Review Article

Systematic literature review on the effects of blended learning in EFL education

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ARTICLE INFO	ABSTRACT
	Aim: This systematic literature review (SLR) critically examines the impact of blended learning (BL) in English as a foreign language (EFL) education, with a focus on methodological rigor and research gaps. **Background:** Although previous reviews have underscored the advantages of BL for EFL learners, many have been limited in scope, focused on narrow outcome measures, or insufficient methodological clarity. This review updates and extends earlier work by integrating studies published from 2020-2025, while assessing the methodological robustness of included studies. **Design:** SLR following preferred reporting items for systematic reviews and meta-analyses guidelines. **Methods:** Peer-reviewed articles published from January 2020 to April 2025 were identified through Scopus, Web of Science, and China national knowledge infrastructure. Inclusion criteria required interventions involving BL with EFL students, comparison groups, and reported learning outcomes. Methodological quality was evaluated using the mixed methods appraisal tool. **Results:** Thirty studies met the inclusion criteria. Findings suggest that BL exerts beneficial effects across five key areas: academic performance, learning engagement and motivation, learner autonomy, psychological well-being, and learning satisfaction. However, overreliance on quasi-experimental designs, convenience sampling, and short intervention durations undermines generalizability. Few studies explored mental health and critical thinking outcomes. **Conclusions:** BL has shown promising results in EFL contexts, but stronger empirical designs are needed. Future research should focus on randomized controlled trials, cross-regional studies, and theoretical grounding to ensure a robust evidence base. Educators are encouraged to incorporate BL strategically to foster improvements in writing skills and critical thinking. **Keywords:** blended learning, EFL education, EFL students, systematic literature review

INTRODUCTION

Over the past two decades, technological innovations have transformed the field of English as a foreign language (EFL) education. Among these pedagogical developments, *blended learning (BL)*–which intentionally integrates online and face-to-face learning–has not emerged recently but has evolved through successive refinements and adoption across diverse educational settings. The COVID-19 pandemic further accelerated its global implementation, solidifying BL as a sustainable model that aligns with contemporary digitalization and learner-centered paradigms (Hrastinski, 2019; Lim & Graham, 2021; Lockey et al., 2022).However, despite the potential of BL to transform EFL education, its effectiveness in improving key areas such as learner

engagement, motivation, autonomy, and the integration of technological tools is still inconsistent and under-researched.

Although traditional teaching methods are still widely used, BL has increasingly been adopted by educators over the past decade (Han & Wang, 2021). The COVID-19 pandemic since 2020 has further accelerated this shift, highlighting the advantages of BL and motivating educators to experiment with innovative applications to meet the evolving needs of EFL learners (Morsi, 2023). Traditional EFL classrooms often face persistent challenges such as limited peer interaction, inadequate individualized feedback, and low learner engagement. These shortcomings have been repeatedly identified in the literature as critical barriers to effective language acquisition (Dörnyei & Ushioda, 2011; Li, 2021; Rahimzadeh & Gilakjani, 2022). Consequently, studies have suggested that while BL offers increased flexibility and accessibility, its effectiveness ultimately depends on sound pedagogical integration and learner readiness (Chen & Jumaat, 2023).

Extensive empirical evidence highlights the positive impact of BL on academic achievement and critical thinking skills among EFL students. Numerous studies have demonstrated improvements across various aspects of learning, including students' knowledge (Wu & Luo, 2022), skills (Chen, 2023; Dousti & Amirian, 2023; Phaiboonnugulkij, 2023; Yang, 2022), engagement (Chen, 2023; Wang et al., 2021; Yang, 2022), motivation (AlManafi et al., 2023; Alvi, 2023; Chen, 2020; Menggo & Darong, 2022; Pu & Chang, 2023; Rahimzadeh & Gilakjani, 2022), and autonomy (Chen, 2022; Menggo & Darong, 2022). BL also facilitates the development of cognitive functions such as critical thinking (Rahman, 2021; Sharma & Barrett, 2018), promotes self-directed learning competencies (Khadjieva & Khadjikhanova, 2019), and enhances self-efficacy (Chang, 2023; Han & Hiver, 2018; Pu & Chang, 2023). Furthermore, it strengthens learning satisfaction (Rahimzadeh & Gilakjani, 2022; Wu & Luo, 2022). However, BL's implementation is not without its challenges. It has been linked to some mental health issues, including anxiety (Alghofaili, 2022; Alotaibi & Alzu'bi, 2025) and stress (Albiladi & Alshareef, 2019), which warrant further investigation. This suggests that, despite the numerous pedagogical benefits of BL, its effects on learners' mental health need more attention.

BL is widely recognized for fostering a dynamic and interactive learning environment that enhances students' academic performance. A variety of studies have demonstrated the effectiveness of BL in improving not only cognitive skills but also emotional and behavioral aspects. Learners' language performance, engagement, motivation and autonomy are key areas positively impacted by BL, particularly through mobile-assisted and technology-integrated instructional designs (Chen & Jumaat, 2023; Zhou et al., 2023). Additionally, the integration of BL with self-directed learning practices helps students develop competencies necessary for lifelong learning.

The emotional benefits of BL are significant, as it promotes motivation and learner autonomy; **however**, the emotional toll associated with prolonged screen time and reduced face-to-face support cannot be overlooked. As evidenced by several studies (Alghofaili, 2022; Alotaibi & Alzu'bi, 2025), some learners experienced anxiety and fatigue during online sessions, indicating that emotional scaffolding remains essential in BL environments. Although there is extensive research on the advantages and disadvantages of BL in EFL learning, existing literature remains fragmented. The studies often differ in their research designs (e.g., quasi-experimental designs), outcome measures, and theoretical frameworks (e.g., connectivist theory and constructivist theory), leading to inconsistent findings. They are also conducted in varied contexts, including countries (e.g., China, Indonesia, and Iran). Furthermore, the duration of interventions in quasi-experimental designs typically spans from a few weeks to two semesters. Many reviews focus on specific aspects, such as language skills or student motivation, without considering the full spectrum of BL's effects. Building upon these developments, several scholars have emphasized the importance of synthesizing existing findings to form a more cohesive and comprehensive understanding of BL's pedagogical effects. Recent systematic reviews and meta-analyses highlight the need for integrative syntheses that bridge theoretical, methodological, and contextual gaps (Chen & Jumaat, 2023; Nguyen, 2024; Qiu et al., 2022).To guide readers systematically through the review, the paper is structured into five main sections. We first introduce the background, purpose, and rationale of the study. We then explain the review methodology, including search procedures, selection criteria, and data synthesis methods. Next, we report on the descriptive results of the studies included. After that we discuss the synthesized findings in relation to prior research. Finally, we present the main conclusions, pedagogical implications, and directions for future inquiry.

Table 1. SLR on BL in EFL education

No	Authors	Topic variables	Quantity	Search period
1	Altay and Altay (2019)	Effectiveness of BL and learning processes in BL environments	10	2010-2015
2	Qiu et al. (2022)	Learners' vocabulary performance, EFL skills (except vocabulary performance), emotions, and behaviors	45	2017-2021
3	Chen and Jumaat (2023)	BL design, participants, technologies, and effects	69	2018-2022
4	Alenazi (2023)	Efficacy of BL programs	56	2010-2023
5	Zhou et al. (2023)	Mobile-assisted BL	25	2014-2023
6	Nguyen (2024)	Language skills, student engagement, motivation, and autonomy	15	2022-2024
7	Ismail and Yassin (2023)	BL approach	47	2017-2021

Based on the objectives outlined above, this systematic review was guided by the following research questions:

1. What are the reported effects of BL on EFL learners' academic performance, engagement, autonomy, psychological well-being, and learning satisfaction between 2020 and 2025?

