International Journal of Instruction *October 2025 ● Vol.18, No.4*
e-ISSN: 1308-1470 ● www.e-iji.net *p-ISSN: 1694-609X*
pp. 299-318

Article submission code: 20250303111002
Received: 03/03/2025 Revision: 12/05/2025
Accepted: 21/05/2025 OnlineFirst: 03/07/2025

Effect of Blended Problem-Based Learning on Students' Academic Performance in College English Cultural Courses

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Blended problem-based learning (BPBL), which integrates blended learning and problem-based learning, offers distinct advantages by enabling flexible learning through blended instruction and promoting active learning via real-world problem posing, to enhance problem-solving and critical thinking. However, BPBL has been underutilized in college English cultural courses, which are essential for cultivating students' cross-cultural communication skills. This study addresses this gap by developing a BPBL model tailored to these courses, employing a pre-post test quasi-experimental design with students enrolled in "Society and Culture of English-speaking Countries" (SCESC) and "History of English Literature" (HEL) courses at a South China university. Results show that BPBL had a significant positive effect on academic performance in both courses, with larger gains in the experimental group compared to the control group. In SCESC, the experimental group demonstrated a larger within-group improvement compared to the control group, while HEL showed moderate gains. Between-group analyses highlighted a more pronounced effect in SCESC versus HEL, likely due to SCESC's tangible social issues facilitating immediate application, whereas HEL's abstract literary-historical integration demanded cumulative knowledge synthesis. Qualitative feedback praised collaborative activities for deepening understanding but noted challenges such as time pressure and cognitive load, particularly in HEL's contextual analysis tasks. This research validates the positive effect of BPBL in enhancing academic performance, while emphasizing content-specific adjustments. Limitations include the single-institution sample and reliance on short-term, multiple-choice assessments. Future studies should expand sampling across diverse academic contexts, adopt longitudinal designs, and incorporate mixed-methods evaluations to capture qualitative skills like literary analysis.

Keywords: blended problem-based learning, blended learning, problem-based learning, college English cultural courses, society and culture of English-speaking countries

Citation: Song, X.Y., Rosli, M. S. B., & Zheng, H.Y. (2025). Effect of blended problem-based learning on students' academic performance in college English cultural courses. *International Journal of Instruction*, *18*(4), 299-318.

INTRODUCTION

In the digital age, society's demand for individuals with high - level humanistic qualities and excellent cross - cultural communication skills is on the rise. College education is crucial in cultivating well - rounded talents to meet these requirements. College English cultural courses, such as Society and Culture of English - Speaking Countries (SCESC), History of American Literature, and History of English Literature (HEL), play a significant role in this process (Zeng, 2019). These courses aim to enhance students' critical thinking and cross - cultural communication abilities (College Foreign Language Teaching Steering Committee in Institutions of Higher Education, 2016). Among them, the SCESC and HEL courses are selected as the research cases in this study. SCESC is a core course in college English cultural curriculum systems, covering a wide range of topics from historical events to contemporary social phenomena in English - speaking countries (Tong, 2021). Meanwhile, the HEL course, as a general course in college English cultural curriculum systems, delves into the development of English literature from its origins to the present (Li & Wanyu, 2020). Through analyzing social and cultural phenomena and literary works, students can improve their literary appreciation ability, critical thinking, and cultural understanding, which also makes it a suitable candidate for testing new teaching models. The content of these two courses requires students to not only master language knowledge but also deeply understand different cultures (Zeng, 2019), making them ideal platforms to test the effectiveness of new teaching models in promoting students' comprehensive development.

In response to the educational needs and the development of educational technology, blended learning (BL) has emerged as a popular approach in education. Combining online and offline learning, it offers flexibility and pedagogical richness (Wang, 2020). Moreover, it has shown great potential in enhancing learning effectiveness, thus attracting extensive attention in the educational field (Chuane et al., 2022; Niu et al., 2023; Yu et al., 2022). In China, the Ministry of Education has actively promoted its integration with information technology in higher education (Ministry of Education, 2019a, 2019b). Some researchers have explored the application of BL in College English cultural courses and achieved positive results (Chen, 2024; Philip & Din, 2024; Qays et. al., 2022). However, the integration of online and offline components in BL poses challenges in course design for instructors (Boelens et. al., 2017). A review in the context of higher education indicates that formulating appropriate pedagogical and instructional designs for BL is complex, involving both technical and pedagogical aspects (Ashraf et. al., 2022). To overcome these challenges, combining different teaching methods is proposed (Ren et. al., 2023).

Problem - based learning (PBL) is a well - established educational approach. It uses realistic and ill - structured problems as the core to promote students' self - directed learning, reasoning strategy development, and knowledge construction (Barrows, 1986; Hmelo-Silver, 2004). PBL has been proven effective in fostering student - centered learning and critical thinking skills (Barrows, 1986). Considering the complementary advantages of BL and PBL, some researchers have integrated them to form the blended problem - based learning (BPBL) model. This model is defined as "an appropriate balance of face - to - face opportunities and online technology within our overall PBL

course structure" (McCall, 2010:57).

