

Effect of Integrating PBL in BL on Student Engagement in an EFL Course and Students' Perceptions

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Abstract—In higher education, blended learning (BL) is becoming increasingly popular, and students' engagement (SE) in this setting can be a crucial indicator of their academic performance. Despite suggestions for enhanced student engagement in blended learning, few studies in blended learning have specifically addressed student engagement in their research questions. To address this deficiency, problem-based learning (PBL) was adopted to complement BL to foster SE in the Chinese EFL context. A questionnaire and semi-structured interviews were administered to 379 and 12 students, respectively. Results showed that the integration of BL and PBL significantly affected College English students' behavioural, cognitive, and emotional engagement. Additionally, the qualitative findings verified that students recognised the positive effect of integrating PBL into blended learning. It particularly emphasised the importance of face-to-face (FTF), a learning management system (LMS), and the provision of interesting resources and material as keys to fostering student engagement in BL. The use of real-life situational settings, group study, and the development of learning strategies were also highlighted to promote student engagement. This study sheds light on how to increase student engagement in blended learning environments and extends to the setting of Chinese EFL.

Index Terms—blended learning, PBL, student engagement, students' perceptions

I. INTRODUCTION

BL has been adopted frequently by higher education institutions in recent years. BL refers to the integration of face-to-face and online learning (Garrison & Vaughan, 2008). BL is a widespread practice in universities nowadays. It is crucial to enhance student engagement in BL and offers insightful recommendations for future instructional strategies (Huang et al., 2022). Many investigations have focused on student engagement (SE) in the BL setting because SE is essential for the deployment of BL to be successful (Halverson, 2019; Teng & Wang, 2021; Heilporn, 2021; Manwaring et al., 2017). High SE has been linked to several positive educational outcomes (Fredricks et al., 2019), deep learning, student happiness, and academic success are all significantly impacted by SE (Halverson & Graham, 2019; Kahu, 2013; Heilporn, 2021).

Student engagement refers to the energy and effort students employ within their learning community (Bond et al., 2020). Numerous studies have found that students' limited engagement in academic activities is the main reason for their dissatisfaction, unpleasant experiences, and decision to leave school (Greenwood et al., 2002; Perie et al., 2005). Although it is well recognised that BL can increase SE (Graham, 2019; Henrie et al., 2015; Manwaring et al., 2017), this is not necessarily the case in Chinese English classes due to the teachers' dominant role in the setting and the students' passive roles in learning (Liu, 2011). For instance, Yan (2022), Ma (2022), and Jiang (2021) reported in their recent studies that SE in College English blended learning had been low. They also mentioned that some students did not actively participate in class when using network resources for teaching and that teachers frequently dominated lectures (Ma Yan, 2022). All non-English majors must take a course called "College English" during their first two years at colleges and institutions. Improving SE in College English blended learning is crucial and imperative for Chinese higher education.

PBL is a pedagogical initiative that acknowledges the central role of students. It is said to improve indicators of cognitive engagement, e.g. learning motivation (Sungur & Tekkaya, 2006; Pease & Kuhn, 2011), problem-solving skills (Raiyn & Tilchin, 2015; Schmidt et al., 2011), deeper understanding (Vernon & Blake, 1993), application of learning

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content (Berkson, 1993), and autonomous learning ability (Schmidt et al., 2011; Chung & Chow, 2004). As a result, PBL has the potential to complement BL to develop SE (Delialiolu, 2012), and it can also increase the environment's ability to foster SE's behavioural, emotional, and cognitive dimensions. Not many BL studies address students' engagement with their research questions (Heilporn, 2021). Insufficient empirical research employs a specific strategy to enhance SE in blended learning experiences in the setting of Chinese EFL. This study uses a mixed-method approach to ascertain whether integrating PBL in BL can enhance SE and elicit perceptions from the end users. The study's findings are believed to offer direction and advance the literature on encouraging SE in BL environments, which have significant implications for educators and academics.