2. What research designs, theoretical frameworks, and methodological characteristics dominate recent BL studies in EFL education?

3. What gaps and future directions emerge from synthesizing these studies?

These questions were formulated to capture both outcome-based evidence and methodological tendencies, providing a comprehensive picture of current research in this field.

In this context, several researchers have undertaken literature reviews to examine the effects of BL in EFL education (Alenazi, 2023; Altay & Altay, 2019; Chen & Jumaat, 2023; Ismail & Yassin, 2023; Nguyen, 2024; Qiu et al., 2022; Zhou et al.,2023) (refer to **Table 1** for more details). Although these reviews have contributed to the existing body of literature, the majority have encompassed a very few studies. To illustrate, Altay and Altay (2019) have only addressed 10 studies, while Nguyen (2024) only 15 studies. This limitation was mainly due to the limited scope of the above reviews. Many reviews limit their scope to the individual facets of the BL effect, such as Altay and Altay (2019), who have only focused on effectiveness of BL and learning processes in BL environments and Nguyen (2024), who have addressed language skills, student engagement, motivation, and autonomy. By focusing on a few sets of outcome variables, such reviews end up excluding a vast range of valuable studies that potentially would provide broader insights into the multiple facets of the diverse influence of the BL effect. The selective nature of the above reviews may result in a fragmented view of the topic and the ensuing importance of the broader reviews covering extensive numbers of studies and viewpoints. Furthermore, the systematic literature reviews available in the literature have addressed studies only through 2024. However, the literature pertaining to the influence of the BL effect may have increased since then. Consequently, several of the recent studies investigating the influence of the BL effect in the context of EFL education may have been left out by their reviews. This may cause a gap in the current literature knowledge base and therefore we highlight the necessity of updating reviews covering contemporary studies.

Overcoming the above-mentioned gaps of the literature under study, the present study comprehensively and systematically reviews the studies on the influence of the BL effect in the domain of the EFL education until the year 2025. The aim is to contribute an updated picture of the aggregate influence of the BL on the EFL students. This work also reviews how studies are actually conducted based on their design of research, sampling plan, and design of intervention so as to highlight gaps in research and prospective lines of future work.

METHODOLOGY

This systematic review was conducted according to preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines, an internationally adopted protocol for systematic reviews and meta-analyses to design the research approach such as literature searching, inclusion and exclusion criteria and extraction of data (Page et al., 2021). The PRISMA flow diagram of the screening and selection process of the study was presented in **Figure 1** (**Appendix A**).
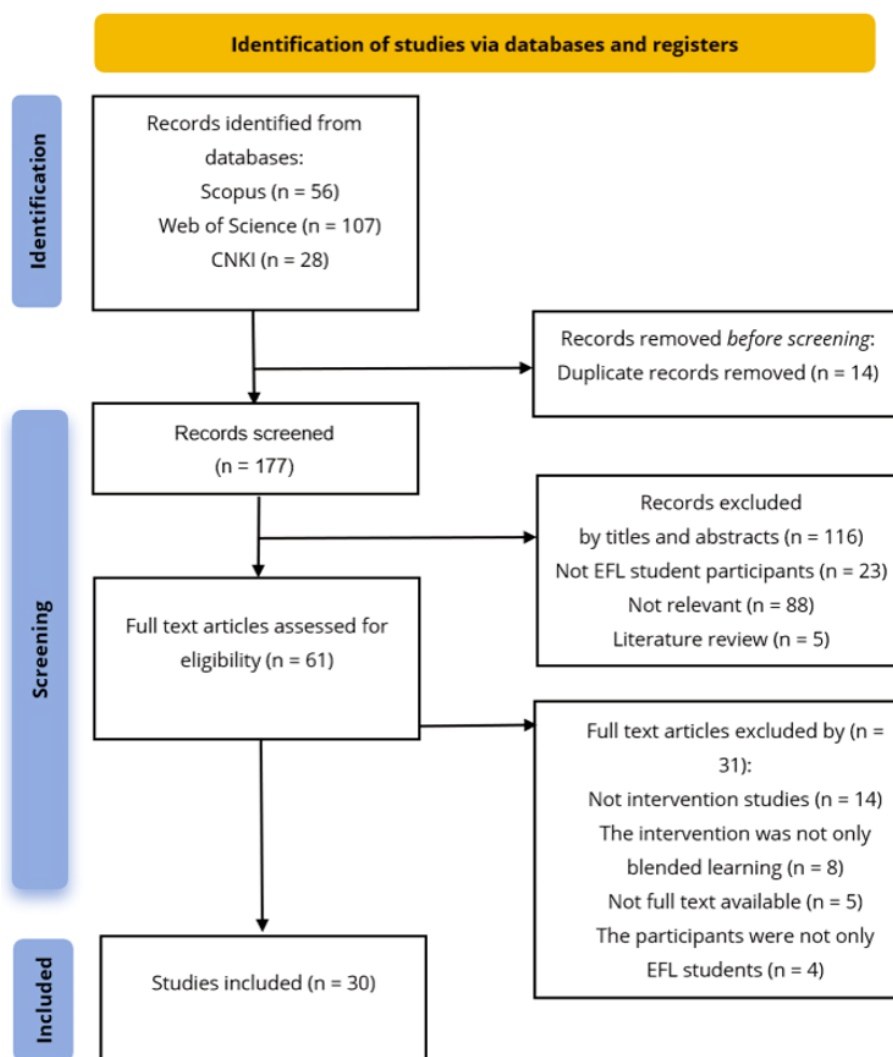
Figure 1. PRISMA flow diagram of the screening and selection procedure for SLR (Authors' own work based on PRISMA 2020 guidelines)

Search Strategy

To ensure an accurate and comprehensive search for literature concerning the effects of BL in EFL education, our strategy was informed by methodologies employed in previous relevant studies (Alenazi, 2023; Chen & Jumaat, 2023; Nguyen, 2024; Qiu et al., 2022), we formulated a rigorous and systematic search strategy. The review followed PRISMA 2020 guidelines (Page et al., 2021). A comprehensive search was conducted across Scopus, Web of Science, and China national knowledge infrastructure (CNKI). The three databases referenced above represent the main repositories for EFL and education research, guaranteeing a comprehensive coverage of relevant literature and high-quality search outcomes. The search covered January 2020-April 2025 and was supplemented by manual searches of reference lists.

In the existing literature, the terms "blended learning," "hybrid teaching model," and "mix learning" are often employed interchangeably to describe similar instructional approaches (Harasim, 2000; Lockey et al., 2022; Wang & Liao, 2020). To ensure a comprehensive literature search, synonyms of "blended learning" were systematically identified through encyclopedias, dictionaries, thesauri, and relevant literature (Hu & Raman, 2024). The databases and search terms were carefully chosen in collaboration. For English-language literature, the final search terms included: BL, blended teaching, blended instruction, BL, hybrid learning, hybrid teaching, mixed learning, mixed teaching, EFL education, English as a foreign language education, EFL learning, English as a foreign language learning, EFL student, English as a foreign language student. The terms "flipped learning" OR "flipped classroom" OR "flipped class" OR "flipped teaching" OR "inverted classroom" OR

"inverted class" OR "inverted teaching" OR "inverted learning" were excluded as the pre-class component does not necessarily involve an online learning element (Lockey et al., 2022). For the Chinese-language literature, the prominent database CNKI was utilized, with the following search terms: hùn hé xué xí, hùn hé jiào xué, hùn hé shì jiào xué, yīng yǔ zuò wéi wài yǔ (EFL) xué xí zhě, dà xué EFL kè táng, gāo xiào EFL, EFL. The term "fān zhuǎn kè táng" OR "fān zhuǎn xué xí" OR "fān zhuǎn jiào xué" OR "fān zhuǎn" were excluded. A comprehensive description of the search strategy is provided in **Supplementary Table S1**.

