



Research on PBL Application in English Reading Teaching at Junior High Schools

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Abstract

Problem-Based Learning (PBL) is a student-centered instructional strategy that enhances students' self-directed learning and critical thinking skills by guiding them to solve real-world problems. In junior high school English reading teaching, traditional teaching methods often focus on vocabulary and grammar, neglecting the development of students' reading comprehension and practical application skills. Therefore, this study aims to explore the application effects of PBL in junior high school English reading teaching, with the goal of providing new teaching approaches to improve students' English reading abilities. This study selected two classes from a junior high school as research subjects, utilizing methods such as questionnaires, classroom observations, teaching experiments, and interviews. Several reading problem scenarios related to students' daily lives and interests were designed and implemented in actual classroom teaching. The results indicate that PBL has a significant positive impact on junior high school English reading teaching. However, the study also found that teachers face certain challenges in implementing PBL, such as the difficulty in designing problem scenarios and the high demands of classroom management.

Keywords: problem-based learning; junior high school English; reading teaching.

I. Introduction

When it comes to English learning, the period of junior high school is critical period, where the reading teaching acts a pivotal role. However, traditional English reading teaching methods often impede the cultivation of the students' comprehensive language application ability and burn out their interest and motivation in English, since those methods place excessive stress on rote memorization of vocabulary and grammar, and neglect the development of students' reading comprehension and practical application skills. Thus, an increasing number of educational researchers and practitioners are turning their attention to and experimenting with new teaching methods to address these issues. Problem-based learning (PBL), a student-centered teaching strategy, has garnered extensive attention [1].

Stemmed from the medical education reforms in the 1960s, the objective of problem-based learning (PBL) lies in enhancing students' self-directed learning and critical thinking skills by guiding them to tackle complex real-world problems [2]. The arrangement of the learning process within certain practical problems is the core ideology of PBL, by which, students can take the initiative in knowledge construction and skill development. Underscoring the dominant position of students, PBL tends to enhance their comprehensive quality and skills through collaborative learning and research activities [3]. Featuring distinct benefits in English reading teaching, PBL targets at boosting students' motivation, engagement, and enthusiasm by designing the reading problem scenarios related to students' daily lives and interests. On basis of a great deal of information gathering, analysis, and synthesis gone through in process of tackling these problems, students' understandings of the reading materials are extended and their critical thinking and problem-solving skills are enhanced.

This study is conducted in order to probe into the specific application and effects of the PBL in English reading teaching at junior high schools. Two classes from a junior high school were enrolled in this study, with methods covering questionnaires, classroom observations, teaching experiments, and interviews for systematical collection and analysis of

participants' information. Several reading problem scenarios concerning students' daily lives and interests were designed, and corresponding experiments were implemented in actual classroom teaching to observe and record students' learning performance and the teaching effects. The results demonstrate that PBL has a good application effect in English reading teaching at junior high schools. This study presents practical guidance and recommendations for teachers to enhance the overall quality of English reading teaching. On basis of its exploration and conclusion, this study is expected to provide innovative methods and perspectives for the reform of English reading teaching at junior high schools, and then facilitates the holistic development of students.

