

Enhancing English Writing Instruction in Junior Middle Schools: A Qualitative Study of the Production-Oriented Approach in Smart Classrooms

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Abstract. This study aims to explore the effectiveness of combining Production-oriented Approach (POA) with Smart Classroom in middle school English writing teaching. Smart classrooms use technology to create interactive and personalized learning environments, which has been proven to significantly improve students' learning abilities. However, there has not been sufficient research on its application in middle school English classrooms. POA emphasizes language output and practical application, which has been proven effective in university environments, but has not been fully explored in secondary schools. POA focuses on stimulating motivation through language output, which is consistent with the approach of intelligent classrooms. Therefore, this study aims to address two key issues: the impact of smart classroom technology on student learning efficiency under POA, and the challenges faced by teachers when using smart classroom tools for POA-based writing instruction. This study will include classroom observation, interviews, and questionnaire surveys to evaluate student engagement and language proficiency, and to investigate the problems encountered by teachers in practicing.

1 Introduction

Nowadays, English teaching is increasingly required to focus on learners' learning process, cultivate pragmatic ability, and focus on the practicality of language learning. The Production-oriented approach (POA) has emerged as a foreign language teaching method that is rooted in the local culture and integrates Chinese and foreign cultures, providing a new direction for improving the quality of English writing teaching in high schools in China [1]. At the same time, with the continuous development and progress of society, science, and technology as a mainline play a key role in social change, the emergence of technologies has also triggered major changes in the field of education. Smart Classroom is a new type of classroom that is different from traditional teaching methods. It refers to a mixed virtual and real classroom environment that is enhanced by advanced technologies such as artificial intelligence, communications, and sensors, as well as smart media devices such as interactive

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whiteboards, smart digital pens, and electronic schoolbags and corresponding software resources [2, 3].

Upon investigation, it was determined that some schools have participated in Smart Classroom technology in junior high school English classroom teaching. However, few teachers incorporated Smart Classroom technology into writing teaching during teaching practice. Meanwhile, POA emphasizes motivating language learning motivation through language output and carries out targeted efforts to promote the integration of language learning and use, thereby promoting the overall improvement of students' comprehensive language ability, which is in line with the implementation process of Smart Classroom technology. The teaching process under Smart Classroom technology is that teachers distribute personalized learning materials to students through the Smart Classroom platform before class. Through this step, students obtain learning materials of interest and gain motivation to learn; during class, teachers issue corresponding writing tasks, students collaborate on writing and publish them on the Smart Classroom platform, and teachers correct and evaluate them; after class, the big data function of the Smart Classroom platform will summarize and count the results, intuitively help students understand their weaknesses, and thus promote the improvement of students' comprehensive language ability.

2 Literature review

2.1 Smart classroom

Smart Classroom refers to the use of information technology to build an interactive and personalized learning environment centered on students [4]. The new curriculum standard emphasizes the cultivation of core competencies for lifelong development and adaptation to social development in education [4]. Since the early 21st century, multiple countries such as Singapore have implemented intelligent education practices. From the perspective of the constituent elements of the modern education system, the smart education system includes five major elements: modern education system, modern teacher system, digital generation students, smart learning environment, and teaching mode. Among them, teaching mode is the core element of a smart education system [5]. Nevertheless, whether incorporating the Smart Classroom created by information technology into traditional classrooms will have a promoting effect on student learning in real-life teaching requires a series of research and exploration.

Research has shown that Smart Classroom have a promoting effect on student learning. For example, scholars such as Mohammed Alfaidil and Tao et al. have conducted detailed research on this aspect [6]. Based on previous research, Smart Classroom are mainly implemented in higher education classrooms. Can Smart Classroom appear in classrooms for younger students? From this issue, researchers conducted a research survey on the age reduction of students using Smart Classroom. For instance, Lin conducted a study on teaching cases for middle school English Smart Classroom, proving that the use of Smart Classroom in English teaching makes teacher teaching more precise and student learning more personalized [7]. Wei applied Smart Classroom in the teaching of middle school English listening classes and concluded that Smart Classroom is convenient for teachers to design rich teaching activities [8]. Lyv utilized Smart Classroom in the teaching of junior middle school English reading classes and concluded that the various interactive designs of Smart Classroom have changed the monotonous traditional education model, making the classroom full of vitality and energy [9].

