

# The Framework of Online Learning Based on PBL-PL for College English Courses

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## Abstract

The accelerated innovation and development of technology in the field of English as a Foreign Language (EFL) learning have significantly enriched the pathways available for language learning. Based on previous research, E-learning platforms, PBL and PL are helpful for Chinese EFL learners respectively. Therefore, this study proposed a PBL-PL-SSLP framework for College English Courses. The results illustrated the effectiveness of the Super Star Learning Platform (SSLP), problem-based learning (PBL) as well as peer learning (PL), and revealed its benefits to administrators of teaching affairs, course lecturers as well as Chinese college English as a foreign language (EFL) learners. The new teaching and learning framework has the potential to facilitate a novel learning mechanism that will enhance student overall English proficiency, laying a crucial foundation for their future academic, research, and professional pursuits.

**Keywords:** Online Learning, Problem-Based Learning, Peer Learning, College English Courses, PBL-PL-SSPL Framework

## Introduction

The accelerated development of globalization has made English the most widely used language in international discourse. It is not only due to its role in human daily communication but also as a vital asset for college students in their learning process (Amant, 2020). In recent years, the advancement of educational technology and network has changed English as a foreign language (EFL) education dramatically. Since 2020, reports have indicated that, due to the emergence of COVID-19, nearly every university in China has implemented online English courses for their students. Closure of institutions has led to disruption of students' educational curriculum. This disruption has made the universities adopt an internet-based online curriculum to teach and assess their students. Many students moved from the traditional typical delivery learning to online learning (Law et al., 2023). Universities had to reinvent and employ their learning environment so that they could remain relevant and complement student-teacher relationships and improve college students' EFL education. Various EFL online learning platforms and teaching strategies were invented and adopted to enhance Chinese college EFL learners' English proficiency. Such as some E-learning platforms, problem-based learning (PBL) and peering learning strategy.

With the concept of “Internet plus education” gradually coming to reality in China, online education has not only served extracurricular learning, but also become an important cornerstone of Chinese higher education. Ren (2002) stated that online learning environment in distance education includes: an information transmission network, a complete teaching platform, rich teaching resources and a perfect learning support service system. An E-learning platform is a certain mobile APP or software that integrates resources, courses, learning, evaluation and interaction. A mobile online teaching platform powerfully combines information technology and teaching (Wang & Wang, 2018). One of the popular learning Apps in China is the Super Star Learning Platform (SSLP).

Problem-based learning (PBL) is now seen as a successful learning technique in EFL education, fostering the integration and utilization of knowledge in practical contexts (Wijaya, 2022). It enables the growth of other desirable skills and attributes, such as knowledge acquisition, enhanced group collaboration, and communication. Constructive-inspired PBL, as defined by Karaçalli & Korur (2014), is the process of learning through projects that address issues in the real world.

Peer Learning (PL), as proposed by Fuchs et al (1997), provides a scaffolding platform on which students can gain knowledge through observation, study, teaching, or their own experiences. This is achieved by pairs of students working together on reading activities designed to enhance accuracy, fluency, and comprehension. According to Zingaro (2014), Peer learning mostly contributes to the development of self-efficacy among the students in regards of their educational progress.

As discussed above, E-learning platforms, PBL and PL are helpful for Chinese EFL learners respectively. However, research about how PBL and PL strategy should be designed and used in the process of conducting E-learning platforms in Chinese college online EFL courses is insufficient. Therefore, the framework of online learning based on PBL-PL for College English Courses should be thoroughly explored.

## **Literature Review**

### ***Connectivism***

George Siemens is renowned for his seminal paper “Connectivism”, a learning theory for the digital age (Siemens, 2004). This initial formulation was followed through discussion and enhancements in a connectivism conference in 2007 and a series of massive online courses titled “Connectivism and Connective Knowledge”. A network theory of knowledge and learning, emphasizing the utilization of digital technology to augment and expand online communication, can be characterized.