II. LITERATURE REVIEW

A. PBL's Theoretical Background

PBL derived from the theory that learning was a process in which the learners actively constructed knowledge (Gejselaers, 1996). Constructivism is a theory that supports PBL because it holds that teachers cannot impose information on students and that students actively construct knowledge and make meaning from their personal or societal experiences (Jonassen, 2004). The students actively work on projects and activities that are true to the environment, which is one of PBL's advantages. The emphasis is on the student's ability to interpret their meaning in a situation where they would use that information. Through inquiry and dialogue, students think critically and keep an eye on their thinking. Constructivists contend that skills have meaning when the students acquire them within a meaningful context. At the same time, PBL gives students a problem to solve and creates dissonance for students to construct knowledge (Marra et al., 2014).

B. Student Engagement

SE attracted researchers' attention 70 years ago with Ralph Tyler's research on the relationship between time spent on learning and SE (Kuh, 2009). Since then, there has been a significant evolution and expansion of SE research (Schindler et al., 2017). In recent years, it has received a lot of research (Heilporn, 2019; Halverson, 2019; Bond et al., 2020; Bond & Bedenlier, 2019; Teng & Wang, 2021; Manwaring et al., 2017). We may claim that successful students are more likely to be engaged in their studies. Many scholars (Bond et al., 2020; Fredricks et al., 2019; Christenson et al., 2012; Kahu, 2013; Manwaring et al., 2017; Halverson, 2019) agreed SE has three dimensions: behavioural engagement, emotional engagement, and cognitive engagement.

The indicators contributing to the dimensions of students' engagement should be clearly articulated, and further research can be conducted accordingly and effectively. The degree to which students actively engage in learning activities is how these scholars describe student behavioural engagement (Schindler et al., 2017; Fredricks et al., 2004; Kahu, 2013). According to Schindler et al. (2017), Kahu (2013), and Kuh (2009), interaction with peers, instructors, and staff, as well as the amount of time and effort invested in learning activities, are all behavioural engagement indicators (Schindler et al., 2017; Fredricks et al., 2004; Kahu, 2013; Trowler, 2010; Kuh, 2009). Next, student cognitive engagement concerns the degree to which students invest in learning and expend the mental effort to comprehend and master content (Schindler et al., 2017; Fredricks et al., 2004). Indicators of cognitive engagement mainly include motivation to learn (Schindler et al., 2017; Zepke & Leach, 2010), deep processing of information (Fredricks et al., 2004; Kahu, 2013; Schindler et al., 2017), learning strategies (Fredricks et al., 2004; Schindler et al., 2017), persistence to overcome academic challenges and meet/exceed requirements (Fredricks et al., 2004; Trowler, 2010; Kuh, 2009; Schindler et al., 2017). Finally, student affective reactions to learning are referred to as student emotional engagement (Fredricks et al., 2004; Trowler, 2010; Schindler et al., 2017). A sense of belonging to a learning community and attitudes, interests, and values toward learning are examples of emotional engagement indicators (Fredricks et al., 2004; Trowler, 2010; Kahu, 2013; Schindler et al., 2017).

C. Student Engagement in College English Blended Learning

Due to the rapid development of internet technologies, educational technology-based tools and applications have become crucial modern instructional aids for the teaching and learning of the English language (Zhiyong, 2020). After Covid-19, teaching English in a BL setting has become the "new normal" in Chinese higher education. The needs of college students are met through blended learning, which increases learning time and space and enhances the effectiveness of instruction in teaching English to students (Qi, 2021). Blended learning, which combines technology, can give students a flexible learning environment and give teachers more time to spend with students, either individually or in small groups (Pinto-Llorente et al., 2017). However, China has emphasised rote memorisation and teacher-centred education, which makes many academics found difficult to promote SE in this environment. According to Guo et al. (2019), students lack originality and participation motivation mainly because of teaching methods that encourage rote memorisation. PBL exercises demand that students use their newly acquired knowledge to locate and resolve problems (Anderson & Tredway, 2009). In addition to fostering a sense of community among students in blended learning environments, PBL also promotes SE in practical learning tasks (Callahan & Payne, 2018). PBL may be a sound teaching strategy to complement BL to enhance SE in teaching English in Chinese universities.