BPBL has been successfully implemented in multiple disciplines, including medicine (Back et. al., 2014; Bukumiric et. al., 2022; Könings et. al., 2018; Servos et. al., 2023; Woltering et. al., 2009), military (Germo et. al., 2024), computer science (Kardipah & Wibawa, 2020), Islamic studies (Hamzah et. al., 2022), and language learning (Dawilai et. al., 2021). These studies have shown that BPBL can significantly improve students' academic performance. For example, Hamzah et al. (2022) developed a problem - based blended learning model in Islamic studies and obtained positive experimental results in different - sized groups. Germo et al. (2024) found that PBL in the blended learning modality benefits maritime students' performance in general and professional courses.

Despite the demonstrated positive impacts of blended problem - based learning (BPBL) on enhancing students' academic performance across multiple disciplines, its application in college English cultural courses remains inadequately explored. College English cultural courses, such as the SCESC and HEL, are distinctive in that they not only require students to master language skills but also demand a deep understanding of diverse cultures. These courses possess unique knowledge systems that are different from those in other disciplines where BPBL has been widely applied.

However, a comprehensive review of the existing literature reveals that the application research of BPBL in college English cultural courses is still in its infancy. Given these significant research gaps, this study has been designed to bridge the void. It endeavors to apply BPBL strategies in the SCESC and HEL courses, aiming to provide empirical evidence of the effectiveness of this teaching approach in the context of college English cultural education and offer practical guidance for educators in similar courses.

The specific objectives are as follows:

1. Develop a blended problem - based learning model for College English Cultural Courses, with the SCESC and HEL courses as the experimental subject.

2. Evaluate the effect of the blended problem - based learning model on students' academic performance in the SCESC and HEL courses, which belong to College English cultural courses.

Construction of Blended Problem-Based Learning Model

Theoretical Basis

Constructivism

Constructivism posits that learning is an active meaning - construction process (Tan & Ng, 2021). Tracing back to Socrates' era, this theory emphasizes the central role of students in meaningful learning. Learners, drawing on their prior knowledge, engage in the learning process, understand their experiences, and construct a conceptual framework through interpretation and negotiation among teachers and students, as well as among students themselves (Cobern, 1993). Cooperative discussions play a crucial role in facilitating students' understanding of knowledge (Ortega-Ruipérez & Correa-Gorospe, 2024). Constructivism provides a theoretical underpinning for the Blended

Problem - Based Learning (BPBL) model because of its student - centered essence.

Bloom's Taxonomy

Bloom's taxonomy is a well - established framework for classifying educational objectives. Since its introduction, it has been extensively adopted by educators and assessment experts for designing test questions to evaluate a diverse array of thinking skills (Elsayed, 2023). Comprising six hierarchical levels - knowledge, comprehension, application, analysis, synthesis, and evaluation - this taxonomy structures the cognitive domain in a hierarchical manner, as noted by Bloom et al. (1956). In the context of BPBL, Bloom's taxonomy serves as a valuable tool for designing learning activities and assessments. It ensures that students develop a comprehensive spectrum of cognitive skills, spanning from basic knowledge acquisition to higher - order thinking.

Problem - based Learning Model

Problem - based learning (PBL) has a profound historical background and is an essential component of the meaningful experiential learning tradition (Hmelo-Silver, 2004). It is a pedagogical approach that empowers students to become active learners by solving real - world problems and reflecting on their experiences (Hmelo-Silver, 2004). During this process, learners develop problem - solving strategies and construct knowledge (Hmelo-Silver & Ferrari, 1997). In a PBL environment, students typically work either independently or in small collaborative groups to acquire the knowledge necessary for problem - solving. Teachers assume the role of facilitators, guiding students through the learning cycle (Hmelo-Silver, 2004).

Among the various PBL models, Hmelo's (2004) PBL learning cycle is particularly notable. This cycle consists of seven steps: First, students are presented with an ill - structured problem in a problem scenario. Then, they identify the relevant facts within the scenario. After that, based on their prior knowledge, students generate hypotheses. Next, they become aware of their knowledge gaps. Subsequently, students engage in self - directed learning to fill these gaps. Once they have acquired new knowledge, they apply it. Finally, students evaluate their previously generated hypotheses and reflect on the entire learning process. If the problem formulation is inaccurate or the hypotheses are one - sided, the cycle repeats. The PBL model contributes the problem - solving and collaborative learning elements to BPBL, enabling students to actively participate in learning through real - world problems.