Connectivism offers that diversity through a variety of networks, helping the new generations collaborate to find solutions to an ever-increasing number of questions. Dede (2008) mentioned how the nature of collaboration has changed. Throughout the years, educators and technologists had to learn to incorporate these changes in order to maximize learning. Engaged learning relies on collaboration among the members of the learning community (Conrad & Donaldson, 2004; Siemens, 2004) contends that existing learning theories are inadequate, yet the swift progress of new technologies and their related concepts will perpetually alter teaching approaches and outlooks on gaining knowledge.

### ***Constructivism***

Constructivism, a theory of learning, postulates that students learn through actively constructing their own knowledge Von (1996) as opposed to passively acquiring it (Duffy &

Cunningham 1996). As Von Glasersfeld (1995) states “Concepts cannot be simply passed on from teacher to student - they must be conceived.” Learners, in an ongoing process of constructing, evaluating, and modifying constructs under constructivist theory, employ the available building blocks to construct knowledge that is both viable and meaningful. This knowledge is formed by the activities they are involved in, the context of the activities, and the culture that surrounds them (Brown et al., 1989). Constructivism, as Raskin (2001) so accurately defines it, is a school of psychology that believes learning is achieved through the active and self-regulated formation of personal knowledge by a learner, who derives significance from the experience and the environment in which it occurs.

Tracing its philosophical foundation to Giambattista Vico’s 18th century Renaissance, a renowned philosopher and humanist, Constructivism is a cognitive theory that holds that humans can only comprehend what they have constructed. This early concept of Constructivism can be traced back to Russian formalism at the start of the twentieth century and Czech structuralism in the 1920s and 1930s. In the 1950s, the concept, first brought to the US during World War II, returned to Europe and attained its apex. A great many philosophers and educationists have worked with these ideas. The writings of Piaget (1985) along with the work of John Dewey (1916); Bruner (1996) form the basis of the constructivism theory of learning and instruction. At the University of Massachusetts, the educational research group outlines the fundamentals of constructivism as epistemology in this way: 1. Knowledge is constructed, not transmitted. 2. Prior knowledge impacts the learning process. 3. Initial understanding is local, not global. 4. Effortful and purposeful activity is necessary for constructing advantageous knowledge structures.

### ***Super Star Learning Platform***

SSLP is a Learning management system developed by Beijing Century Superstar Information Technology Development Co. Ltd. In 2016, mobile teaching, learning, reading, and social networking were all integrated. During the epidemic period, the effect of distance teaching on SSLP was evaluated by students, teachers and researchers. Connecting modern technology and education is exemplified by SSLP. The SSLP-based mobile teaching mode has clear benefits in comparison to traditional teaching methods. These are evident in the full preview prior to class, the increased involvement in class, the enhancement of independent learning ability, learning productivity, and the absorption and incorporation of knowledge (Wan, 2023). For teachers, mobile teaching mode is conducive to resource sharing, student interaction, and more flexible and targeted classroom teaching; For students, mobile teaching can arouse their learning interest and enthusiasm (Qin et al., 2023).

SSLP breaks the traditional classroom teaching pattern. Wan (2023) indicated that the mobile teaching mode elicits a higher satisfaction than the traditional classroom teaching mode. To facilitate this transition, SSLP divides traditional classroom study into three stages: a full preview prior to class, active participation in class, and the absorption and internalization of knowledge post-class, thereby enhancing students’ independent learning capacity and learning efficiency. Fragmented time can be utilized by students to learn anywhere, anytime, thus disrupting the traditional teaching model that is confined by time and space (Wan, 2023). SSLP’s mobile teaching mode, as Qin et al (2023) indicated, facilitates the interaction between students and teachers, in contrast to the traditional teaching mode, which restricts it to a specific time and place. This mode enables students and teachers to communicate with one another before, during, and after classes. Establishing a strong bond between educators and students, SSLP can significantly enhance the teaching experience (Yu, 2023).

### ***Problem-based Learning***

Problem-solving skills are considered one of the critical skills of the twenty-first century. Sternberg (1988) supports the view that problem-solving skills involve different skills, such as defining the nature of the problem, choosing problem-solving steps, choosing problem-solving strategies, selecting appropriate information, allocating appropriate sources, and monitoring the problem-solving process.