Furthermore, we conducted a manual search for the reference lists of the included studies to identify any further eligible original research articles. Although the concept of BL first emerged in the early 2000s, this study focuses on literature published between 2020 and 2025, in order to capture the most recent developments, technological innovations, and pedagogical trends relevant to the field.

Inclusion and Exclusion Criteria

According to Liberati et al. (2009), systematic reviews of intervention studies should adhere to the PICOs framework, which includes participants, interventions, comparisons, outcomes, and study design. To enhance the thoroughness of the literature review, the PICOs framework was applied to establish clear eligibility criteria for inclusion and exclusion. Inclusion criteria (based on PICOs framework):

1. **Participants:** EFL students only.
2. **Intervention:** BL (combination of online and face-to-face).
3. **Comparison:** Traditional face-to-face OR online-only learning.
4. **Outcomes:** Academic, motivational, affective, or cognitive learning outcomes.
5. **Study design:** Empirical, peer-reviewed journal articles (2020-2025).

Exclusion criteria:

1. Studies combining BL with other pedagogical models (e.g., flipped and PBL).
2. Non-empirical papers, conference proceedings, or grey literature.
3. Studies without accessible full text or missing essential data.

Data Extraction and Quality Appraisal

Endnote software was utilized to remove the duplicates. Two independent reviewers (PZ and RA) screened titles and abstracts, followed by obtaining the full texts of potentially eligible articles for further evaluation. Data extracted included author, publication year, journal, country/region, research design, sample type, intervention and control group sizes, intervention duration, and results. Quality was assessed using the mixed methods appraisal tool, which evaluates methodological soundness of qualitative, quantitative, and mixed-methods studies. Discrepancies were resolved through consensus.

Data Synthesis

The five analytical categories used in this review–academic performance, engagement and motivation, autonomy, psychological well-being, and learning experience or satisfaction–were generated through a two-stage analytical procedure. First, an inductive coding of outcome variables across the 30 included studies was conducted, which revealed recurrent constructs such as performance, skill development, motivational factors, self-regulatory behaviors, affective states, and perceptions of learning quality. These emergent clusters were then cross-checked against outcome patterns reported in earlier systematic reviews (Altay & Altay, 2019; Chen & Jumaat, 2023; Qiu et al., 2022), which, although using different terminologies, consistently emphasized similar domains related to cognitive achievement, engagement and motivation, autonomy, emotional responses, and satisfaction. Second, the categories were theoretically validated using Bloom's revised taxonomy and self-determination theory (SDT). Bloom's framework distinguishes cognitive outcomes (e.g., knowledge and skills), affective outcomes (e.g., motivation and attitudes), and metacognitive processes (e.g., self-regulation), which correspond respectively to the categories of academic performance, learning engagement/motivation, and autonomy. Likewise, SDT explains learner engagement, autonomy, and well-being through the fulfilment of psychological needs for autonomy, competence, and relatedness. These theoretical alignments demonstrate that the five categories capture the cognitive, affective, behavioral, and
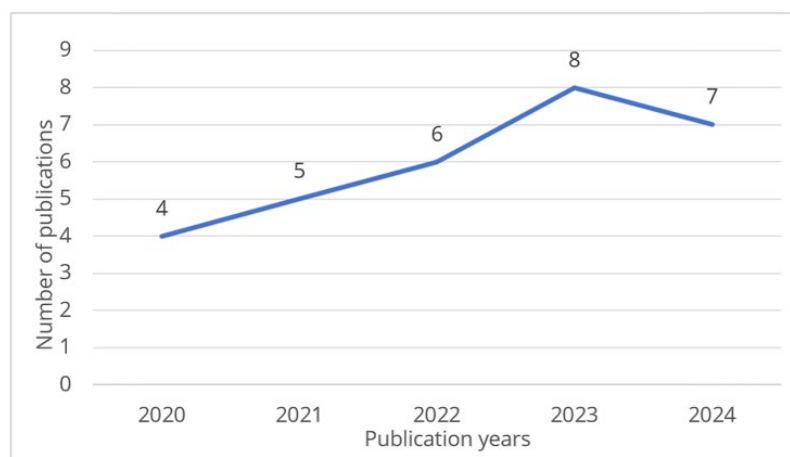
Figure 2. Distribution of studies by publication year (Authors' own analysis based on the included studies 2020–2024)
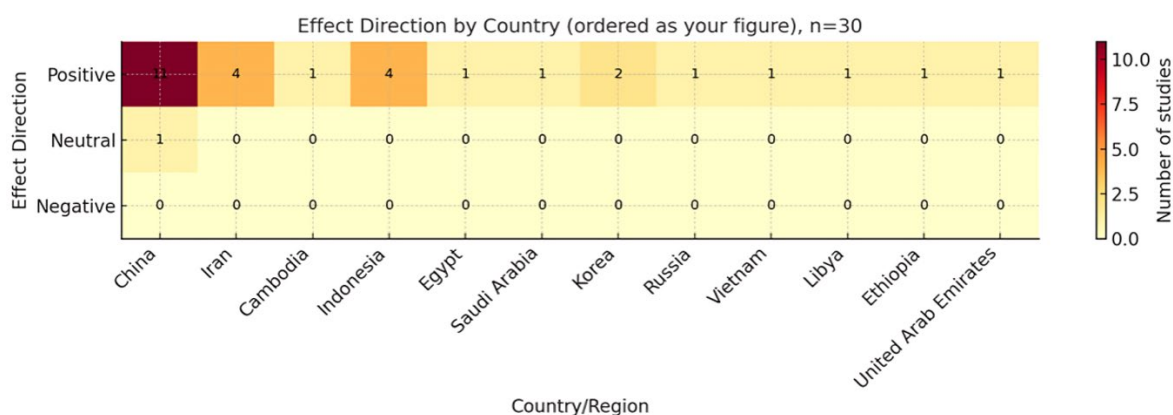

Figure 3. Distribution of effect directions (positive, neutral, and negative) by country or region among the 30 studies included in this review (Authors' own analysis based on the included studies)

psychological dimensions most frequently examined in BL research. Together, this process ensures that category selection is grounded in empirical recurrence, supported by prior reviews, and anchored in established educational theory.

RESULTS

Preliminary Literature Search Results

A total of 191 potential articles were initially retrieved from three databases between January 1, 2020, and April 6, 2025. After removing duplicates using EndNote software, 177 articles remained. Following title and abstract screening, 116 articles were excluded due to irrelevance (n = 88), participants not being EFL students (n = 23), or the article being a literature review rather than an original study (n = 5). After assessing the full texts for eligibility, 30 articles were excluded because they were inaccessible, did not focus on BL, or included participants from fields other than EFL. While Pimdee et al. (2024) investigated BL, with a particular focus on integrating online and offline learning, their study actually centered on a combined approach involving flipped classroom and problem-based learning methods. It is crucial to note that these methods may not necessarily incorporate online content, thus distinguishing them from the broader concept of BL. As a result, the study was excluded. Ultimately, 30 studies were included in this systematic review. The characteristics of the included studies were presented in **Supplementary Table S2**.