Flipped - classroom model of blended learning

The flipped - classroom is one of the blended - learning models proposed by Staker and Horn (2012). In this model, students follow a fixed schedule. They receive most of content and instruction online, while on - campus, they engage in face - to - face teacher - guided exercises or projects. In the BPBL context, the flipped - classroom model offers flexible learning time and access to resources. It also facilitates self - directed learning and promotes a better integration of online and offline learning experiences, thereby enhancing the overall learning effectiveness.

Construction and Analysis of the Blended Problem- based Learning Model

This study developed a BPBL model (Figure 1) grounded in constructivism, Bloom's taxonomy, problem - based learning, and flipped - classroom model. It weaves together four interrelated flipped - classroom phases and seven PBL cycle steps, crafting a seamless learning framework.

Phase One: Face - to - Face Problem Scenarios and Knowledge Gap Identification

In the first phase of the BPBL model for the "Society and Culture of English - Speaking Countries" (SCESC) course, students encounter real - world problem scenarios. For instance, they might be tasked with analyzing how the evolution of U.S. immigration policies mirrors shifts in the nation's social and cultural values. This complex question serves as a catalyst for critical thinking, as it lacks an obvious answer and necessitates a comprehensive exploration of historical, social, and cultural dimensions.

During group brainstorming sessions, students dissect the problem and then discern various phenomena, viewpoints, and the underlying logic. In the process, they not only cultivate their own unique judgments but also broaden their perspectives by engaging with diverse ideas. Simultaneously, students become acutely aware of their knowledge deficits, such as insufficient understanding of American immigration history, policy - making intricacies, and the cultural implications of different policy eras. This awareness primes them for the subsequent self - directed learning phase. Instructors play a pivotal role in this phase, guiding students to think critically and posing thought - provoking questions to facilitate a more in - depth exploration of the problem.

Phase Two: Online Self - directed Learning (SDL)

The second phase is dedicated to students' independent study, with the aim of bridging the knowledge gaps identified in the first phase. Leveraging the Learning Management System (LMS), teachers offer targeted learning materials and guidance, empowering students to pursue self - directed learning at their own pace. Students delve into academic databases, online libraries, Massive Open Online Courses (MOOCs), and actively participate in relevant online discussion forums. Through these resources, they amass a more systematic and profound understanding of the subject matter.

Online group interactions are a crucial aspect of this phase. Students share the resources they've discovered and engage in lively discussions about how these resources contribute to problem - solving. This collaborative exchange promotes peer - to - peer learning, knowledge integration, and the development of critical thinking skills. Throughout this process, the instructor assumes the role of a vigilant monitor and facilitator, ensuring that the online learning environment remains productive and that students' learning progresses smoothly.