D. Integration of PBL in BL to Enhance SE in College English Blended Learning

BL integrates the advantages of both face-to-face learning and online learning. Face-to-face instruction is dynamic, making it easy for students to speak and participate and benefit from forging solid bonds. Interactive activities in face-to-face education, such as group discussions, case studies, debates, and problem-solving exercises, offer rich interactive experiences that raise students' behavioural engagement. Students interact face-to-face and work together to build the social context necessary for face-to-face communication. Digital tools can also improve the interactions in face-to-face learning via quizzes, discussion boards, random selection, sign-in, and point-adding systems. Online learning satisfies students' needs for customised education and overcomes the limitation of class time. Digital technologies and learning management systems can facilitate online and face-to-face learning integration. For instance, the discussion forum also improves communication between students and instructors. Together, teachers and students can produce and exchange learning materials. Teachers can also communicate with students through social media. Online learning, in-person instruction, collaboration, and interactive activities provide a rich, dynamic experience that raises students' emotional and behavioural engagement. However, if BL is used in a teacher-centred environment, it cannot fulfil its function in promoting SE. Furthermore, recent studies indicate that BL has little effect on students' cognitive engagement (Heilporn, 2021).

In PBL, which is student-centred, teachers act as facilitators and coaches to coordinate and promote problem-solving. PBL is a teaching approach that encourages problem-solving as a crucial tool for independent study and critical thinking in contexts that reflect real-world situations (Dolmans & Schmidt, 1996; Loyens et al., 2015; Wood, 2003). PBL has been shown to facilitate cognitive and metacognitive learning (Yeung et al., 2003; Mathews-Aydinli, 2007; Yew & Schmidt, 2009). According to Mathews-Aydinli (2007), PBL involves students in learning how to learn in addition to language and content acquisition. Tiwari et al. (2006) found that deep learning processes are reinforced in PBL classes through activities like discussions about classifying and sharing what students know and don't know, elaborating on and incorporating new information into the group's solution, and presenting and defending the group's answer to their peers. In addition to language and subject acquisition, Mathews-Aydinli (2007) believed that PBL involves students learning how to learn. PBL offers more opportunities for students to connect, participate, collaborate, ask questions, and use instructional methods for students' diversified learning in a blended learning environment (Gray & Tobin, 2010). PBL allows students to experiment with and develop new forms of discourse appropriate for the reading, writing, and collaborative practices prevalent in the digital age (Savin-Baden & Wilkie, 2006, p. 18).

The following PBL steps were integrated into College English blended learning (Figure 1): (1) Problem initiation. Definition of the problem that needs to be solved. (2) Problem analysis. Decisions such as the problem's scope and the required resources. (3) Task formulation. Problem objectives specification and ensuing task distribution. (4) Problem Delimitation. Each group must specify the limitations of the problem and reorganise the task and responsibilities allocation depending on the group's findings. (5) Solution. Determination of solution by each group through discussions and under teachers' guidance. (6) Problem discussion. Group and class discussion through recursion of the process's steps. (7) Evaluation. Student cognitive engagement may be influenced by these PBL steps, calling for students to identify problems, analyse problems, devise tasks, discuss difficulties, and work in teams. Students challenged to engage in higher forms of learning, such as analysing, synthesising, and evaluating, tended to be most engaging (Krause & Coates, 2008).