PBL cannot be successful without technology-enhanced learning environments. With the development of technology, in recent years, web-based problem-solving activities have attracted considerable interest and many studies have been conducted in this field. In these studies, synchronous and asynchronous tools are integrated into PBL by using various variables (Virtanen & Rasi, 2017). In addition to this, web-based problem-solving activities are found to have a positive effect on many variables; a number of studies have shown that it is easy for students to become disorientated without any help or guidance while searching for information online. In this context, Hwang et al (2011) emphasize that effective tools should be provided in order to prevent students from disorientation while searching for information on the Internet and help them organize the information they have accessed. Unlike other studies, in this study, LOC especially with the COVID-19 epidemic, have been integrated into PBL. On the other hand, most studies in the literature have shown that various of software is developed to be integrated into PBL. This study prefers a live online class platform, which can be used free of charge by everyone. This situation ensures the reliability of the study.

### ***Peer Learning***

Topping and Ehly (1998) define peer learning as “the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions.” Peer learning refers to students learning from and with each other in both formal and informal ways, and involves individuals from similar social circles who are not professional educators aiding each other in their learning and self-learning (Topping, 2005). The focus is on the learning process, including the emotional support that learners provide each other, as much as the learning task itself. In peer learning, the roles of teacher and learner are fixed, yet in peer learning they are either undefined or can alter during the learning experience. Staff can be involved as group facilitators or simply initiate student-led activities, such as workshops or learning partnerships (Campbell, 2014).

Krishnan and Hassan (2021) found a positive correlation between online peer learning and academic achievement, with significant emotional engagement. Undergraduates use social media for learning, feeling comfortable and positive during online interactions. They recommend the Ministry of Education promote online peer learning for innovative and practical education. Hamad et al (2021) found that peer learning helped final-year medical students adjust during the COVID-19 pandemic by reducing stress and enhancing resilience. This method promoted collaboration, communication, and moral support, facilitating smooth adaptation to technology-enhanced learning and maintaining social connections, thus improving their ability to handle the crisis. Wei et al (2021) introduced a dynamic variant of online peer learning that allows group compositions to change over time to maximize collective knowledge. They developed DYGROUPS, a scalable, greedy algorithmic framework with theoretical guarantees in specific cases. Experiments with real and synthetic data confirmed the significant impact of group composition on learning outcomes.

In conclusion, peer learning is beneficial for motivating learners to develop desired characteristics. Online peer learning, in particular, offers several advantages: it boosts

students' enthusiasm and initiative, is learner-focused and assessment-oriented, and transforms teachers into facilitators. It also overcomes distance and time constraints, enhances communication and coordination skills, and helps students transition from school to society more quickly.

Based on the previous research, the research question of this study proposed like this:

Research question: What is the framework of online learning based on PBL-PL for college English Courses in China?

### Methodology

This study followed a Systematic literature review methodology, which involved 5 steps (shown in Figure 1).

**Step 1: Arousing the research question.** Based on the background information as well as educational situation and necessity in China, the research question was proposed.

**Step 2: Choosing the right database.** The researchers selected databases like Google Scholar, Scopus, Web of Science and CNKI to gather a wide range of literature related to this field.

**Step 3: Searching the keywords:** The researchers defined search keywords, such as "online learning", "E-learning", "PBL", "PL", "English learning framework", "SSLP" and so on, to effectively navigate through the vast sea of literature available.

**Step 4: Collecting the insights.** After gathering findings from various databases, the researchers meticulously organized them for clarity and coherence. And find the key elements and insights to construct the framework.

**Step 5: Drawing conclusions:** A synthesis of the findings enabled the researchers to establish conclusive results that made a meaningful contribution to the research.

