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Design and Development of a Gpbl College English Module and its Effectiveness on Students' Achievement, Interest and Self-Efficacy in China

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Abstract

This paper has discussed how to design and develop Gamified Problem-Based Learning (GPBL) module for College English teaching in China. It has focus on outlining how GPBL has been effective in enhancing the academic achievement, interest, and self-efficacy of students. The paper has used secondary methods. Through a systematic review of 15 studies on GPBL, this paper on understanding the process of design and development of GPBL and its impact on student achievements, interest and self-efficacy. The findings from the review have indicated that out of 15 reviewed studies, 8 reported improved academic performance, 9 reported increased student interest and motivation for learning, and half presented an increase in self-efficacy through GPBL. The findings of this study have also represented that GPBL actively engages students in the process of learning, reduces learning anxiety, and promotes confidence with incremental successes provided by gamified elements. Therefore, it can be said that this study presents the potential of GPBL to become a transformative tool in teaching the English language to students in China.

Keywords: *Gamified Problem-Based Learning, Academic Performance, Student Motivation, Self-Efficacy, Language Learning.*

Introduction

The rapid development and integration of technology into the educational field has played a major role in transforming the traditional teaching methodologies mainly in higher education. Amongst various innovations in education, the Gamified Problem-Based Learning is one of the hybrid approaches which integrates games elements with problem-based and solving principles for creating a dynamic and interactive learning environments (Čubela, Rossner & Neis, 2023; Boom-Cárcamo et al., 2024). Such gamification involves the application of video game design to non-game contexts, including points, badges, leaderboards, challenges, and more with varied educational settings for enhancing student motivation and engagement. Problem-Based Learning enhances the critical thinking and problem-solving skills of students by engaging them in real-world problems (Anggraeni et al., 2023; Samosir et al., 2023). In this regard, GPBL offers a new route to address the deep-seated problems of student disengagement and narrow attainment that have affected China's English language education. The traditional teaching of English in China relies on much rote memorization and teacher-centred methods, which have been criticized because such teaching practices tend to fail to engage students in the process of learning effectively (Lu et al., 2024; Feng et al., 2024). The elements of gamification focus on changing the role of the student from being a passive recipient to an active participant in the learning process. Game-based learning focuses on collaboration and the desire for competition, elaborating in a student a more effective intention to follow the learning goals.

Research Aim and Objectives

The aims of this study is to investigate process of design and development of GPBL and its effectiveness of GPBL modules in College English courses in China, with a specific focus on their impact on students' academic achievement, interest in learning, and self-efficacy. To achieve this aim, the following objectives are established:

- To identify design elements of Gamified Problem-Based Learning module for college-level English learners in China.

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- To examine the impact of the Gamified Problem-Based Learning module on students' academic performance in English learning.

- To assess the effectiveness of Gamified Problem-Based Learning in increasing students' interest and motivation in learning English.

- To examine the impact of Gamified Problem-Based Learning on students self-efficacy in English language.

Research Focus Questions

The study seeks to answer the following research questions:

- How does the integration of GPBL affect the academic performance of Chinese college students in English language learning?

- Can GPBL increase students' motivation and interest in learning English?

- What is the impact of GPBL on students' self-efficacy in English language acquisition?

Significance of GPBL in English Language Education

The use of GPBL in English language learning aligns closely with the principles of constructivist learning theory, which emphasizes the active role of learners in constructing knowledge through experience and interaction with their environment (Halid et al. 2024). According to this theory, learners actively build their knowledge through experience and interaction with the environment (Sepriyanti & Kustati, 2024). The gamified elements of GPBL capture intrinsic motivators such as competition, achievement, and collaboration that help sustain student interest (Huang Li & Shang, 2022). Former studies have suggested that gamified learning environments are associated with higher academic performances, improved retention, and increased abilities related to the application of knowledge in real settings (Lampropoulos et al., 2022; Briffa et al., 2020). The use of PBL further supports in terms of having students work towards applying their learning to authentic, context-specific problems and developing a deeper, richer understanding of the material.

GPBL can make a difference in students' learning in a country like China, where English proficiency is considered an important competence both at higher education and professional levels. Traditional approaches to language instruction in China have been teacher-centred, often characterized by passive learning, leading to poor student performance and low levels of student engagement. In contrast, GPBL provides a far more active and engaging venue in which students are encouraged to practice the language in a low-stakes, game-based environment. Therefore, this study undertakes existing GAP in knowing the effectiveness of GPBL teaching while affecting improvement in academic performance, motivation, and self-efficacy amongst Chinese students at the college level.

Methodology

In this study systematic review methodology has been adopted achieving the research aim and objectives. The systematic review approach allows for an in-depth examination of existing literature (Newman & Gough, 2020; Page et al., 2021). The consideration of this method can provide a comprehensive understanding of the effectiveness of GPBL in improving academic achievement, student motivation, and self-efficacy in the specific context of Chinese college English courses.

