculum reform is people-oriented, and its essence is the reconstruction of education methods under the guidance of teachers. Currently, training for higher education reform and digital transformation is flourishing both domestically and internationally. Through research and training activities, teachers can gain insights into the latest advancements in educational technology and cutting-edge developments in their disciplines. But more challenging proposition lies in how to transform standardized training outcomes into personalized teaching practices. Faced

with differences in geographical conditions, student backgrounds, and hardware environments, teachers need to demonstrate educational wisdom, complete secondary innovation in the process of technology transfer, and construct reform plans that are suitable for their own school's teaching scenarios.

6. Conclusion

Under the impact of the wave of intelligent transformation in higher education, the reform of college English curriculum has become an inevitable trend. This study, based on Rain Classroom, explore its current status, feasibility, and application value in smart teaching of college English, with a focus on analyzing specific implementation methods. However, the actual effectiveness of Rain Classroom as a smart teaching tool is influenced by many factors, such as teachers' digital literacy and school information infrastructure. Therefore, the path ahead is long and arduous when confronting the complex task of teaching reform; meanwhile, educators also need to realize that the reform of college English teaching is a systematic project. Only by maintaining a balanced emphasis on both theory and practice can the foreign language curriculum system be driven toward continuous development in a more scientific and intelligent direction

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