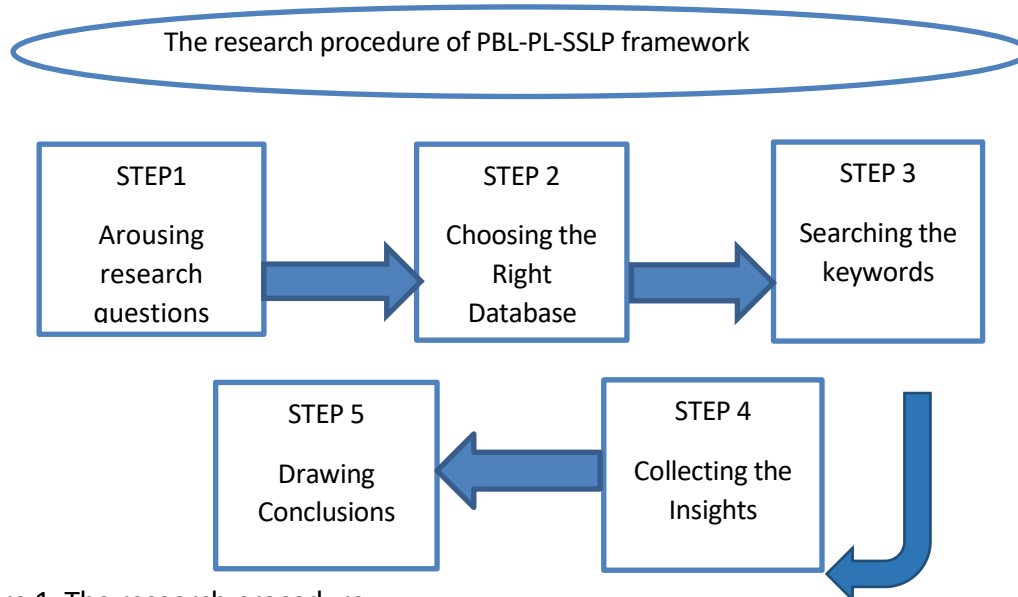


Figure 1 The research procedure

Following the 5 steps, the researchers attempted to address the research problem and the research results are shown below.

### Results and Discussions

This research constructs a PBL-PL-SSLP framework that is expected to improve Chinese college EFL learners' English proficiency in listening, reading, writing and translating. The framework

is shown in Figure 2. Under the guidance of connectivism, SSLP serves as the learning platform in College English Courses. To make the learning environment more powerful, PBL and PL serve as pedagogical approaches under the guidance of constructivism. The combination of these three elements is to promote EFL learners' English overall proficiency. Finally, a PBL-PL-SSLP framework is constructed.