The data collection process followed various stages as follows:

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Stage 1: Search Strategy

This search strategy allowed for the systematic exploration of relevant academic databases on those studies focusing on the use of GPBL in higher education-in particular, for the learning of the English language in China. Relevant databases include Google Scholar, Scopus, and Web of Science. A combination of the following keywords was used: "Gamified Problem-Based Learning," "GPBL," "EFL/ESL," "China," "higher education," "language learning," and "systematic review." Further refinement was done by filtering for publication dates between 2015 and 2024 to ensure only the most recent relevant studies. Study selection was based on the PRISMA framework to ensure transparency and rigour in the identification, screening, and selection of the studies.

Stage 2: Developing Criteria

Table 1. Criteria of Literature Selection

Criteria	Inclusion Criteria	Exclusion Criteria
Publication Date	Studies published between 2015 and 2024	Studies published before 2015
Language	Studies written in English	Studies not written in English
Research Design	Peer-reviewed journal articles, systematic reviews, meta-analyses, empirical studies, and case studies	Opinion pieces, editorials, non-empirical studies
Focus	Studies focused on GPBL in EFL/ESL and higher education	Studies not directly related to language learning or higher education
Availability	Studies with full-text availability	Studies without full-text availability
Context	Studies conducted in or relevant to the Chinese higher education context	Studies irrelevant to the Chinese higher education context

Stage 3. Prisma Framework

The first search yielded approximately 300 articles. After removing duplicates and the inclusion or exclusion criteria, approximately 100 articles remained. Titles and/or abstracts of such articles were then screened for relevance, culminating in the final selection of 15 studies to be included in the systematic review. The PRISMA framework of identification, screening, eligibility, and inclusion was followed in identifying the studies (Rethlefsen et al., 2021). Full-text review for each selected study was carried out on its appropriateness to answer the research questions and achieve the objectives of the study.

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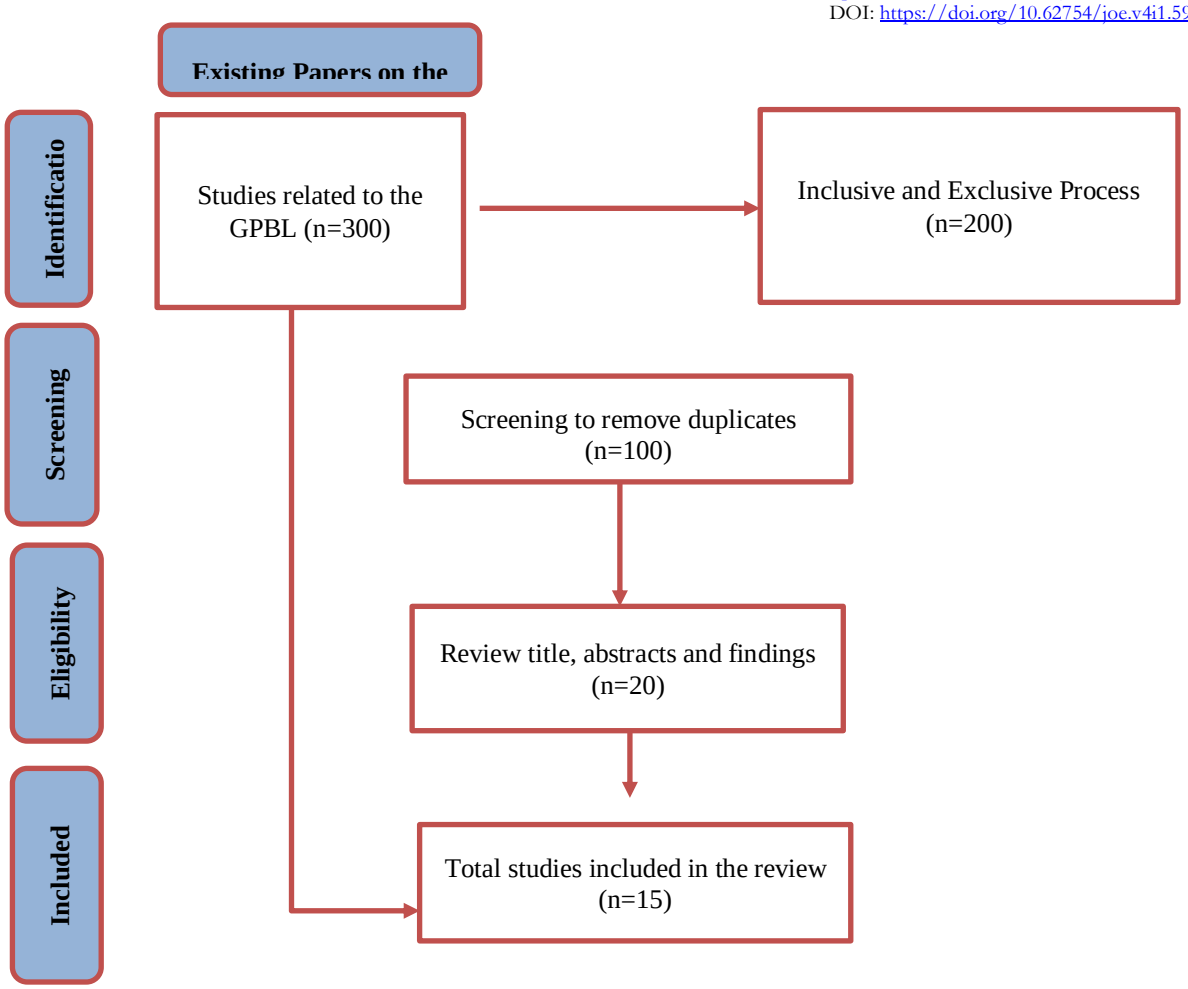