However, in terms of teaching junior middle school English writing, there has been no research on whether the Smart Classroom model is suitable for domestic junior middle school

English classrooms, how to implement junior middle school English writing teaching under the Smart Classroom model, and how the teaching situation of English writing classroom under the Smart Classroom is.

2.2 Writing teaching based on production-oriented approach

Writing is an important component of students' language skills. Based on teaching experience and literature review, researchers have found that middle school English writing teaching faces phenomena such as students lacking interest in writing, poor language quality in writing, and reliance on translation software for writing. How to solve this dilemma and explore feasible paths to comprehensively improve students' English writing ability has become an urgent issue in current middle school English writing teaching and research.

The Production-oriented approach (POA) is a teaching method proposed by Professor Wen and her team, which emphasizes students' language output ability and comprehensively enhances their key disciplinary abilities through the organic combination of learning and application [10]. This theory has been widely applied and effectively validated in English teaching in universities. Zhang conducted a two-week classroom experiment on a unit of teaching using POA [11]. The results showed that the experimental group scored higher in "language" in their essays than the control group, proving that POA has a promoting effect on students' language use ability. Additionally, as the study is aimed at university students, it is unclear whether the POA is effective in improving the English writing ability of junior middle school students. Afterwards, some researchers applied POA to middle school English writing teaching [12]. After analyzing writing test scores and questionnaire surveys, the following conclusions were drawn: POA improves students' English writing level, especially in terms of language use and structure, with a significant improvement in their writing performance. However, this study was conducted in a traditional classroom model and did not incorporate information technology into the classroom.

Therefore, this research aims to apply writing teaching based on POA to junior middle school English and examine the effectiveness of this teaching design from two aspects: student learning interest and language mastery. The findings of this research will help teachers better integrate Smart Classroom into writing teaching. In addition, this study provides valuable insights for teachers seeking to better utilize Smart Classroom to teach students writing.

2.3 Research questions

Based on the author's literature research on POA writing teaching in Smart Classroom, the following questions have not been answered: First, does the addition of Smart Classroom technology to POA writing teaching affect students' learning efficiency? Second, in the Smart Classroom environment, the role of the teacher changes to a learning guide and technology integrator. What problems will teachers encounter when using Smart Classroom in POA-based writing teaching? These problems were only discovered by the author in the literature review, and there are still many problems that need to be discovered by the author in the experiment. This paper will focus on these two questions, namely, is POA writing teaching in Smart Classroom effectively improving students' writing skills, and what problems will teachers encounter when using Smart Classroom in POA-based writing teaching?

In response to the above two questions, this study will inquire the students' learning process and experience through classroom observation and interviews to solve the first problem; through questionnaires and interviews, explore the difficulties encountered by teachers when using Smart Classroom for writing teaching.

3 Methodology

This study adopts a qualitative research method to understand the learning process and experience of students through classroom observation and interviews.

3.1 Ethics

All interviewees voluntarily participated and agreed to be recorded, and all participants in the study were anonymous.

3.2 Recruitment

The research subject is a public junior middle school in a city, and 60 students from two classes in eighth grade were selected. In addition, the interviewed teachers were originally English teachers from these two classes, and they agreed to participate in post-class interviews. In this experiment, one of the classes is the experimental class, which adopts the POA writing teaching model in Smart Classroom, while the other class is the control class, using the traditional writing teaching mode. The reason for selecting these students as research subjects is that Smart Classroom technology is not widely used in remote areas such as rural areas, making it difficult to conduct experimental classes. Secondly, this study ensured that the students in both classes were basically consistent in terms of gender, age, and English proficiency, reducing the occurrence of uncertain factors and making them comparable.

3.3 Data collection

3.3.1 Classroom observation

This study will conduct two experimental classes, each lasting 45 minutes. The topic of the course conducted by the two classes is the same, both of which are "My Travel Plans". Teachers will receive POA training before the research begins. Classroom observation mainly records the teacher's teaching behavior, student participation, and classroom interaction. The observation content includes how teachers design writing tasks, how to use Smart Classroom technology to support student writing, and how students perform during the writing process.