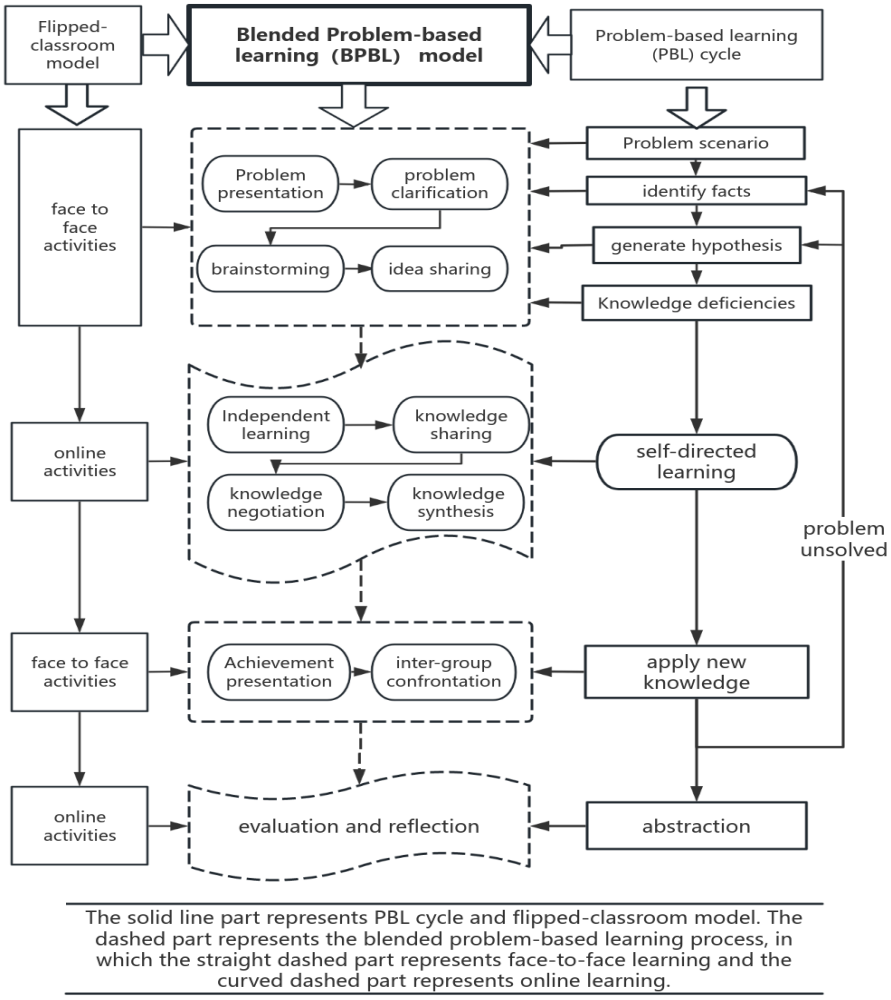

Figure 1
Blended problem - based learning model

Phase Three: Face - to - face Application of Achievements

In the classroom setting of the third phase, students present the outcomes of their group learning endeavors. This is followed by engaging in inter - group debates, a dynamic process that not only solidifies their understanding of the knowledge but also hones their ability to translate theoretical concepts into practical solutions within specific application scenarios.

As students analyze problems and propose innovative solutions, they are challenged to

think creatively and apply their knowledge comprehensively. This process fosters the integration of interdisciplinary knowledge, deepening their understanding of the issues at hand. If students find that they are unable to resolve the problems initially presented in the first phase, they are required to return to the first stage and repeat the BPBL model process. For example, in the ongoing discussion about U.S. immigration policies, students might passionately debate whether the shift towards more restrictive policies signals a decline in the traditional American value of inclusiveness or is a pragmatic response to changing social and economic circumstances. By drawing on the knowledge they've acquired, they strengthen their arguments and enhance their knowledge application capabilities. In this stage, the instructor moderates debates, guides perspectives, and gives problem - solving feedback.

Phase Four: Online Evaluation and Reflection

The final phase involves post - class self - assessment and reflection. Students critically evaluate their entire learning journey, meticulously examining the strategies, methods, and overall effectiveness of their learning processes. Through this reflective practice, they can identify both effective learning strategies and areas that require improvement.

This stage not only serves as a comprehensive summary of the learning experience but also significantly enhances students' self - assessment skills, deepening their mastery and practical application of the course content. Moreover, the reflective process strengthens students' metacognitive abilities, enabling them to make more informed and strategic adjustments in their future learning endeavors. Students are encouraged to document their reflections in reports, which can be shared and discussed within the online learning community. This sharing of experiences allows students to learn from one another, further refining their learning strategies. During this phase, the instructor reviews reports, gives personalized advice, and encourages students to use their strengths.

METHOD

Research Design

This study adopted a quasi - experimental design, specifically a Pre and Post-test Design (Creswell & Guetterman, 2019). A pretest was administered to both the experimental and control groups to ensure they were comparable in terms of prior knowledge. The experimental group received the Blended Problem - based Learning (BPBL) strategy intervention, while the control group underwent the traditional blended learning (BL) treatment, which specifically refers to the traditional flipped - classroom model without the incorporation of problem - based learning (PBL) elements.

Two instructors were involved in the teaching process. One instructor was responsible for teaching the SCESC course, and the other taught the HEL course. The two instructors jointly explored and agreed upon the BPBL and BL strategies to be used. They made sure that the teaching materials for each course and the overall blended learning environment were maintained as consistent as possible for both groups throughout the experiment.

In both the SCESC and HEL courses, students in the experimental and control groups were divided into learning groups of around 10 students each. This grouping was intended to facilitate effective collaborative learning within the frameworks of the BPBL and traditional BL approaches.

The intervention took place from April to June 2024, spanning a total of 10 weeks for both the SCESC and HEL courses. During this period, the experimental and control groups received an equal amount of instructional time dedicated to the SCESC/HEL course content relevant to the study. Specifically, for each course, students in both groups had 90 minutes of in - class teaching time per week. This measure ensured that time - related factors did not introduce bias between the two groups.

Participants

The research sample included 19-20-year-old sophomores from the Business English and English Education majors at two schools in a South China university. These majors were selected due to their numerous English - related courses, with SCESC as a core course and HEL as a general one. Two classes from each major were randomly selected using a random number table. A coin toss determined that the two English Education major classes formed the experimental group and the two Business English major classes served as the control group. Another coin toss decided that one of the two classes in each group would take the SCESC course and the other would take the HEL course for the teaching intervention. In the SCESC course, there were 50 students in the experimental group and 46 in the control group, while in the HEL course, there were 52 students in the experimental group and 43 in the control group. The two groups had limited interaction and prior blended - learning experience but no PBL experience, facilitating an accurate assessment of the BPBL intervention's impact.

To gather in - depth qualitative data on students' experiences with the BPBL strategy, systematic sampling based on post - test scores was employed. For the experimental groups of the SCESC and HEL courses, which consisted of 50 and 52 students respectively, approximately one student was selected every 4 - 5 students to participate in the semi - structured interviews. This sampling approach ensured that students with a range of academic performance levels were included, facilitating a comprehensive understanding of the BPBL strategy's impact.