The included studies started in 2020 and showed an upward trend from 2022, especially in 2023, as shown in **Figure 2**. The authors came from 12 countries and the top three countries were China, Indonesia, Iran, as shown in **Figure 3**. The distribution of study outcomes across the 12 countries is presented in **Figure 3**.

Of the 30 studies included, 29 found positive effects from BL interventions, while only one study, conducted in China, reported no significant difference compared to traditional methods. As detailed in **Figure 3**, China accounted for the majority of studies (n = 12), with 11 showing positive results and one neutral. In comparison, all studies from other countries‑such as Iran (n = 4), Indonesia (n = 4), and individual studies from Egypt, Saudi Arabia, Russia, Vietnam, Libya, Ethiopia, and the UAE‑demonstrated only positive results. The heatmap in **Figure 3**. indicates that most outcomes are positive, with only one neutral case. This dominance aligns with a general consensus in the literature, but the neutral outcome suggests that BL's effectiveness may vary in certain contexts. However, focusing solely on positive outcomes may overlook variables like institutional support and technology infrastructure, which differ across educational environments, and the focus on specific countries limits the broader applicability of these findings.

The Effects of BL in EFL Education

Through thematic analysis of the selected studies, we have identified the key effects of BL in EFL education, which can be grouped into five primary categories: academic performance and skill development, learning engagement and motivation, learning autonomy, psychological and emotional well-being and learning experience and satisfaction.

Effects of BL on EFL students' academic performance and skill development

In the context of EFL education, BL has been shown to enhance students' academic performance and skill development (Apsari & Parmawati, 2022; Chen, 2023), offering a holistic platform for knowledge and skill acquisition.

BL's effect on EFL students' absorption of knowledge is studied extensively. Some research has found BL can significantly enhance students' levels of theoretical knowledge (Wu & Luo, 2022). When blending online and offline resources, BL provides students with richly variable resources and allows students to learn independently. Flexibility allows students to learn independently and solidify and enhance their understanding on course content. Alenazi (2023) argued that BL outperforms traditional teaching by enabling students to engage with learning materials through various methods. Several studies, however, have found no statistically significant differences in academic performance between participating in BL and those receiving traditional, non-BL instruction (Antwi-Boampong, 2020; Müller & Mildenberger, 2021; Ryan et al., 2016; Yick et al., 2019). Furthermore, the study also recommends that educators integrate BL approaches to enhance the development of writing skills (Bekele Sime et al., 2024).

EFL teaching is inherently practical, with a primary focus on developing students' functional language skills. BL facilitates this development by offering increased opportunities for practice and constructive feedback through various tools such as online simulations, virtual classrooms, and case studies. This approach allows students to refine and apply their language skills within a controlled and supportive environment. For instance, research indicates that BL significantly enhances the language skills of EFL students (Liu et al., 2022; Rachman et al., 2021; Wang et al., 2021). Furthermore, BL enhances EFL students' critical thinking (Rahman, 2021; Sharma & Barrett, 2018), writing skills (Apsari & Parmawati, 2022; Chen, 2023; Dousti & Amirian, 2023; Morsi, 2023; Yang, 2022; Zamri & Narasuman, 2023) , reading skills (Each & Suppasetseree, 2021; Hashemi & Si Na, 2020; Morsi, 2023; Rahimzadeh & Gilakjani, 2022; Shang, 2021; Yudhana, 2021), listening skills (Hashemi & Si Na, 2020; Lu, 2022; Zhang et al., 2018), speaking skills (Hashemi & Si Na, 2020; Lu, 2022; Phaiboonnugulkij, 2023; Wang, 2021), and grammatical skills (Bataineh et al., 2019) through virtual cases and interactive case analysis.

Effects of BL on EFL students' learning engagement and motivation

In the context of EFL education, learning engagement describes the degree to which students actively participate in various learning activities, encompassing cognitive, emotional, and behavioral involvement (Heo et al., 2022). BL has proven to be beneficial in boosting both learning engagement and motivation. BL strategies enhance student engagement and facilitate learning through online activities that complement the course content, improving both effectiveness and efficiency by minimizing the need for in-person lectures. Another definition of BL refers to any language course that integrates both traditional teaching methods and online learning, making effective use of technology (Each & Suppasetseree, 2021; Wang et al. 2021).

Additionally, BL encourages students to express their ideas with greater confidence. The flexibility inherent in BL supports students in managing their study time more effectively, making learning more accessible. Additionally, it retains traditional methods like handwritten notes while incorporating tools such as screen recordings and screenshots to efficiently capture key points (Li, 2023). However, fewer studies have focused on the activity-based engagement in a blended context (Huang et al., 2022).

Learning motivation constitutes the fundamental internal force that propels students' engagement in academic pursuits. BL significantly contributes to the enhancement of students' academic motivation by promoting an autonomous learning environment and providing personalized learning pathways (Menggo & Darong, 2022; Rahimzadeh & Gilakjani, 2022). Interactive components in BL, such as online forums and group projects, offer students valuable social support and constructive feedback. These elements not only enhance motivation but also encourage greater active participation in the learning experience.

BL also has been shown to enhance self-efficacy (Han & Hiver, 2018), which pertains to an individual's confidence in their ability to successfully complete a task in English, based on their previous experiences in EFL learning (Han & Wang, 2021; Wang et al., 2014). BL significantly boosts students' self-efficacy by offering timely feedback and personalized support, helping them feel more confident in their learning abilities (Chang, 2023; Pu & Chang, 2023). In a BL environment, the integration of online resources with in-person interactions ensures continuous and timely feedback, allowing students to swiftly address mistakes and strengthen their comprehension. This prompt feedback boosts their confidence in mastering the subject matter. Moreover, BL offers a sophisticated approach to addressing the challenges of customizing education and development to meet individual requirements (Shohel et al., 2022). It provides an opportunity to merge the technological advancements of online education with the most effective aspects of traditional learning, such as active participation and engagement (Islam et al., 2022). However, other factors, including motivation, participants' language proficiency, and self-efficacy, are equally important and should also be given careful consideration by researchers (Wu, 2024).

Effects of BL on EFL students' autonomy in learning

BL has been shown to significantly enhance learning autonomy among EFL students, a key benefit of this approach. Learning autonomy refers to students' ability to take responsibility for their learning, including setting goals, managing activities, and determining evaluation criteria (Mohammadi Zenouzagh, 2023). This autonomy encompasses both self-directed learning and independent learning, as it enables students to monitor their progress, complete tasks independently, and rely on their abilities. Thus, autonomous learning is driven by intrinsic motivation, personal preferences, and a sense of responsibility (Haris, 2011; Reinders, 2010). BL actively fosters this autonomy by providing flexible online modules and customized resources, which allow students to plan, monitor, and assess their learning progress. However, previous findings on BL's effects on motivation and autonomy are scarce (Menggo & Darong, 2022).