II. Literature Review

Problem-based learning (PBL), in the modern educational system, has been widely recognized as a resultful approach for enhancing students' self-directed learning and critical thinking skills. With emphasis on the issues encountered by students, PBL can spark their interest in exploration and improve their problem-solving skills. For instance, Wu Baochuan (2024) argues in his research on high school politics teaching that PBL can significantly lift students' ideological awareness and learning efficiency. This method not only employs problems as the starting point for teaching but also fosters students' deeper thinking and understanding through a consecutive setting of questions [1]. In the field of mathematical and physical science, PBL also demonstrates its significant effectiveness. Feng Hua (2024) and Zhu Yuhua (2023) apply PBL in physics teaching at a junior high school and in mathematics teaching at a senior high school, respectively. They emphasize the importance of guiding students to identify and solve disciplinary problems through real-world issues. In their study, PBL also poses teaching challenges, such as how to design appropriate questions and assess students' learning outcomes, in addition to boosting students' motivation to learn and enhancing their ability to tackle practical problems [2][3]. Besides, PBL demonstrates its value in training students' innovative capabilities and critical thinking skills. Sun Junfang (2023) investigates the means to motivate students' innovative thinking and enhance the curriculum appeal at the class of Ladies Structural Design by integrating the PBL with the "five-step teaching method", in which, students are encouraged to acquire knowledge through hands-on practice, and their application and experience are improved in process of learning [4]. PBL is also proven effective in the field of humanities. Xu Jingsheng (2024) stresses the significance of employing PBL in history teaching at high schools, because PBL enables students to more deeply comprehend the complexity of historical events by stirring up students' interest in historical knowledge and developing their historical thinking and higher-order thinking skills [8]. Xu Weiping (2024) explores the ways to enhance students' scientific literacy and problem-solving skills via authentic learning environments and progressive task design by integrating project-based learning with PBL in science teaching at a junior high school. It certifies that PBL facilitates the students' establishment of a rigorous scientific knowledge system through scientific inquiry [9]. Huang Mingxia (2024) and Chai Danwei (2024) demonstrate PBL attaches great importance to motivating students' active learning and enhancing their thinking skills through designing challenging questions and authentic scenarios in Chinese teaching and information technology classes, respectively, at primary schools [10]. Additionally, Yang Caiyun (2024) demonstrates the effectiveness of PBL in understanding complex scientific ideas by employing PBL to build key concepts in epigenetics teaching during her biology teaching [12].

Overall, its significant potential of PBL in fostering active learning among students and enhancing their cognitive and innovative abilities has been demonstrated from the perspective of its applications across multiple disciplines. In future educational practices, it is of significance to further explore and refine PBL to fit it with the evolving educational demands and challenges.

III. Research Design and Methodology

Two parallel classes from a junior high school, totaling 60 students, with 30 boys and 30 girls in each class, were enrolled in this study. Their basic information such as gender, age, English learning background, and reading habits were collected through a preliminary questionnaire survey. The students aged from 12 to 14. The questionnaire inquired about their reading habits, including the frequency of weekly reading, types of reading materials (such as novels, newspapers, magazines, and English textbooks), and the duration of their reading time. The results revealed that 70% of them read English materials at least once a week, with the majority primarily focusing on textbooks and in-class readings, and only a few opting for extracurricular reading. Further, information on the students' English learning background, including the duration of their English studies, academic performance in English at school, and participation in extracurricular English training was also inquired. The results declared that 90% of them had been studying English for over four years, with their performances generally above average. Besides, 50% of them had participated in extracurricular English training courses, whose reading comprehension abilities were generally superior to those who had not undergone such training.

Regarding our methodology, to guarantee comprehensive and reliable data, a variety of methods involving questionnaires, classroom observations, teaching experiments, and interviews were employed. The questionnaire survey was primarily used to understand students' attitudes and interests in English reading, as well as their initial perceptions of PBL. The quantitative analysis on the data collected provided a vital information background in this study. Classroom observations, covering students' performance, interactions, and learning outcomes during actual lessons, were conducted to further validate the effectiveness of PBL by combination with the teaching experiments. Several reading problem

scenarios related to students' daily lives and interests were designed in order to ensure the success of teaching experiments - the core of this study. With high authenticity and good delights, these scenarios effectively enhanced students' motivation to learn. The teacher guided students through asking questions, collaborative discussions, information collection, and problem solving, following the steps of PBL throughout the experiments.

Semi-structured interviews were conducted with students and teachers involved in the experiments to acquire a deeper understanding of students' learning experiences and outcomes, so that their perspectives and feelings on the PBL, as well as the challenges faced during the teaching process, were fully understood. The interview transcripts were collated and qualitatively analyzed to provide valuable supplementary materials for the research findings.