Instruments

This study utilized two key research instruments: two performance tests and two semi - structured interviews.

The performance tests, respectively based on the SCESC and HEL course content, were developed by the researchers according to the course syllabi. Each test comprised two parallel sets of 24 multiple - choice questions (e.g., In Dickens' *Great Expectations*, Pip's social rise reflects which 19th-century English phenomenon? A. Industrial Revolution mobility B. Class system pressures C. Victorian moral codes D. Colonial cultural exchange), with a 24 - minute administration time and a total score of 24 points. Scored by the researchers, these tests measured students' knowledge acquisition in each course. Two experts in English education ensured the validity of the performance tests

by reviewing the test questions to ensure they covered key course content.

For each course, semi-structured interviews were conducted only with the experimental groups. Adapted from Fung (2013), the interviews served as a supplementary approach to explore students' feedback on how the BPBL teaching strategy influenced their academic performance. For these interviews, the scoring work was independently completed by two trained raters (not instructors or research team members). To enhance reliability, raters cross-checked scores and resolved discrepancies through discussion. The scoring tasks for both courses in both the pilot and formal experimental stages were undertaken by these two raters. Validity of interview guides was separately assessed by two additional interview method experts (distinct from the raters), who evaluated question clarity and relevance to research aims.

A pilot study involving 98 sophomore students tested instrument reliability. For the performance tests, Cronbach's α coefficients of 0.752 (SCESC) and 0.726 (HEL) indicated high reliability. For interviews, an 82.39% simple agreement rate (calculated via pairwise comparisons across coding categories) demonstrated inter-rater consistency, supporting the credibility of qualitative data.

Data Collection

This study employed both qualitative and quantitative data collection methods. Quantitative data came from performance tests given to the experimental and control groups before and after the intervention, measuring students' knowledge acquisition. Qualitative data were gathered via semi - structured interviews. After the post - performance test, experimental - group students were selected for interviews according to their scores to cover various score levels. Interviews were held in a quiet campus room, lasted about 30 minutes, and were audio - recorded with consent. Recordings were then transcribed for analysis.

Data Analysis

The performance-test data underwent a Shapiro-Wilk normality test. Descriptive analysis calculated the mean and variance. Based on the normality test results, inferential analysis used Mann-Whitney U test, independent samples t-test, Wilcoxon signed-ranks test, and paired-samples t-test for inter-group and intra-group comparisons in SCESC and HEL courses. In addition, thematic analysis of the interview transcripts was conducted using Braun and Clarke's (2006) six - phase thematic analysis framework to understand students' perspectives on the effect of the BPBL strategy and their attitudes toward this strategy.

FINDINGS

Performance Pre-test and Post-test Results in the SCESC Course

Table 1 presents the pre - test and post - test mean scores of the experimental and control groups in the SCESC course. For the experimental group with 50 participants, the pre - test mean score stood at 11.40, with a standard deviation of 1.43. After the intervention, the post - test mean score rose to 18.04, and the standard deviation was 2.91. In the control group of 46 students, the pre - test mean score was 11.65 (SD =

2.79), and the post - test mean score reached 14.48 (SD = 2.44).

Table 1
Pre-test and post-test mean scores of the two groups in the SCESC course

Group	Pre - test (M±SD)	Post - test (M±SD)
Experimental Group (n = 50)	11.40±1.43	18.04±2.91
Control Group (n = 46)	11.65±2.79	14.48±2.44

To evaluate the initial equivalence of the two groups, a Mann - Whitney U test was carried out on the pre - test scores, and the findings are presented in Table 2. The results revealed no significant difference between the experimental and control groups ($Z = -0.357$, $p > 0.05$). This indicates that, prior to the intervention, students in both groups had comparable levels of knowledge in the SCESC course. Consequently, any disparities in their subsequent performance can likely be ascribed to the teaching intervention rather than pre - existing knowledge differences.

Table 2
Comparison of the pre-test scores between the two groups（Mann-Whitney U Test）

Stage	Group	Z	Asymp. Sig. (2-tailed)
Pre-test	Experimental group	-.357	.721
	Control group		

The within - group pre - test and post - test score comparisons for the experimental and control groups were conducted using different statistical methods. For the experimental group, the Wilcoxon Signed Ranks Test was applied, while the control group was analyzed with a Paired Samples T - test. The results are shown in Table 3 and Table 4, respectively. The Wilcoxon Signed Ranks Test results for the experimental group ($Z = -6.103$, $p < 0.05$) indicated a significant difference between the pre - test and post - test scores. Similarly, the Paired Samples T - test for the control group ($t(45) = -6.255$, $p < 0.05$) also demonstrated a significant change. Combined with table 1, the mean difference between the post - test and pre - test scores was 6.64 in the experimental group and 2.83 in the control group. These results suggest that both groups experienced improvements in their performance in the SCESC course from the pre - test to the post - test.