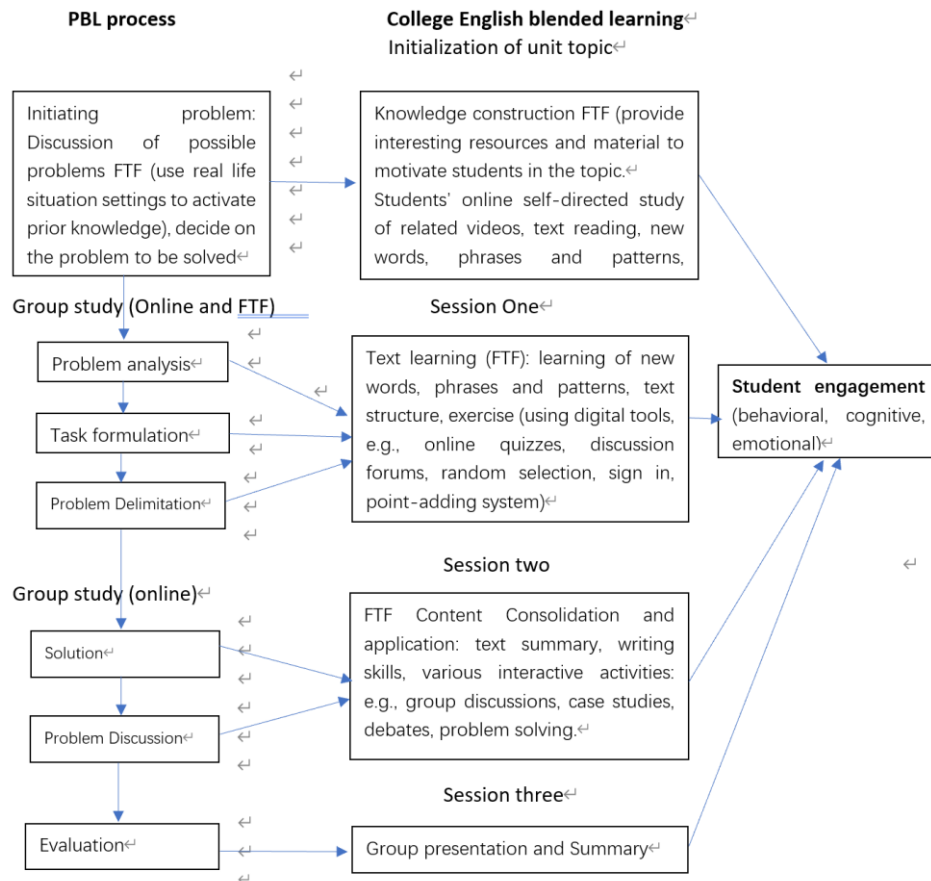


Figure 1. Framework of Integration of PBL in BL on SE in College English

PBL activities can be used in BL and face-to-face (FTF) settings, which can work together in various ways. Characteristics of blended learning supplement PBL. With the help of rich and dynamic materials, BL gives students access to a more flexible and constructivist learning environment where they may take charge of their education. BL encourages interactions between the students and the teacher by allowing them to talk and work together both within and outside of the classroom. Since PBL relies on group study, this characteristic is a good fit for BL. Additionally, blended learning can give English language learners who are hesitant in FTF settings a chance to participate in collaborative problem-solving.

Some examples combined the BL and PBL in teaching and obtained better teaching results in language teaching (Dawilai, 2018; Lin, 2017). The statistical findings revealed that the PBL group outperformed the non-PBL group regarding English writing, reading comprehension, and active participation in the learning process. However, few researchers have focused on increasing student engagement with PBL and BL integration in Chinese EFL classes, despite the need for this instructional strategy. The following research questions were used to frame the current study in the context of Chinese EFL: (1) Does integrating PBL in BL enhance SE in College English? (2) How does integration of PBL in BL enhance SE in College English?

III. METHODS

The present study adopted a mixed-method approach, encompassing a quantitative inquiry and semi-structured interviews. A questionnaire was administered to College English students to investigate their BE, CE, and EE levels before and after the implementation of integrating PBL in BL, and a qualitative study consisting of one-on-one interviews was conducted.