Empirical studies support that BL enhances self-directed learning by offering students access to a wide range of online resources, self-assessment tools, and individualized learning plans. BL has proven effective in boosting EFL students' autonomy, with students reporting positive feedback on its implementation. They value the flexibility and accessibility of these resources, which support their independent learning journey. Moreover, students appreciate the personalized support and increased teacher-student interaction provided by BL, further reinforcing their learning autonomy (Wu, 2024). A prior study by Wang et al. (2021) highlighted how BL empowered Chinese EFL learners to develop more positive attitudes toward their learning autonomy, particularly by allowing them to select and access resources that best met their individual needs. This autonomy, in turn, strengthened their confidence and competence in addressing complex tasks, promoting their development as self-directed learners. However, studies indicate that learners often face challenges when adapting to BL environments due to a lack of guidance and support, especially among those who struggle with self-regulation (Conacher & Roy, 2007; Wang et al., 2021; Zheng et al., 2018). These difficulties are influenced by the learners' beliefs and personal traits. The success of BL in promoting autonomy varies depending on the learners' self-regulation skills and their ability to navigate less structured settings, highlighting the need for more research into individual differences.

Effects of BL on EFL students' psychological and emotional well-being

Mental health plays a crucial role in student development, however, there is limited research on how BL affects the mental health of EFL students. For example, Alotaibi and Alzu'bi (2025) found that BL can enhance EFL students' class participation by reducing anxiety and meeting their specific needs. Likewise, Albiladi and Alshareef (2019) emphasized various advantages of BL, such as fostering motivation to learn, strengthening classroom bonds, and reducing academic stress. The online interactions, along with the timely and continuous feedback within the BL environment, offer students enhanced emotional support and social interaction, thereby contributing to the alleviation of depression and stress. On the other hand, certain mental health indicators, such as anxiety and academic stress, were reported by Almansour and Alfahad (2024) and Wei et al. (2017) to show no significant statistical differences between the BL group and the non-BL group. Nevertheless, the varying results indicate that more detailed and context-focused research is required to gain a deeper understanding of the specific impacts of BL on the mental health of EFL students, especially in different cultural and educational environments.

Effects of BL on EFL students' learning experience and satisfaction

The integration of BL significantly influences the learning experiences and overall satisfaction of EFL students. Positive outcomes include the ability for students to learn at their own pace, access online materials for review and reinforcement, and engage in interactive discussions and practical activities. This adaptability and variety contribute to an enhanced learning experience (Bataineh et al., 2019; Hashemi & Si Na, 2020; Wijayatiningsih et al., 2022; Wu & Luo, 2022; Zhao et al., 2023). However, there are also negative experiences, such as the increased workload for instructors, cognitive overload for students, the undermining of BL's noble goals due to plagiarism, and the challenges posed by technology (Abduh, 2021; Abdulaal, 2021a, 2021b; Hamad, 2017; Jiang & Li, 2012). Additionally, research has shown that learners frequently encounter difficulties in adapting to BL environments, primarily because these settings offer limited guidance and support for students who have not yet cultivated adequate self-regulation skills (Conacher & Roy, 2007; Wang et al., 2021; Zheng et al., 2018). These challenges are often rooted in deeper issues related to learners' personal beliefs, dispositions, and other individual characteristics. Research has shown that BL enhances the satisfaction levels of EFL students (Rahimzadeh & Gilakjani, 2022; Wang et al., 2021; Wu & Luo, 2022). However, the study by (Harker & Koutsantoni, 2005) found that BL had no effect on EFL students' learning satisfaction. Although the advantages of BL in enhancing learning satisfaction are clear, it is crucial to critically examine the variations in its effectiveness across different settings and learner profiles, indicating that BL implementation should be more customized and context-dependent to fully maximize its potential.

In summary, by integrating numerous research findings, it is evident that BL, as a teaching model combining traditional face-to-face and online learning, has multifaceted impact in EFL education. Its effects are reflected not only in academic performance and skill development, but also in areas such as learning engagement and motivation, self-management in learning, psychological and emotional health and learning experience and satisfaction. Based on this, we have developed a model illustrating the effects of BL in EFL education, which provides a comprehensive overview of BL's effects in EFL education, as detailed in **Figure 4**.

The Research Design and Methods in the Included Articles

We analyzed the research methodology used in the included articles, including study design and sampling and intervention design.

Study design and sampling

Among the 31 studies analyzed, all were quasi-experimental. The participants were primarily undergraduate EFL students across different academic levels (Gayatri & Sit, 2024; Huang & Kuang, 2024). Regrettably, several studies failed to specify their sampling methods (Li, 2023; Liu et al., 2020; Zhang et al., 2021). In studies where sampling methods had been specified, the most frequently reported sampling method is convenience sampling (Fazlali, 2024; Gayatri & Sit, 2024; Guo et al., 2023). Convenience sampling is commonly utilized due to its practicality and low cost, as it primarily depends on the ease of accessing and recruiting participants. However, this method may introduce biases, as the sample may not adequately represent the broader population (Sarstedt et al., 2018). Therefore, convenience sampling studies primarily
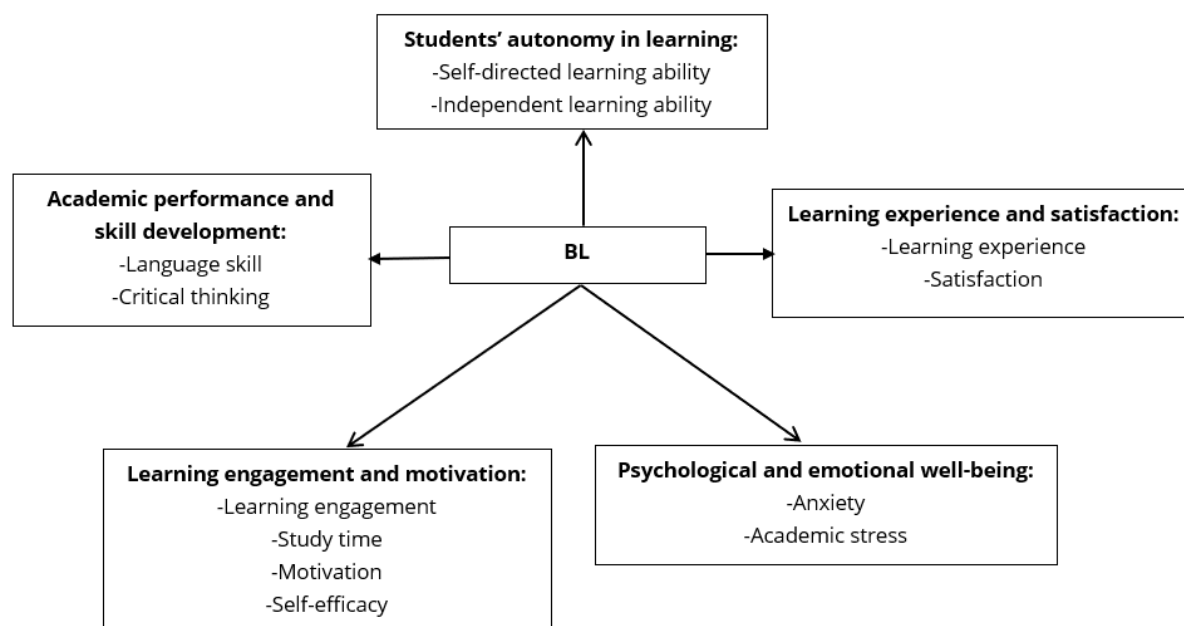
Figure 4. The model of effects of BL on EFL education (Developed by the authors based on the synthesis of included studies)

focus on participants who are readily available and accessible. Only 1 of these studies utilized random sampling methods (Menggo & Darong, 2022). This sampling approach guarantees that every individual within the study population has an equal likelihood of selection, thus improving the sample's representativeness (Sarstedt et al., 2018). It is worth noting that the sample sizes across studies were highly diverse, varying from 24 to 1603.