Table 3
Comparison of pre-test and post-test scores in the experimental group (Wilcoxon Signed Ranks Test)

	posttest - pretest
Z	-6.103[b]
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

Table 4
Comparison of pre-test and post-test scores in the control group (Paired Samples T-test)

Performance test	Pre-test (M±SD)	Post-test (M±SD)	*MD*	*t*	df	sig.(2-tailed)
	11.65±2.79	14.48±2.44	-2.83	6.255	45	.000

*$P<0.05$

A Mann - Whitney U test was performed on the post - test scores to determine the difference between the two groups, and the results are shown in Table 5. The analysis indicated a significant difference ($Z = -5.697$, $p < 0.05$). By referring to the mean scores in Table 1, it is evident that the experimental group's post - test score (18.04) was notably higher than that of the control group (14.48), with a mean difference of 3.56 points on a 24 - point test. This outcome suggests that the BPBL strategy was more effective than the traditional blended learning (BL) strategy in enhancing students' academic performance in the SCESC course.

Table 5
Comparison of the post-test scores between the two groups（Mann-Whitney U Test）

	Group	Z	Asymp. Sig. (2-tailed)
Performance test	Experimental group	-5.697	.000
	Control group		

Performance Pre-test and Post-test Results in the HEL Course

An independent t - test was conducted on the pre - test scores of the experimental and control groups in the HEL course, and the results are presented in Table 6. The pre - test scores of the two groups did not show a significant difference ($t(93) = -0.823$, $p > 0.05$). This implies that, before the intervention, students in both groups had similar levels of prior knowledge in the HEL course.

Table 6
Comparison of the pre-test scores between the two groups (Independent Samples T-test)

	Experimental(n=52)		Control(n=43)		*MD*	*t*	df	sig.(2-tailed)
Performance	*M*	*SD*	*M*	*SD*				
test	9.90	2.60	9.44	2.86	.46	-.823	93	.412

*$P<0.05$

Paired Samples T - tests were used to compare the pre - test and post - test scores within the experimental and control groups in the HEL course. The results are displayed in Table 7. In the experimental group ($t(51) = -11.591$, $p<0.05$) and the control group ($t(42) = -8.639$, $p < 0.05$), significant differences were observed between the pre - test and post - test scores. Specifically, the experimental group's pre - test average score of 9.90 was significantly lower than its post - test score of 16.42, and the control group's pre - test mean of 9.44 was significantly lower than its post - test mean of 14.86. These findings imply that, in the HEL course, the performance of both groups improved from the pre - test to the post - test.

Table 7
Comparison of pre-test and post-test scores within both groups (Paired Samples T-test)

	Pre-test		post-test		*MD*	*t*	df	sig.(2-tailed)
Performance test in experimental group	*M* 9.90	*SD* 2.60	*M* 16.42	*SD* 3.89	-6.52	-11.591	51	.000
Performance test in control group	9.44	2.86	14.86	3.45	-5.42	-8.639	42	.000

*P<0.05

Another independent t - test was carried out on the post - test scores of the two groups in the HEL course, and the results are presented in Table 8. The analysis revealed a significant difference (t(93)= - 2.048, p<0.05). The experimental group's average post - test score (16.42) was significantly higher than that of the control group (14.86), with a mean difference of 1.56 points on a 24 - point test. This finding further supports the conclusion that the BPBL strategy had a more positive impact on students' performance in the HEL course compared to the BL strategy.

Table 8
Comparison of the post-test scores between the two groups (Independent Samples T-test)

	Experimental		Control		*MD*	*t*	df	sig.(2-tailed)
	M	*SD*	*M*	*SD*				
Performance test	16.42	3.89	14.86	3.45	1.56	2.048	93	.043

*P<0.05

Interview Results: Student Experiences with BPBL

To explore students' experiences with the BPBL strategy, semi - structured interviews were conducted with 12 students from each experimental group of the SCESC and HEL courses (as detailed in the Methods section). Notably, feedback demonstrated significant commonalities in valuing BPBL's core activities, though course-specific differences in content engagement emerged. The following results integrate both shared patterns and course - specific insights.

Active Knowledge Construction Through Multimodal Learning

Students from both SCESC and HEL courses emphasized the significance of collaborative and self - directed activities in deepening their understanding. This indicates a common recognition of the key elements in the BPBL model that promote effective learning.

Group discussions, which prevailed across the four phases of BPBL models, were strongly emphasized by all 24 interviewees as a crucial driver of knowledge expansion. Students used group discussions to exchange ideas, challenge perspectives, and explore various aspects of the course content. This process encouraged them to think critically and conduct in - depth research. For example, an SCESC student said, "Group discussions on immigration made me consider different cultural and economic factors, which broadened my view on this complex issue." A HEL student echoed, "Analyzing *Great Expectations* in groups helped me notice details I'd missed before, like how the characters' actions reflected the social norms of that time."