A. Participants

In total, questionnaires were collected from a valid sample of 379 Chinese university sophomores aged from 18 to 23 after removing the incomplete responses. The participants were second-year students enrolled in a College English course at a university in south China, and they underwent the integration of PBL in BL. Pre- and post-survey were administered to measure BE, CE, and EE before and after eight weeks of treatment. Of the surveyed participants, 215 were males (57%), and 164 were females (43%). All participants have taken three semesters of blended learning

College English. The participants in this study had been exposed to instructional technology tools and were familiar with blended learning. Twelve participants who agreed to participate in the follow-up interview were selected as interviewees. This interviewee group was made up of four males and eight females.

B. Instruments

A questionnaire and an interview protocol were, respectively, adapted and designed for data collection in the present study as follows.

Student Engagement Questionnaire in College English Courses

An online survey questionnaire was adapted, survey was adapted from Teng & Wang's "A Survey of Student Engagement in College English Courses" (Appendix A) (2021), which is specially designed for EFL students in Chinese higher education. It has 26 items and is graded on a Likert scale from strongly disagree (1) to strongly agree (5). The level of student engagement increases as the score rises. It was created for the Chinese academic setting, where the target students use similar digital tools like Wechat and the Superstar platform. Additionally, the items on this instrument centre on the three engagement dimensions that were the subjects of this article. Experts and researchers tested the validity of this questionnaire survey and made further revisions and improvements.

C. Interview Protocol

The interview protocol was designed to obtain students' perceptions of the effect of integrating PBL in BL on BE, CE, and EE. This interview protocol contained 15 questions (see Appendix B). During the interview, these questions were adjusted organically to explore the reasons, experiences, implicit feelings and specific examples towards integration of PBL in BL influencing their BE, CE, and EE.

D. Data Collection

The questionnaire was distributed to participants via an online survey tool. A purposive sampling approach, considered a time-saving and cost-effective method to identify the potential participants and obtain information-rich data (Patton, 2002), was adopted to select participants from a university where College English was being taught in blended learning. Their English scores in the college entrance exam were below 94 (the full mark of 150). The chosen university belongs to the Guangdong-Hong Kong-Macao Greater Bay Area, a big project in China that aims to be "Chinese Silicon" and needs a large number of English users. Prior to data collection, teachers' descriptions of integrating PBL in BL were obtained to ensure that the selected class had treatment properly. The survey was carried out with the respondents anonymously. All participants completed the questionnaire before and after integrating PBL in BL and were informed that the data would be used for research purposes. The questionnaires took approximately 5 minutes to complete, and from these participants, the researcher selected 12 participants to interview. The criteria for selecting interviewees were that the 12 interviewees demonstrated different SE levels (high, moderate, and low). The 12 interviewees were sophomores who took College English at the selected university, and all had received blended learning. The semi-structured, 40-min face-to-face interviews were conducted in Chinese, the participant's first language, and were digitally audio-recorded with the interviewee's permission.

E. Data Analysis

Before distributing the questionnaire survey, the reliability of the questionnaire was checked in the form of Cronbach alpha, and the result revealed that Cronbach's Alpha in BE, CE, and EE was 0.914, 0.839, and 0.894, respectively, which proved its good reliability. Then, paired sample test was run to explore whether integration of PBL in BL affects students' BE, CE, and EE.

Interviews allow for an in-depth and thorough understanding of personal feelings and experiences (Patton, 2015). The qualitative data, therefore, were analysed inductively and recursively according to the following process. First, the interview transcripts were read and re-read to pinpoint recurring words, phrases, and clauses in relation to the effect of integrating PBL in BL on students' BE, CE, and EE. Then, open coding was performed to yield a cluster of codes, and the initially identified codes were then translated into significant categories. The categories were then compared and integrated using axial coding (Strauss & Corbin, 1998), and the logical linkages between these categories were found to identify recognised themes. Finally, the themes should be constantly examined until a complete thematic map has been constructed.