Data collection and analysis were pivotal in the process of study. Quantitative data, including descriptive statistical and correlational analyses, primarily derived from questionnaire surveys and were processed and analyzed using statistical software. Collected from classroom observations and interviews, qualitative data were collated and summarized via content analysis to identify the generality and differences, thereby supporting the research conclusions.

To sum up, by resorting to typical samples and a variety of research methods, systematic data collection and analysis, this study targets to thoroughly examine the application effect of PBL in English reading teaching at junior high schools, and thereby to provide a theoretical foundation and practical guidance for enhancing the quality of English reading teaching.

IV. Specific Application of PBL in Junior High School English Reading teaching

PBL, with a focus on problems, stirs up students' interest in learning and inspires their spirit of inquiry. The construction of knowledge is an independent process, with problem solving being the core of learning, and the cognitive load theory places stress on the rational allocation of cognitive resources during the learning process [4]. Thus, with consideration to students' interests and life experiences, the teacher chose several reading materials related to the textbook content in the teaching design phase. In addition to fitting with the cognitive levels of junior high students, these materials need pose certain challenges to inspire students' desire to think and explore. On that basis, the teacher designed an array of authentic and engaging problem scenarios. For instance, the teacher set up a scenario when lecturing an article about environmental protection: the school would organize a large-scale environmental protection event next month to boost the environmental consciousness of all teachers and students and foster the sustainable development of the campus environment. To enhance students' understanding and application of the environmental protection knowledge in the article, the students were divided into several teams, with each assuming different roles such as environmental experts, event planners, propagandists, and student representatives. At this scenario, the teacher first guided students to read and analyze the article and comprehend the major global environmental issues and their solutions. Subsequently, each team was asked to propose specific environmental protection measures and formulate detailed action plans such as encompass garbage classification, energy conservation, emission reduction, campus greening, and environmental protection advocacy, by integrating the information from the article with their creativity. Each team was required to develop a viable plan through discussion and collaboration, and to prepare for presentation and discussion with the entire class.

Teachers first guided students to understand and analyze the problem context in process of teaching, and posed questions related to the reading materials, so that the students needed to actively pose questions, continuously think and seek answers, rather than passive reading. Then, teachers encouraged them to discuss about their questions by teams, and cooperate to gather and analyze information, in which, teachers aided students in better understanding and solving problems through questions and feedback as guides and facilitators. A variety of interactive methods in class, covering team discussions, role plays, and simulation exercises were employed to guarantee the effective implementation of PBL, which not only raised classroom engagement but also facilitated communication and cooperation among students. By means of these interactions, students' English reading comprehension was improved, and their skills in cooperative learning and team collaboration were also greatly developed.

In practical teaching, for instance, the teacher designed a scenario where students were divided into teams with each representing a tech company, at a lesson lecturing an article about technological advancement, and their task was to draw up a promotion scheme for the company's new technology. After reading the article and comprehending the background and trends in technological development, students were required to devise a comprehensive promotion plan by drawing on their creativity, which they subsequently presented and discussed in class. This scenario-based approach enhanced the relevance and practicality of the reading, as well as trained students' innovative thinking and communication skills.

In order to guarantee every student actively participated in and benefited from the class, the teachers made timely adjustments on their strategies based on ongoing observations and feedback throughout the teaching process. It was uncovered that students' reading comprehension was improved to a great extent after adopting PBL, they exhibited more active thinking and questioning in reading, and their interest in reading and enthusiasm for learning were also markedly

increased. Furthermore, the skills of learning to listen, share, and thinking critically in team settings were of great importance for the holistic development of those students.

V. Research Results and Discussion

As demonstrated by the research results, PBL played a notably positive role in enhancing students' reading comprehension, sparking their interest in learning, and developing their collaborative learning skills. The challenges and areas for improvement that teachers encountered during its implementation were also presented.