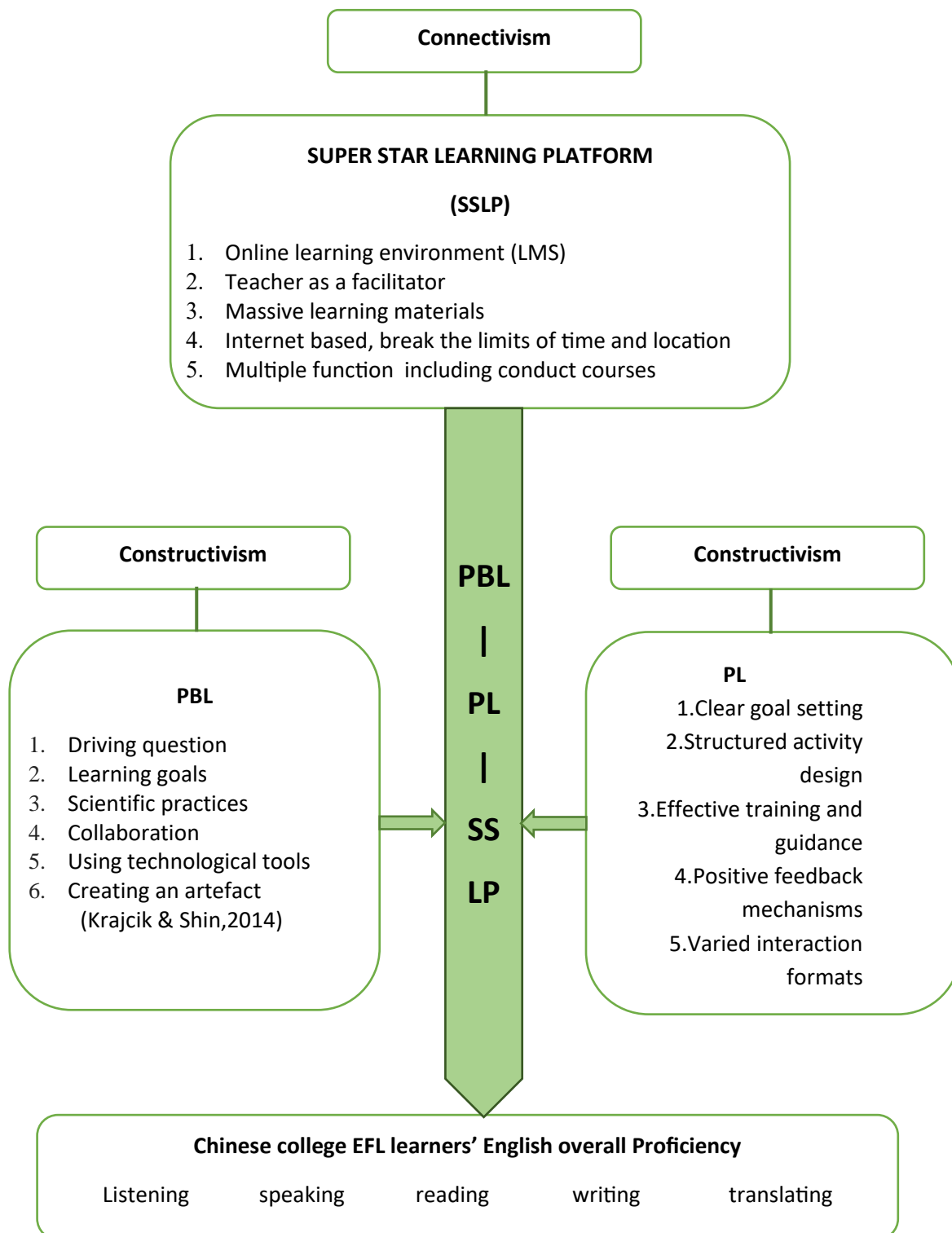


Figure 2 PBL-PL-SSLP framework

### ***Effectiveness of SSLP in supporting online courses***

As a network teaching platform software, SSLP is highly welcomed in colleges and universities (Guan, 2023). At present, SSLP has been widely used in the teaching of various courses. As an auxiliary teaching tool for online courses, its main functions include assignment, self-test, expansion of materials beyond the textbook, and discussion of problems and topics. Teachers can launch online courses in an all-round way by publishing micro lesson videos on SSLP, check students' learning level and correct their deficiencies.

Students are more available to knowledge reserves. Teachers can post supplementary teaching materials, video and audio, and extra exercises related to college English classes and extracurricular activities on SSLP, thus allowing students to access learning materials tailored to their individual needs. Furthermore, students can choose learning materials based on their interests and hobbies in their free time. In this way, with the combination of education and pleasure, it can help students cultivate the habit of active learning, stimulate their learning initiative, and participate in classroom learning to a higher degree, so that they can gain more knowledge (Qin et al., 2023).

Teachers can supervise students to do preview and review on SSLP. In traditional teaching, students can only get knowledge from textbooks to do preview before class (Wan, 2023). However, teachers can inform students of the content in advance on SSLP, so that the students can be more prepared for the tasks of the next day. Teachers can also remind students who haven't done preview in multiple ways. After the lesson, students ought to thoroughly examine the essential components and tribulations of the classes. Besides, teachers can arrange relevant exercises and quizzes after class, which will also make the students' review after class more effective. At the same time, the teacher can evaluate the students' problems through the analysis of the test paper provided by SSLP.

In addition, teachers can also organize group competitions and thematic discussions on SSLP. Meanwhile, students can actively participate in diversified online classes. It can encourage students to actively cooperate with their teammates in allocated tasks and enable students to better communicate with group members. Everyone participates in the topic discussion. Teachers can modify and evaluate the views expressed by students, and immediately give feedback to students whether the statement they express is correct or not. The stimulating of students' interest in English learning and their improvement in their learning ability is greatly aided by it. Furthermore, teachers can identify common problems among their students and discuss them in the following class, thus creating a stimulating interactive communication atmosphere. In a word, SSLP makes teaching and learning styles diverse.