Intervention design

Intervention studies have predominantly focused on comparing the effectiveness of BL with traditional non-BL methods in the context of EFL education. Within the BL group, students engaged in online learning through various information technology platforms, such as Google Classroom, Superstar Learning Platform, and massive open online courses. This online learning was integrated with conventional face-to-face instruction, utilizing diverse teaching strategies, including the Hitutor platform and the process-oriented writing approach (Chen, 2023). Furthermore, the O-AMAS model (objective, activation, multi-learning, assessment, summary) was applied to enhance students' motivation and active participation (Wang, 2021). The BL framework was typically structured in a three-phase model: pre-class, in-class, and post-class (Chen, 2023; Sarajari & Gilakjani, 2024).

While the majority of the non-BL groups utilized traditional face-to-face instruction, one study adopted online learning for the non-BL group (Wang, 2021). The intervention periods in the quasi-experimental studies varied, spanning from several weeks to two semesters.

Data collection and analysis methods

Quantitative and mixed-method approaches each constitute 50% of the total publications on BL and EFL, as shown in **Figure 5**. Most employed structured questionnaires, or Likert-scale instruments to assess outcomes such as academic performance, engagement, and motivation. Statistical analyses frequently included t-tests, ANOVA, and regression techniques. However, there was a notable lack of qualitative approaches, such as interviews or classroom observations. This narrow methodological scope restricts the depth of understanding of learners' experiences and contextual factors.

Summary

Overall, the methodological landscape of the included studies demonstrates a heavy reliance on quasi-experimental designs, convenience sampling, and short-term interventions, with limited use of randomized
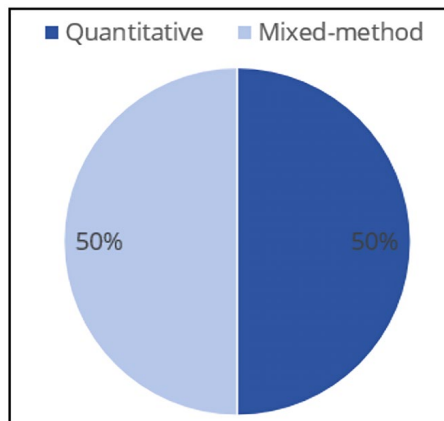
Figure 5. The methodology used in past studies (Authors' own analysis based on the included studies)

controlled trials (RCT), qualitative methods, or longitudinal data. These characteristics constrain both the internal validity and generalizability of current evidence, highlighting an urgent need for more diverse and robust research designs in future BL studies.

DISCUSSION

The Number of Publications Has Steadily Increased Each Year, but the Distribution Across Regions Shows Significant Variation

To clearly distinguish BL from the flipped classroom model, this review excluded studies focusing solely on flipped classrooms without incorporating online learning components. Following a comprehensive and systematic research, 30 studies were selected for inclusion. In contrast to earlier reviews–such as Zhou et al. (2023), which analyzed 25 studies, and Nguyen (2024), which examined 15–this review encompasses a wider spectrum of research concerning the implementation of BL in EFL contexts. Notably, scholarly interest in BL has shown a consistent growth since 2022, with a marked surge observed in 2023. This trend underscores the growing recognition of BL as a prominent and evolving area of educational research, likely to attract even greater scholarly attention in the near future.

Among the countries contributing most substantially to the BL literature, China, Indonesia, and Iran stand out. This prominence is closely linked to the rapid advancement of educational informatization in these nations (Ashraf et al., 2021), as well as national policies aimed at fostering and institutionalizing the integration of BL into higher education systems (Jun, 2012; Lim & Graham, 2021; Owston, 2013). Such factors have significantly advanced the implementation and evolution of BL in higher education, shedding light on its growing prominence and the considerable interest it has attracted from scholars in these countries.

The Effects of BL

Overall, the integration of BL into EFL instruction has demonstrated largely beneficial outcomes across multiple dimensions. These impacts can be systematically grouped into five principal categories. Drawing upon these findings, this study presents a conceptual framework (refer to **Figure 4**) that visually encapsulates the broad-ranging influence of BL within EFL contexts. Compared to earlier literature, this framework provides a more inclusive and nuanced understanding of BL's pedagogical implications. Moreover, the research highlights dominant scholarly trends, uncovers gaps that have received limited attention, and recommends paths for subsequent exploration in the field.

BL has shown positive and multidimensional impacts on EFL education, but some of its effects have yet to be fully examined

To begin with, as previously stated, the primary results revealed that BL notably enhanced the theoretical knowledge, skills, learning engagement, motivation, autonomy, mental health, and overall learning satisfaction of EFL students. These outcomes were largely consistent with findings from earlier systematic

reviews and meta-analyses (Alenazi, 2023; Chen & Jumaat, 2023). BL has a positive impact on EFL students for the following reasons:

(1) It focuses on the student, offering a self-directed learning environment where students can follow personalized learning paths through the integration of both online and offline educational experiences.

(2) BL offers EFL students a variety of learning materials, including online simulations and videos, which are especially beneficial for developing their language abilities. Through repeated viewing on online platforms, students can continuously enhance their skills.

(3) BL merges face-to-face instruction, peer interactions, and online learning. Throughout these activities, learners are offered resources and chances to enhance their understanding (Tiedemann, 2020).

In addition, critical thinking involves a systematic and logical approach to problem-solving (Elfira et al., 2023; Huang et al., 2022; Patandung, 2023; Suharyat et al., 2023). Developing critical thinking skills is crucial for enhancing students' ability to reason, analyze, reconstruct, and make informed decisions (Algouzi et al., 2023; Nugraha et al., 2017; Suryawan et al., 2023), which is essential for raising EFL students' confidence, leading to their active engagement in the classroom and their success, since they can see the issues from a different point of view and propose novel solutions to those problems (Yan, 2021). Studies showed BL could significantly enhance EFL students' critical thinking (Rahman, 2021; Sharma & Barrett, 2018), which could be attributed to BL's emphasis on fostering higher-order thinking skills, such as the synthesis and practical application of knowledge, as opposed to rote memorization (Rahmi & Azrul, 2022; Zhu & Tahir, 2023). However, many studies have concentrated on the academic performance and skill development of students, fewer have addressed the impact on critical thinking. Therefore, investigating the broader effects of BL on the critical thinking abilities of EFL students presents a promising area for future research.

Secondly, mental well-being significantly impacts the growth and development of students (Chu et al., 2023; Zhang et al., 2024). The findings indicated that students are conscious of the mental health challenges they encounter while learning English, with anxiety and stress being the most prevalent issues (Haidar & Lestari, 2024) and the study finds that the proficiency level does not have a significant impact on decreasing the anxiety levels among language learners (Cayli, 2020). In recent years, mental health issues have become a growing concern among students in higher education (Haidar & Lestari, 2024). Therefore, EFL instructors should prioritize the mental well-being of their students and implement strategies to enhance their mental health. BL could serve as a valuable approach to addressing this concern. According to SDT, individual well-being is largely influenced by the fulfillment of three core psychological needs: autonomy, competence, and relatedness (Lataster et al., 2022). A study conducted by Wong (2022) revealed that the fulfillment of students' basic psychological needs, particularly relatedness and competence, was effectively achieved in the current state of BL. For example, research has indicated that BL can help alleviate language anxiety in English (Alghofaili, 2022) and lower stress levels (Albiladi & Alshareef, 2019) among EFL students. This effect may stem from the interactive nature of BL, where continuous, real-time feedback offers students emotional support and opportunities for social interaction, thus fulfilling their fundamental psychological needs for relatedness and competence. However, the available empirical evidence regarding the impact of BL on mental health outcomes remains inconclusive. For instance, Albiladi and Alshareef (2019) reported a reduction in academic stress due to BL, while Wei (2017) found no such effect.