IV. FINDING AND DISCUSSION

RQ1: Does integrating PBL in BL foster College English students' engagement?

The researcher would like to probe whether there are variances between students' BE, CE, and EE after the implementation of integrating PBL in BL. Paired sample tests were done to answer research questions. From table (n=379), we can see that the means score of BE of the post-survey (3.0561) is higher than its pre-survey score (2.7880) after 8-week treatment, with a mean score difference of .2681 (3.0561-2.7880). In addition, the t-test result of students' BE is significant ($p < .05$) according to table 2. The mean CE score of the post-survey (3.0443) is also more remarkable than the pre-survey score (2.8022), with a mean score difference of .2421 (3.0443-2.8022). Additionally, table 2's t-test results for students' CE are significant ($p < 0.05$). In terms of EE, the post-survey mean score (3.0741) is higher than the

pre-survey mean score (2.7801) after 8-week treatment, with a mean score difference of 294 between the two (3.0741-2.7801). Table 2 shows that PBL integration in BL has a significant impact on students' BE ($t=-2.453$, $df=378$, $p<0.05$), CE ($t=-2.195$, $df=378$, $p<0.05$), and EE ($t=-2.760$, $df=378$, $p<0.05$). In other words, the integration of PBL in BL significantly affects SE in College English.

TABLE 1
PAIRED SAMPLES STATISTICS OF SE

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BE-pre	2.7880	379	.56803	.06391
	BE-post	3.0561	379	.76604	.08619
Pair 2	CE-pre	2.8022	379	.64724	.07282
	CE-post	3.0443	379	.71416	.08035
Pair 3	EE-pre	2.7801	379	.55478	.06242
	EE-post	3.0741	379	.63964	.07196

TABLE 2
PAIRED SAMPLES TEST OF SE

		Paired Differences							
		95% Confidence Interval of the Difference							
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	BE-pre- BE-post	-.26808	.97137	.10929	-.48566	.05051	-2.453	378	.016
Pair 2	CE-pre- CE-post	-.24209	.98024	.11029	-.46165	.02253	-2.195	378	.031
Pair 3	EE-pre- EE-post	-.29408	.94699	.10655	-.50619	.08196	-2.760	378	.007

RQ2: How does blended learning integrating PBL enhance SE in College English?

As the statistical data showed that BE, CE, and EE had been improved by integrating PBL in BL, the secondary research question focused on how PBL in BL fostered SE. The qualitative findings with the following themes further contributed to a deeper understanding of these results from students' perceptions.

The first theme was that face-to-face (FTF) learning, digital tools, and learning management systems (LMS) in BL contribute to students' BE. FTF was a prevalent theme that most participants in the interview mentioned. Students gain SE from BL in two areas: a communicative learning environment and diversified interactions. "I actively participate in FTF learning because I think it is easier to form an intense learning atmosphere, [...]. FTF learning can also urge me to listen carefully and make greater progress" (P10). "I am actively involved in the FTF, the learning atmosphere is strong, and we can help each other," Participant 4 said. P9 added: "I am more active in FTF learning. I think FTF learning can maintain social communication between students, and students and instructors can get better teaching feedback from FTF." P2 said: "I think FTF learning is the most effective and direct teaching method." P1 said: "Blended learning includes more diversified learning methods, which can make us more active". Added by P3: "BL's diversified learning forms have increased the application scenes of English".