3.3.2 Interview

The interviewees include 4 students and 3 teachers, each interviewed for 20 minutes, to gain a deeper understanding of their views on Smart Classroom and POA. Among the four students, one scored above 85 in English, two scored between 85 and 60, and one scored below 60. The reason for this setting is to understand the learning experience of students with different levels in this mode. Among the three interviewed teachers, one is an English teacher from the third grade of junior high school, and two are English teachers from the second grade of junior high school. The aim is to understand whether this teaching model is effective in improving academic performance under the pressure of the middle school entrance examination.

The interview questions include two aspects, namely for students and teachers, with six questions. The purpose of designing these interview questions is to collect detailed information on the effectiveness of POA-based writing teaching in Smart Classroom in

improving students' writing abilities, as well as the problems encountered by teachers during the implementation process.

The idea of problem setting is to collect students' subjective feelings and specific examples and evaluate the effectiveness of Smart Classroom. These questions ask students to analyze whether the main difficulties they encounter when writing in the smart classroom are related to the use of the smart classroom and whether the smart classroom can effectively solve these problems. At the same time, it can determine why students like or don't like this writing task, and help improve teaching design. These questions about teacher settings can help understand the thinking and methods of teachers in designing POA-based writing tasks, as well as how teachers utilize the functions of smart classrooms to support the implementation of POA. This study collected observations and evaluations from teachers regarding changes in students' writing abilities through interviews, as well as the actual effects of improving students' writing abilities under this teaching model. The main problems encountered by teachers in implementing smart classrooms and POA teaching models were understood, and a basis was provided for improving teaching models and technical tools in the future.

3.4 Data analysis

Qualitative data is analyzed using the content analysis method. Transcripts of classroom observation records and interview materials were translated into English and then classified. Based on these qualitative data, this study then analyzes and summarizes the specific application effects and existing problems of Smart Classroom and POA in middle school English writing teaching.

4 Results

4.1 Students

From student feedback, it can be concluded that for students with scores above 85, A student said, "The Smart Classroom has been very helpful for my English writing. For example, it can correct my grammar errors in real time, which gives me more confidence when writing. In addition, the templates and essays on the platform have given me a lot of inspiration, allowing me to know how to better organize my articles." For students with grades between 85 and 60, some students believe that the Smart Classroom platform helps them clarify their writing structure and content, and provides them with new ways of expression and writing skills, allowing them to accumulate rich writing materials. Another classmate mentioned, "The smart classroom platform has helped me improve the structure and content of my writing. Through videos and examples, author has learned many new ways of expression and writing skills, which has made my writing more organized." For students with scores below 60, a student believes that the Smart Classroom platform provides them with a basic writing framework and examples, and helps them check for grammar errors. Low-level students often struggle to organize language correctly and have a poor grammar foundation. The Smart Classroom function can effectively help them write correct sentences.

Secondly, the difficulties that students encounter in the writing process mainly include: students with high scores believe that the feedback provided by the Smart Classroom platform is too general, and they need more personalized feedback to further improve their writing skills. Students in the middle score range believe that there is a large amount of feedback information in Smart Classroom, and they cannot digest this information instantly, not knowing where to start. Other students believe that during group discussions, some

students are not actively engaged in discussing classroom content, which affects their learning progress. For students in the low-scoring group, students believe that the feedback language used by the Smart Classroom platform is too professional, and they cannot understand the content, which affects their interest in class. Another group of students expressed that they are not proficient in operating the platform, and sometimes the tasks assigned by the teacher on the system cannot be quickly found. Finally, due to differences in students' English grades, their acceptance of Smart Classroom also varies. Students with higher grades tend to prefer this type of writing task. Middle-achieving students indicate that although the platform provides a large amount of feedback, they find it more interesting than traditional classrooms. Meanwhile, low-achieving students feel complex and difficult. The reason for this situation may be that students with higher grades have strong knowledge absorption abilities, which can keep up with the pace of the teacher's class. At the same time, they have strong self-discipline and are not attracted to the rich functions of the Smart Classroom platform. They can focus on the content of the classroom. Students with lower grades, due to their poor ability to absorb knowledge and being easily attracted by other functions of the Smart Classroom platform, may not be able to focus on classroom content and may miss out on knowledge points, making them more likely to find it complex and difficult.