Additionally, research on the impact of BL on psychological and mental health remains limited. Due to the limited research and varying results, further studies are essential to better understand the impact of BL on mental health factors like stress, as well as to examine its effects on other aspects of psychological well-being and mental health.

Additionally, as previously noted, the impact of BL on various factors in EFL education, including academic achievement, learning engagement, self-efficacy, mental health, and overall satisfaction with learning, remains inconsistent. These divergent results may stem from a variety of contributing factors, such as:

(1) The application of BL shows considerable variation across different studies, with curriculum modifications being implemented every semester in response to student feedback and course evaluations, which, in turn, influenced the outcomes.

(2) The studies we examined utilized a variety of research designs, such as RCT and quasi-experimental approaches, each offering different degrees of rigor and control over potential confounding factors. Furthermore, variations in sample size, source, and participant demographics could account for discrepancies in results, as observed in the studies by Guo et al. (2023) and Sujannah et al. (2020), where the groups were drawn from different cohorts in separate semesters. Furthermore, unaccounted variations in teaching methods and instructor styles could influence the outcomes.

(3) The selection of statistical techniques and the variables under examination can influence the interpretation of results. For example, in the study by Guo et al. (2023), the researchers employed the questionnaire of English self-efficacy scale and the willingness to communicate scale, whereas other studies utilized the Five-point Likert-type scale (Chen, 2023; Sujannah et al., 2020).

(4) Duration of the intervention: The length of BL interventions varied across studies, ranging from a few weeks to two semesters. Short-term interventions might not allow enough time for students to fully adjust and benefit from BL, while longer duration could lead to disengagement or fatigue, potentially diminishing the effectiveness of the intervention (Morsi, 2023; Wang et al., 2021).

These inconsistent findings suggest that the impact of BL on these variables may vary depending on specific context or conditions. Therefore, we propose that future research should investigate the factors or circumstances under which BL has an effect or fails to show any significant impact. Additionally, it is important to note that many studies examining the effects of BL in EFL education lack a solid theoretical framework. Out of the 30 articles reviewed, only 9 were based on well-established theories, such as constructivist theory (Huang et al., 2022; Wang et al., 2021), sociocultural theory (Guo et al., 2023), and connectivist learning theory (Morsi, 2023). To facilitate more robust academic discussions, it is suggested that future research on variable relationships should be framed within relevant theoretical frameworks.

Finally, our analysis revealed that intervention duration varied significantly, ranging from several weeks to two full semesters. Notably, Li (2023) cautioned that extended intervention periods could result in diminished student engagement due to potential distractions. Furthermore, empirical findings from Li and Wang (2022) demonstrated that in K-12 educational contexts, BL interventions spanning less than one academic semester yielded superior effectiveness compared to longer-term implementations. Given these insights, future research should prioritize identifying the optimal duration of BL interventions to enhance the precision of outcome assessments.

Research design and methods required to be retained and enhanced

Our analysis reveals several trends concerning research design and methodology. Firstly, the quasi-experimental study design is the most commonly employed. Given the unique nature of educational research, achieving full randomization is often challenging; however, the findings of RCT are generally regarded as more reliable. As such, it is advisable that future research places greater emphasis on the use of RCT. The choice of sampling method plays a critical role in determining the representativeness of the sample. Scholars highlight that the generalizability of research results is ensured only when samples are drawn randomly from the target population through probability sampling (Sarstedt et al., 2018). Furthermore, many of the studies included in the review relied on convenience sampling, with some not specifying the sampling technique, which may have affected the broader applicability of the results. Many existing studies also utilized single-source samples, often limited to a single university or college, and featured small sample sizes. To improve the generalizability of future research, it is important to adopt random sampling and to incorporate diverse sources of participants. In terms of research methods, quantitative and mixed methods each contributed 50% of the total articles on BL and EFL. However, while these approaches provide valuable numerical insights, they often overlook the contextual and subjective dimensions of BL and EFL. To address this gap, future research would benefit from a more integrated approach, combining quantitative, mixed, and qualitative analysis. This would allow researchers to explore deeper, more nuanced aspects of BL and EFL that are often neglected in purely numerical studies.

Research design and theoretical trends

An additional layer of analysis focused on the research design patterns and theoretical orientations of the reviewed studies. The majority adopted quasi-experimental designs with short-term interventions, reflecting

a continued preference for controlled yet context-specific approaches. Only a small number of studies implemented longitudinal or randomized designs, limiting the generalizability of outcomes. In terms of theoretical grounding, most studies drew implicitly from constructivist or communicative paradigms, while only a few explicitly anchored their interventions in frameworks such as the community of inquiry or SDT. These patterns are consistent with findings by Chen and Jumaat (2023) and Nguyen (2024), who likewise noted the need for stronger theory-method alignment in contemporary BL research.

The overall positive direction of findings in this review aligns with the broader empirical patterns identified in recent systematic syntheses. Li and Wang (2022) demonstrated significant learning gains in K-12 contexts, confirming the general effectiveness of BL across educational levels. Garrison and Vaughan (2008) emphasized sustainability and institutional readiness as essential components of successful BL implementation–dimensions that received limited attention in the studies analyzed here. Regional parallels are evident in Nuraini et al. (2023), who observed increased engagement and motivation among Asian EFL learners, while Chen and Zhang (2023) clarified, through the Community of Inquiry framework, how cognitive and social presence mediate learner satisfaction. Integrating these perspectives situates the present review within a growing body of evidence connecting pedagogical, affective, and institutional dimensions of BL.

Limitations

This review has several notable limitations. First, it was confined to studies published in English and Chinese, which may have excluded relevant research in other languages, potentially narrowing the scope and global applicability of the findings. Furthermore, the focus on peer-reviewed journal articles limited the inclusion of conference papers, technical reports, and grey literature, all of which could contain valuable, unpublished data. A key limitation stems from the diverse study designs, sample sizes, intervention durations, and outcome measures across the studies included. This variability made it challenging to draw meaningful comparisons or synthesize results effectively, thus limiting the generalizability of the conclusions. Many studies employed convenience sampling, which introduces selection bias, and the absence of robust RCT restricts the ability to establish clear causal relationships, particularly in areas like mental health and critical thinking development. Additionally, the review lacks a meta-analysis, which would have provided a more rigorous, quantitative summary of the findings. The absence of quality assessments of the included studies also restricts the ability to evaluate their reliability and validity. While quantitative and mixed methods studies each comprised 50% of the total articles on BL and EFL, there was a noticeable lack of qualitative research, which could have offered deeper insights into the contextual and subjective aspects of BL in EFL settings. This underscores the need for a more integrated approach that combines qualitative with quantitative and mixed methods perspectives. Furthermore, a regional bias is evident, with studies predominantly from China, Iran, and East Asia, which raises concerns about the applicability of the findings to other EFL contexts. This overrepresentation, especially from China, limits the generalizability to diverse linguistic and cultural settings. Moreover, publication bias, favoring studies with positive results, may further bias the overall findings. The limitations identified highlight the need for future research to address several key areas. These include assessing the effectiveness of BL across various online platforms and exploring the impact of factors like motivation, autonomy, self-efficacy, language proficiency, and student engagement. Additionally, the study suggests that educators integrate BL strategies to improve writing skills. Finally, despite a comprehensive search strategy, there remains the possibility that some relevant studies were overlooked, introducing further bias. Addressing these limitations in future research will be crucial to strengthening the evidence base for BL in EFL education.