Participants also highlighted the function of LMS enhancing BE, which enabled students to devote more time and energy to learning. As the LMS (Superstar platform) can be accessed through a mobile phone or personal computer, both Participant 6 and Participant 12 indicated that LMS enabled them to study anytime and anywhere. Participant 12 explained: "I can not only use books for learning, but mobile phones are also more convenient to carry, and I can learn English anytime, anywhere." P4 mentioned that "LMS not only enables me to absorb the knowledge better but also enables me to spend more time to learn English after class, allowing me to devote more time and energy to college English". P5 explained that "LMS enables me to learn English more freely, and then I can watch videos in the LMS and learn again and again where I don't understand". Participants indicated that digital tools in LMS are also helpful in fostering students' behavioural engagement. "I like to post questions in the discussion forum and communicate with other students because I can have room for freedom while understanding the content of the text" (P3). "Posting problems in the discussion forum is more attractive to me because we can ask and comment on other people's questions. I think this is a better way for interaction, which can let me participate more," P5 said. Participants 6, 8, and 12 said they liked communicating online. To a certain extent, digital tools can help improve participation in the classroom, such as using software to ask and answer questions and increase the sense of involvement. At the same time, it can also help me pay more attention to the text," P3 added. Participants' statements about digital tools' use aligned with what Heilporn (2021) mentioned, that various digital tools were highlighted to promote student behavioural engagement at the undergraduate level. They can stimulate student participation and attention, therefore fostering student behavioural engagement.

In addition, findings point to the role of group study as the second theme to optimise engagement, and group study is one of the significant components of PBL. "I prefer group study, which also gives other students more time to share and

more opportunities to perform. Such a mode has broadened my learning range." (P10). "We can discuss online (with the help of technology) and offline. Well, we get together, which is more convenient to collect information, including easier division of labour." P12 added: "And if these two teaching methods (BL and PBL) are integrated, the (behavioural) engagement of group members in group discussions can be increased, it will reduce the phenomenon of escaping from responsibility." Participants felt that solving problems together as a group improved students' deep learning, which is one of the signs of cognitive engagement. "When faced with a problem I don't understand, I will collaborate with my group or other students to discover a solution" (P2). "When we form a group, we converse and share ideas, regularly assess and develop our understanding of the material, and work together to complete the learning target" (P10). "It gives our classmates a chance to work together and coordinate activities. (P12). P5, P6, P7, P9, and P12 acknowledged PBL's impact on deep learning. For instance, "I think I may be more concentrated or in-depth to learn during group study." (P5). "PBL influences my study habits and improves my comprehension of the English language." (P6). These results support earlier research on the impact of PBL on cognitive engagement (Hmelo-Silver, 2004; Vernon & Blake, 1993). According to participants, group study enables group members to feel close to each other and gain satisfaction from expressing themselves and enhances a sense of belonging. P7 said: "It is fascinating to watch the presentations of other groups when sharing in class, and I can learn a lot of views and ideas." "During my group cooperation and discussion participation, I feel happy." P2, P3, and P6 all expressed their satisfaction while working together to solve problems. P10 said: "It is interesting in the learning experience of College English blended learning and PBL. I like group cooperation; it gives students more time to share and opportunities. It can improve our good habits of helping each other and getting along well with each other and enhance our belonging sense and ability to teamwork".

Our study also figures out PBL's real-life situational settings and helps to develop learning strategies as an additional condition to enhance CE. In China, however, English language teaching in classrooms is usually teacher-directed (Zhang et al., 2022), leading to students' low motivation and limited development of learning strategies. The real-life situational setting is a characteristic of PBL (Loyens et al., 2015), which brings the learning to life for students, as well as a personal incentive. Several participants agreed that real-life problems in PBL can improve their motivation. "I think the problems or settings related to our real life or future job can help me focus more on learning and understand the content more in-depth. Take Unit 3: Job hunting as an example, and we can put forward problems related to job skills combined with our students' current situation: what skills do we think we need to find a job, or how can you make the interviewer remember you?" (P7). P1 agreed that real-life situational settings could stimulate her thirst for knowledge. Participant 2 added: "Real-life situational settings can stimulate me to understand that learning is the motivation to explore problems. It can help me focus more on my study".