PowerPoint-based presentations, occurring in phase two and phase three, were also highly valued by around 90% of students. Creating PPTs helped students organize their thoughts, synthesize information from different sources, and present their understanding in a structured manner. An SCESC student commented, "Making PPTs helped me better understand the complex relationships between different factors in immigration and gun control issues." A HEL student shared, "When making PPTs about literary works, I had to summarize the main ideas and supporting evidence, which improved my understanding of the literature."

Mixed Experiences and Long - term Recognition of BPBL

Students' overall experiences with BPBL involved both benefits and challenges, with differences shaped by course content.

The positive experiences reported by students from both courses were strikingly similar. Overall, about 75% of students expressed increased learning enthusiasm and highlighted improvements in problem - solving skills and self - directed learning ability through BPBL tasks. SCESC students felt that BPBL made abstract social and cultural issues more tangible. One student said, "Applying what we learned to analyze immigration and gun issues in SCESC made me more enthusiastic about exploring real - world problems. I realized how BPBL helps break down complex issues step by step, and it also allows me to learn independently by researching relevant materials." HEL students had a similar sentiment, with one noting, "Analyzing novels through BPBL tasks didn't just improve my literary skills. It taught me how to ask critical questions and solve problems by connecting different pieces of information, like historical context and character motivations. I also learned to manage my time and set goals for my study, which enhanced my self - directed learning ability."

While both groups reported time pressure and task complexity, the specific causes of these challenges differed by course: SCESC students (5/12, about 42%) highlighted difficulties in synthesizing diverse real-world data (e.g., policy, sociology, and economics) for problem-solving. A student noted, "Balancing multiple sources for the immigration debate felt overwhelming—each angle required separate research." HEL students (6/12, 50%) emphasized the cognitive load of integrating literary texts with historical contexts. One shared, "Analyzing *Pride and Prejudice* required connecting early 19th-century class dynamics with feminist themes—a process that demanded extensive cross-referencing of historical essays and literary critiques."

Despite the challenges, students from both courses showed a similar positive attitude towards BPBL's long - term benefits. Around 80% of students across both courses endorsed BPBL for fostering knowledge acquisition and critical thinking. For example, an SCESC student responded "The critical thinking from analyzing gun control issues helped me write a persuasive essay on related topics in another class."

DISCUSSION

This research has significantly advanced the realm of college English cultural education by revealing the positive influence of the Blended Problem - based Learning (BPBL)

strategy on students' academic performance in the "Society and Culture of English - speaking Countries" (SCESC) and "History of English Literature" (HEL) courses, when compared with the traditional Blended Learning (BL) approach.

Our findings provide robust empirical evidence of the effect of BPBL in enhancing academic performance, particularly in applied contexts like SCESC. In both the SCESC and HEL courses, a comprehensive analysis of the pre - test scores of the experimental and control groups indicated no significant differences. This provided a stable and reliable baseline, strongly suggesting that any subsequent variations in performance could be directly attributed to the specific teaching interventions employed. Once the teaching strategies were implemented, both groups showed substantial improvements in their scores. Notably, the experimental group, which received the BPBL intervention, achieved a post - test score that was significantly higher than that of the control group. This compelling result suggests that, within the context of these two courses, the BPBL strategy is far more effective than the traditional BL strategy in enhancing students' academic achievements.

When comparing our results with those of previous studies, a complex picture emerges, characterized by both consistencies and discrepancies. For example, Chis et. al. (2018) discovered that students performed better in a flipped classroom integrated with a problem - based learning environment than in a flipped - classroom model alone. Similar findings were also reported by Germo et. al. (2024), Kardipah & Wibawa (2020) and Bukumiric et. al. (2022). These congruent results reinforce the effectiveness of the BPBL model. Moreover, our study observed that students transitioned from being passive knowledge recipients to active learners under the BPBL model. This transformation aligns with the positive impact of Problem - based Learning (PBL) on students' learning processes, enabling them to construct new knowledge based on their existing knowledge, as described by Bukumiric et. al. (2022). In this process, PBL encourages students to acquire basic knowledge, as noted by Oliván-Blázquez et. al. (2023).

However, our results also deviate from certain previous research. Albanese & Mitchell (1993), Alias & Saleh (2007), Woltering et. al. (2009), and Servos et. al. (2023) contended that PBL was unsuccessful or even less effective than traditional teaching in terms of knowledge acquisition, although it might lead to better long - term memory due to deeper understanding. The discrepancies can be ascribed to multiple factors. Gijbels et. al. (2005), Bukumiric et. al. (2022) proposed that PBL might have varying degrees of effectiveness depending on the type of knowledge. Additionally, issues such as insufficient emphasis on content goals or time constraints during teaching and learning, as put forward by Simons & Klein (2007), could be contributing to these differences. In our study, we placed a strong emphasis on content acquisition. Moreover, the BL components in the BPBL strategy provided students with additional out - of - class study time, which potentially alleviated these issues.