### ***Effectiveness of PBL***

Prior research about the effectiveness of PBL indicates that PBL is more effective than traditional lecture-based instruction in relationship to long-term retention and skills development in higher education (Strobel & Barneveld, 2009).

Distributed PBL, sometimes referred to as Online PBL, is a form of PBL that can be advantageous to students who are far from their tutors. Using virtual, distributed learning environments, learning is facilitated by online technologies. This distributed community of practice promotes a self-governed, independent student body (Wenger, 1998).

### ***Effectiveness of PL***

Peering Learning Strategies is a peer-tutoring instructional program that supplements the primary reading curriculum. Peer Learning, an interactive pedagogy, is beneficial for students

to gain skills and knowledge through the active help of their peers (Hamad et al., 2021). Zingaro (2014) further states that this type of learning is mainly beneficial in fostering self-efficacy in students, which is essential for their educational progress. Through this, pairs of students collaborate on reading activities designed to enhance reading accuracy, fluency, and comprehension.

### ***Benefits to Administrators of Teaching Affairs***

The comprehensive examination the effectiveness of the new teaching framework could enhance educational support from the administrator of teaching affairs. As every university has established online English courses for college EFL learners, the new teaching framework will be a valuable suggestion for the administrator of teaching affairs to establish certain policies and schedules and will encourage the development of EFL education in universities. In addition, as social learning platforms or learning management systems become more exact, E-learning platforms will serve more in the field of education. The administrator of teaching affairs, therefore, should devote more attention to the advancement of educational technology.

### ***Benefits to Course Lecturers***

The new teaching framework will provide a guideline for the course lecturers to conduct PBL and Peer learning strategy in online English courses. In addition, the power of educational technology will be realized by course lecturers. In other words, conducting PBL and PL strategy through the Super Star Learning Platform will give course lecturers insight or inspiration in their future teaching practice. Last but not least, further exploration of the new teaching model will be a new research direction for Chinese college EFL teachers.

### ***Benefits to Chinese College EFL Learners***

This research will provide a new framework for Chinese EFL learners to enhance their general capability of learning. PL attempts to resolve the designed issue necessitates that students recall their existing knowledge and create new knowledge through a variety of methods, such as taking in fresh data from the instructor, conversing with peers, tutoring, and connecting with other educational resources via an E-learning platform and the web. These activities are tightly related to constructivism and connectivism. In other words, the new teaching framework could provide a new learning mechanism to improve their English proficiency which will lay a vital foundation for their future study, research and work.

### **Conclusion**

An examination of the efficacy of a new teaching and learning framework in enhancing Chinese EFL student language proficiency is the focus of this research. This kind of new framework, conducting PBL and Peer Learning through E-learning platform, will provide reference and evidence for the administrator of teaching affairs to establish proper educational policies for EFL education in China. In addition, the new framework would be a guideline and working framework for course lecturers to implement their teaching practice. Furthermore, EFL learners could widen their horizons, construct new knowledge and inspire their own motivation in the process of solving designed problems and peer learning. At last, the E-learning platform will provide enormous learning materials and bridge a platform to learn and communicate with each other despite time and distance limitations. By doing so, the English level of Chinese EFL students could be significantly advanced. In a word, this study



can give new directions for the research of educational technology and enrich the instructional framework of Chinese EFL education.

With regard to the theoretical contribution, this study advances educational theory by proposing the PBL-PL-SSLP framework for College English Courses. The framework offers a comprehensive approach to language acquisition, emphasizing practical application. The study enriches the existing literature on online learning models by demonstrating the synergistic effects of combining various pedagogical strategies with digital platforms. This offers a nuanced understanding of how these elements can enhance language learning outcomes.

In terms of practical contribution, the PBL-PL-SSLP framework offers a robust and implementable model for educators seeking to improve college English instruction. The framework facilitates the creation of interactive, student-centred learning environments by leveraging the strengths of PBL and PL within the SSLP. The findings can inform the development of curricula, the training of educators, and the formulation of policy, thereby facilitating more effective and engaging English language learning experiences in higher education contexts.

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