As Hmelo-Silver (2004) suggested, PBL is a kind of experiential learning in real-life situations and can help students actively participate in the learning process. Moreover, as participants emphasised, PBL helps students develop learning strategies like self-direction, planning, and deep processing. "PBL task directs my learning and forces me to study more methodically than my previous methods, leading to poor learning efficiency (P4). "My capacity for applying knowledge, [...] and my critical thought, has significantly increased when using the PBL method" (P9). "During problem-solving, we discussed possible learning strategies." (P7). "PBL process led me to organise my English-learning strategies and enable me to engage more fully in my college English course" (P11).

Further, PBL's processes, like application elaboration, discussion, interaction, and reflection, help to improve deep processing. "PBL allows us to think more about ourselves, rather than entering stuff blindly without thinking about problems," P8 commented. "I can learn more thoroughly as a result (of PBL). "PBL makes us think harder about how to solve challenges." These claims validated how PBL affects students' cognitive engagement. This finding is supported by Dolmans et al. (2016), who revealed that PBL had a favourable effect on the use of deep processing.

Last, the varied perceptions of students attached importance to the provision of interesting resources and material. Blended learning provides the ease of incorporating interesting resources and material, such as evocative images, video clips, narration, and other audio tracks, which enable students to better comprehend, relate to, and recognise the significance of the course subject. In this way, students won't perceive the course material as meaningless facts; instead, it might elicit an emotional reaction that makes it easier for them to retain it for the course duration. P11 said: "The degree of active participation depends on your interest in this issue." P12 asked for more interesting resources: "I also hope the teacher can recommend something interesting besides textbooks, which can stimulate my interest in learning English." "Regarding the problem's topic, I hope it is relevant to the class and the outside world. It makes me feel better to combine inside and outside classroom activities. I will be more experienced and interested if I study college English." (P7). Adding information to tasks engages students' emotions (Huk & Ludwigs, 2009).

V. CONCLUSION

Regarding the popularity of blended learning in higher education, enhancing student engagement in blended learning is imperative. Blended learning has transferred the emphasis of education from teaching to learning (Huang & Ling, 2022). The focus on teacher-centred and rote memorisation in the Chinese context inhibits blended learning from fostering student engagement. This study integrates PBL in BL because they complement well and have a favourable impact on students' BE, CE, and EE in the setting of Chinese EFL. According to the data analyses with SPSS 26, the integration of BL and PBL significantly affects students' BE, CE, and EE. Our study's results offer some preliminary

Section C

Items	Comment						
	1	2	3	4	5	NO	
EE (01): I am interested in the work I get to do in my classes.							
EE (02): I feel excited by the work in my school.							
EE (03): Talk about career plans with a faculty member or advisor.							
EE (04): Have serious conversations with students who are very different from me.							
EE (05): Include diverse perspectives in class discussions or writing assignments.							
EE (06): Feel part of a group of students committed to learning.							
EE (07): I really like being a university student.							

B. Student Semi-Structured Interview

1. How do you think blended learning and the problem-solving process have helped you put more time and energy into learning College English?
2. Did you think the problem-solving process influences your learning strategies, help you focus on the learning, or learn the content in a deeper way?
3. How did you feel about your learning experiences in blended learning and problem-solving process in College English? Happy? Satisfied? Bored? Interesting? Difficult? Challenging? Frustrated? Motivated? And why do you say so?
4. Which learning activities involve/attract you the most and why?
5. Which learning activities you don't want to take part in and why?
6. Did you actively communicate with others during the learning activity? Can you give some examples?
7. Did you take part in face-to-face teaching actively? Why or why not?
8. Did you take part in the self-paced study online actively? Describe what involve you in the self-paced study online.
9. Do you think the problems are challenging or interesting?
10. Did you think the digital tools used in class can help you more involved in learning? How did you use these digital tools?
11. Did you actively take part in the problem discussion? Why or why not?
12. Did you actively take part in the group work? Why or why not?
13. How effective is your group's cooperation in solving problems? Can you give some suggestions?
14. Were you satisfied with the group work? Do you have any suggestions?
15. How do you think blended learning integrating PBL makes you more actively involved in learning College English?

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