In terms of students' reading comprehension, PBL significantly extended their depth and breadth of understanding of reading materials. According to the questionnaire survey, compared to those in traditional teaching classes, 78% of students reported better comprehension of articles in PBL classes, marking a 20% increase. An average 15% increase was made in reading comprehension accuracy among students in PBL classes as exhibited from the quantitative analysis on classroom test results. Such increases were primarily attributed to students' continuous information collection, analysis, and synthesis in the process of solving real-world problems that deepened their understanding of the reading materials.

PBL significantly inspired the interest and enthusiasm of students for learning. According to the questionnaire data, 85% of the students reported higher engagement and interest in PBL classes, a 25% increase compared to traditional teaching methods. Most of the students in interviews believed that the involvement in problem scenarios and team discussions greatly enhanced their interest in English reading. For instance, "learning English by solving problems is much more fun than just memorizing vocabulary and doing exercises, it makes me want to read more," one student mentioned in the interview.

Furthermore, PBL has demonstrated its notable effect in fostering students' collaborative learning skills. It was discovered from classroom observations that a marked increase in student interactions was made within PBL classrooms, in which, students preferred to share their insights and opinions with their peers. Observation records revealed that students actively participated in discussions in PBL classes at approximately twice the rate of those in traditional classes. They learned to listen and respect others' viewpoints as well as enhanced their expression and communication skills through team cooperation.

However, teachers encountered specific challenges at the implementation of PBL in this study. Firstly, teachers needed to pay a significant investment of time and energy in designing effective problem scenarios. Several teachers noted in interviews that they should be equipped with substantial professional expertise and innovative skills for designing problem scenarios that were both closely aligned with teaching content and could spark student interest, which were quite hard for them. For instance, to design a scenario about environmental protection, they must have an in-depth understanding of environmental protection knowledge and its latest developments as well as integrate this knowledge with students' real-life experiences, so that the scenario would be both educationally meaningful and practically relevant. Besides, teachers must take students' interests into account to ensure that the questions designed capture the students' attention and stimulate their curiosity and participation, and even the teachers need make effective time management and proper energy allocation for the following repeated necessary revisions and adjustments. Secondly, the difficulty of managing PBL classes increased significantly. Students' active participation and team cooperation played a crucial role in PBL classes, since more interactions and discussions occurred. On that account, teachers must maintain order in this dynamic environment while encouraging open expression and collaborative exploration, and this result posed new challenges to the teachers' classroom management skills, because they must continually monitor the progress of each team, promptly address any issues that arise, and ensure that students have independent thinking rather than much reliance on others, and fully participate in discussions rather than remaining silent.

For that purpose, teachers must adapt their strategies flexibly to the diverse learning paces and needs of students. It was essential for them to offer tailored guidance and support in the classroom in consideration of the varying learning capabilities and comprehension levels among students. For instance, teachers might pose more challenging problems and provide higher freedom for exploration to students who demonstrate stronger comprehension; in contrast, for those requiring additional support, teachers needed to offer more guidance and encouragement to ensure they keep pace and actively engage. Furthermore, teachers must also respond adaptively to unforeseen circumstances in the classroom, and promptly adjust the lesson plan to guarantee that every student gains from PBL.

In conclusion, the effect of PBL in English reading teaching at junior high schools was demonstrated through comprehensive data and case analyses. In addition to enhancing students' reading comprehension, sparking their interest in learning and fostering their ability to collaborate, PBL also provided robust support and guidance for English teaching reform. Several challenges in implementing PBL were explained, including the difficulty in designing problem scenarios and the complexity of classroom management. It is expected to continue to seek solutions for these challenges and further refine implementation strategies in future. Beyond its good performance in English reading teaching, the

application effect of PBL in other disciplines and at various educational stages also deserve in-depth exploration. PBL facilitates the all-round improvement of the teaching quality and the holistic development of students through interdisciplinary and cross-stage research. The application of PBL is expected to continuously expand in future, so as to drive the advancing educational reforms, and deliver superior educational services for the comprehensive development of students.

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