CONCLUSIONS

This review synthesized findings from 30 empirical studies (2020-2025) investigating BL in EFL education. Overall, the evidence indicates that BL consistently enhances learners' academic performance, motivation, and satisfaction, while results on learner autonomy and psychological well-being remain limited and sometimes mixed. Methodologically, the predominance of quasi-experimental designs and short-term interventions constrains generalizability.

Future research should employ longitudinal or mixed-method approaches, integrate explicit theoretical frameworks, and address under-explored dimensions such as critical thinking, creativity, and emotional resilience. From a practical standpoint, EFL educators and policymakers should view BL as a pedagogical model rather than a technological add-on, ensuring that instructional design supports both cognitive and affective engagement.

By incorporating recent international studies (Chen & Zhang, 2023; Garrison & Vaughan, 2008; Li & Wang, 2022; Nuraini et al., 2023), this review extends the global evidence base and underscores the potential of sustainable, theory-driven BL to transform EFL instruction.

Further research is needed to identify the optimal conditions for implementing BL, such as intervention duration, student characteristics, and institutional support. Addressing these aspects will help future studies fully explore BL's potential in EFL education. Lastly, it is essential for educators to customize BL approaches to target specific skills, such as writing, to ensure that BL maximizes its benefits for language learners.

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APPENDIX A

Table A1 presents a concise overview of the 30 empirical studies included in this systematic review. Each study is identified by author(s), year of publication, country or region, research design, participants, duration of intervention, and key findings. This appendix ensures the transparency and replicability of the review process and complements the PRISMA flow diagram in **Figure 1**. Together, they enable readers to trace the sources and verify the synthesis process.

Table A1. Summary of empirical studies on the effects of BL in EFL education (2020-2025)

No	Author(s) & year	Country/ region	Research design	Participants	Duration of intervention	Main findings/outcomes
1	Altay and Altay (2019)	Turkey	Systematic review (10 studies)	N/A	2010-2015	Highlighted BL's impact on learning processes and effectiveness in EFL environments.
2	Qiu et al. (2022)	China	Systematic review	N/A	2017-2021	Positive impact on vocabulary, skills, emotions, and behaviors of EFL learners.
3	Chen and Jumaat (2023)	Malaysia	Systematic review	69 studies	2018-2022	Identified diverse BL designs and technologies; improved skill acquisition.
4	Alenazi (2023)	Saudi Arabia	Systematic review	56 studies	2010-2023	Confirmed BL effectiveness in higher education English programs.
5	Zhou et al. (2023)	Malaysia	Systematic review	25 studies	2014-2023	Reported mobile-assisted BL significantly enhances engagement and autonomy.
6	Nguyen (2024)	Vietnam	Systematic review	15 studies	2022–2024	Found improvements in language skills, motivation, and autonomy.
7	Ismail and Yassin (2023)	Malaysia	Systematic review	47 studies	2017–2021	Confirmed BL's contribution to communicative competence and learner satisfaction.
8	Chen (2023)	China	Quasi-experimental	64 undergraduates	1 semester	Formative assessment in BL improved EFL writing performance.
9	Menggo and Darong (2022)	Indonesia	Randomized control	80 tertiary EFL learners	10 weeks	BL improved learner autonomy and motivation.
10	Pu and Chang (2023)	Taiwan	Quasi-experimental	120 undergraduates	12 weeks	BL speaking instruction increased self-efficacy and oral proficiency.
11	Wu and Luo (2022)	China	Mixed-method	150 EFL students	14 weeks	Integration of MOOCs improved satisfaction and engagement.
12	Rahimzadeh and Gilakjani (2022)	Iran	Quasi-experimental	90 intermediate learners	8 weeks	BL enhanced reading proficiency and motivation.
13	Wang (2021)	China	Quasi-experimental	84 university students	12 weeks	HiTutor BL platform improved speaking fluency and self-efficacy.
14	Alotaibi and Alzu'bi (2025)	Saudi Arabia, Jordan	Quasi-experimental	120 students	1 semester	BL reduced language anxiety and improved attitudes toward learning.
15	Alghofaili (2022)	Saudi Arabia	Quasi-experimental	102 EFL learners	8 weeks	BL mitigated foreign language anxiety and increased motivation.
16	Albiladi and Alshareef (2019)	Saudi Arabia	Review	N/A	–	Reported positive attitudes but noted stress from online components.
17	Bekele Sime et al. (2024)	Ethiopia	Quasi-experimental	60 first-year health science students	12 weeks	BL improved paragraph writing performance.
18	Apsari and Parmawati (2022)	Indonesia	Quasi-experimental	56 undergraduates	1 semester	BL improved academic writing skills during pandemic.
19	Gayatri and Sit (2024)	Indonesia	Quasi-experimental	100 learners	1 semester	Sustainable BL discussions increased engagement and collaboration.
20	Huang and Kuang (2024)	China	Quasi-experimental	94 learners	10 weeks	Identified strategies to enhance engagement in blended environments.
21	Guo et al. (2023)	China	Quasi-experimental	76 learners	12 weeks	BL-based scaffolding enhanced self-efficacy and willingness to communicate.
22	Fazlali (2024)	Iran	Quasi-experimental	120 students	1 semester	Reported gains in educational accountability and creativity.

Table A1 (Continued).

No	Author(s) & year	Country/ region	Research design	Participants	Duration of intervention	Main findings/outcomes
23	Han and Wang (2021)	China	Case study	60 teachers	2 semesters	Documented quality improvements through system-driven BL integration.
24	Morsi (2023)	Egypt	Mixed-method	45 undergraduates	1 semester	Sustainable BL improved critical thinking and reading skills.
25	Dousti and Amirian (2023)	Iran	Quasi-experimental	90 learners	10 weeks	BL improved writing achievement compared with online-only instruction.
26	Zhao et al. (2023)	Malaysia	Quasi-experimental	60 tertiary students	8 weeks	Integrating PBL within BL increased engagement and satisfaction.
27	Liu et al. (2022)	China	Quasi-experimental	60 learners (hearing impaired)	14 weeks	SPOC-based BL promoted self-directed learning.
28	Wu (2024)	China	Mixed-method	120 students	16 weeks	Precision BL model enhanced autonomy and learning confidence.
29	Li (2023)	China	Quasi-experimental	80 undergraduates	10 weeks	High-achieving learners perceived BL as flexible and effective.
30	Zamri and Narasuman (2023)	Malaysia	Quasi-experimental	70 ESL students	1 semester	BL models enhanced writing self-efficacy and proficiency.

Note. **Table A1** consolidates all studies reviewed between 2020 and 2025 and supplements PRISMA flow diagram (**Figure 1**) & highlights the dominance of quasi-experimental research and short-term interventions, as discussed before

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