Furthermore, student feedback offers invaluable insights into the practical implications of the BPBL strategy. The majority of students reported a positive transformation in their learning experiences, with 90% valuing group discussions and PPT presentations

as key drivers of knowledge construction. They actively participated in problem - solving activities, which guided their learning process and deepened their understanding of the knowledge. As one student remarked, unlike the rote memorization in traditional learning, BPBL provided a path for their learning and compelled them to apply knowledge, allowing for a more profound and genuine mastery. This not only validates the unique value of the BPBL strategy in promoting in - depth and high - quality learning but also showcases its effectiveness in enhancing students' practical knowledge application ability. Additionally, students' positive attitudes towards the BPBL strategy, including increased learning enthusiasm, enhanced self - directed learning ability, and improved problem - solving skills, are supported by interview data, such as students' descriptions of 'breaking down complex issues' and 'managing independent research'. These positive attitudes are in accordance with the research conclusions of Bukumiric et. al. (2022) and Woltering et. al. (2009).

Nonetheless, students also expressed concerns. The integration of PBL in the BL environment led to an increased complexity in their study, with 42% of SCESC students struggling with cross-disciplinary data integration (e.g., synthesizing social, economic, and policy factors for immigration debates) and 50% of HEL students facing challenges in contextualizing literary texts with historical backgrounds (e.g., connecting early 19th-century class dynamics in *Pride and Prejudice* with feminist themes). This finding is consistent with McLean (2016), where students found PBL activities challenging despite being satisfied with them. Additionally, as Könings et. al. (2018) pointed out, students' lack of experience with PBL might have influenced their evaluations of the course.

The qualitative insights from interviews further explain the quantitative trends. SCESC students' difficulties with real-world problem complexity may have been offset by the tangible nature of course topics, leading to a more pronounced between-group performance gap in post-test scores (experimental vs. control: SCESC MD=3.56 vs. HEL MD=1.56). This suggests BPBL's stronger relative effectiveness in applied contexts. In contrast, HEL's focus on abstract literary-historical integration demanded slower, cumulative knowledge synthesis, which might not be fully captured by multiple-choice assessments but aligns with students' self-reported gains in deep analytical skills.

CONCLUSION

This study formulated a blended problem - based learning (BPBL) model and explored its efficacy in enhancing students' academic performance in College English Cultural Courses, specifically in the "Society and Culture of English - speaking Countries (SCESC)" and "History of English Literature (HEL)" courses. Overall, BPBL demonstrated a significant effect on academic performance in both courses compared to traditional blended learning (BL).

Quantitatively, students in the experimental groups of both courses showed improvements in their post - test scores. In the SCESC course, the experimental group had a more significant increase, with a mean difference (MD) between post - test and pre - test scores of 6.64, while the control group had an MD of 2.83. In the HEL course,

the experimental group also improved, with an MD of 6.52, and the control group had an MD of 5.42. Qualitatively, student feedback from interviews indicated that they highly valued activities such as group discussions and PowerPoint - based presentations. These activities were believed to help them deepen their understanding, organize thoughts, and synthesize information. Students also reported increased learning enthusiasm, enhanced self - directed learning ability, and improved problem - solving skills. However, they also faced challenges. The complex learning cycle led to time pressure and stress. Some students had difficulty synthesizing diverse data in SCESC, and others struggled with integrating literary texts with historical contexts in HEL.

There were differences in the effectiveness of the BPBL strategy between the two courses. In the HEL course, although the experimental group had a higher post - test score (MD = 1.56 higher than the control group), the improvement was relatively mild compared to the SCESC course. This could be due to several factors. The content of the HEL course, which requires integrating literary texts with historical contexts, may demand a slower, cumulative knowledge synthesis process. Also, the multiple - choice tests used in this study might not fully capture the in - depth analytical skills that students developed through BPBL in HEL.

This study has several limitations. First, the sample was restricted to students from specific majors in two schools within a single university, which may limit the generalizability of the results. Second, the study only focused on students' overall academic performance in a relatively short period, so the long - term impact of BPBL remains unclear. Third, multiple-choice tests might have underestimated the effect of BPBL on qualitative skills like literary analysis in HEL. Future research should expand the sample to different regions and universities, conduct long - term studies, and explore more diverse assessment methods. Additionally, optimizing the online - offline balance in the BPBL model could enhance its effectiveness in improving students' learning experiences and outcomes in college English cultural courses.

ACKNOWLEDGEMENTS

This work was supported by The Society Project of Jiangxi Higher Education Society in 2024 (grant no. WY-D-007)—An Empirical Study on the Promotion of College Students' Critical Thinking through the Blended Learning Model Based on Problem-Based Learning (PBL). We also appreciate the useful information provided by the students in the study sample, which provided data for writing this research article.

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