From the feedback from teachers, it can be concluded that some teachers, when designing writing tasks based on POA, pay attention to combining real-life situations and providing detailed steps and goals to ensure the feasibility of the tasks and the participation interest of students. Another group of teachers expressed that designing tasks should not only focus on combining with practical tasks, but also pay attention to whether the assigned tasks meet the test points of the middle school entrance examination. The entrance examination is extremely important for senior students, who believe that the purpose of learning is not only to learn new knowledge but also to serve the examination.

4.2 Teachers

In practical teaching, some teachers have observed that students' language organization ability and expression clarity have improved, and they are more proficient in using complex sentence structures and more advanced vocabulary than traditional classroom students. At the same time, they have found that students are more confident in expressing their own opinions and organizing article structures than before, and their critical thinking and self-reflection abilities have generally been enhanced. Some teachers have pointed out that the group collaboration function of the Smart Classroom platform can enhance students' teamwork spirit. Through group collaboration projects, students can further cultivate their teamwork ability and innovative thinking.

Some teachers believe that there is a conflict between classroom time management and personalized guidance for students during the implementation of teaching. For example, if one focuses on controlling classroom time, it will result in the inability to provide personalized guidance to all students. If one focuses solely on personalized guidance to all students, it will not be possible to impart all the teaching content to students, resulting in teaching progress not keeping up with the school's curriculum schedule. Another group of teachers believes that the stability of Smart Classroom platform equipment and the technical proficiency of students will have an impact on whether the course can proceed smoothly.

These feedbacks provide valuable references for further optimizing writing instruction in Smart Classroom and POA. By drawing on these opinions, improving existing technologies, strengthening teacher training on Smart Classroom technology, and paying attention to the personalized needs of students at different levels, fully integrating Smart Classroom

technology into POA-based writing teaching classrooms can further enhance teaching effectiveness and students' writing abilities.

5 Conclusion

This study explores the effectiveness of POA-based middle school writing teaching in Smart Classroom. Through in-depth interviews with students and teachers and classroom observations, many advantages and challenges of this method have been revealed.

From the feedback of students, the advantages of combining POA with Smart Classroom can significantly improve their writing ability in the following aspects: immediate feedback, writing templates, and personalized resources, which significantly enhance their structural organization ability, language application ability, and critical thinking ability in writing. Similarly, the addition of new technologies to traditional classroom English learning for students will also face some challenges, such as technical issues, a large amount of feedback information, and unfamiliarity with platform usage. In addition, the English proficiency of students also has a significant impact on their acceptance of using Smart Classroom. Students with higher grades have strong knowledge absorption ability and self-discipline, so they are better able to adapt and utilize the functions of Smart Classroom. Students with lower grades are easily distracted by other functions of the platform, making it difficult to focus on classroom content and leading to learning difficulties.

When designing and implementing writing tasks based on POA, teachers should pay attention to the following points: the practicality of the writing task and the participation interest of students in writing, phased guidance and feedback, and the writing task should adapt to the current exam points and be consistent with the exam content. However, teachers also face some challenges: conflicts between time management and personalized guidance, stability of technical equipment and student technical proficiency, and potential interruptions in the classroom due to technical issues.

Based on the above findings, the following improvement suggestions can be proposed to optimize the application of Smart Classroom and POA in middle school writing teaching. Firstly, it is necessary to enhance the technical stability of the Smart Classroom platform and reduce the interference of technical issues in teaching. Secondly, it is necessary to strengthen teacher training and help teachers better balance time management and personalized guidance. Finally, attention can be paid to the personalized needs of students and more targeted support and guidance can be provided to students of different levels, especially to help students with lower grades overcome learning difficulties.

Overall, the POA-based Smart Classroom has the potential to improve students' writing performance in junior high school writing teaching. Schools can further enhance teaching effectiveness and help students better develop their writing skills by addressing technical issues, strengthening teacher training, and paying attention to the personalized needs of students. However, due to the limitation of this study to classroom observations of only two classes and interviews with a few students and teachers, extensive experiments were not conducted, and perhaps more problems may be exposed in future daily practical teaching processes. Researchers believe that integrating technology into traditional English classrooms will create a more efficient, interactive, and supportive learning environment, ultimately improving students' English writing skills.

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