Fig 1. PRISMA Framework

Data Extraction and Analysis

Data has been collected using a structured data extraction form. Key information extracted from each study followed the following:

- *Study Details*: Authors, Year of Publication, Title, and Journal.
- *Focus of Research*: The particular aspects researched in GPBL, such as academic performance, motivation, or self-efficacy.
- *Methodology*: This includes the research design, sample size, and data collection methods used in the study.
- *Findings*: Results on main findings regarding the impact of GPBL on student outcomes.

Data extraction was conducted in a systematic way to identify common themes, patterns, and discrepancies across studies. The categorization of extracted data aided in developing a clear description of the effectiveness of GPBL that allowed a detailed comparison of its effects concerning academic achievement, motivation, and self-efficacy. This systematic approach not only explored general trends but also outlined specific contextual factors that may have an influence on the outcome of GPBL interventions. Such a deep analysis is particularly important to be able to develop a subtle understanding of how GPBL can be effectively combined with English language education for the best learning experiences and outcomes.

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Therefore, this approach allowed for the systematic categorization of key findings, pointing out commonalities, patterns, and gaps in research related to GPBL in English language education. The current study also intends to observe challenges in the implementation of GPBL within the Chinese educational context and its own limitations, thus pointing to further research directions. The synthesis has sought to present research findings of selected studies in an attempt at answering the research questions and further realizing the study objectives.

Systematic Review of the Papers

Table 2. Selected Literature and Key Findings

Authors	Year	Study Focus	Key Findings
Subhash & Cudney	2018	Gamified learning in higher education	• Positive impact on student engagement, motivation, and performance.
Zhang & Hasim	2023	Gamification in EFL/ESL instruction	• Positive effects on student motivation, language skills, and engagement. • Negative aspects include technical issues and short-lived effects.
Luo	2023	Effectiveness of gamified tools for FLL	• Mixed results: Some studies show positive, negative, or no effects. • Factors influencing outcomes: methodology, technical limitations, biases.
Huang, Li, & Shang	2023	Gamified project-based learning	• Positive impact on learning experience and motivation. • Technical issues were a common concern in implementation.
Chan & Lo	2022	Perceptions of gamification during the pandemic	• Positive correlation between game-based learning and student engagement. • Highlighted the need for technological literacy among teachers.
Cabrera-Solano	2022	Game-Based Learning in EFL	• Genially games significantly improved vocabulary acquisition.
Kazu & Kuvvetli	2023	Digital game-based language learning	• Positive impact on vocabulary acquisition. • Motivation improved through competitive aspects and rapid feedback.
Garland	2015	Gamification in Second Language Education	• Mixed results: Gamification generally had a positive effect. • Moderating factors included length of instruction and use of competitive elements.
Ardi & Rianita	2022	Gamification in EFL grammar class	• Boosted engagement in multiple dimensions: cognitive, behavioural, and emotional.

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			• Emphasized the teacher's role in implementation for optimal engagement.
Khaldi, Bouzidi, & Nader	2023	Gamification of e-learning in higher education	• Identified common elements used: points, badges, leaderboards. • Noted lack of a standardized design approach and limited use of motivational theories.
Huseinović	2024	Gamification effects on motivation and achievement	• Positive impact on motivation, academic achievement, and language skills. • Integration of games contributed to improvements in listening, speaking, reading, and writing.
Oliveira et al.	2023	Tailored gamification in education	• Results were contradictory; most experiments lacked sufficient statistical evidence. • Emphasized the need for personalization in gamified systems.
De La Cruz et al.	2023	Use of gamification in English learning	• Positive impact on motivation, satisfaction, and engagement. • Suggested improvements for digital gamification design to enhance learning outcomes.
Ng & Lo	2022	Flipped classroom and gamification	• Gamified flipped classrooms promoted learner engagement. • Traditional classrooms with gamification improved learner achievement.
Zhang & Yu	2022	Meta-analysis on gamification vs. game-based learning	• Gamification showed stronger motivational effects compared to game-based learning. • Game-based learning had more significant effects on learning achievement.

This systematic review identifies several key themes based on the research questions and findings from the 15 selected research papers. The themes are (1) the positive impact of gamification on motivation and self-efficacy, (2) gamified strategies for building student confidence, (3) academic performance improvements through gamification, (4) challenges associated with gamified learning, (5) personalization in gamified education, and (6) the role of teachers and institutional support. Each theme is analyzed to provide a comprehensive understanding of the effectiveness and limitations of Gamified Problem-Based Learning (GPBL) in English as a Foreign Language (EFL) contexts in higher education in China.

Positive Impact of Gamification on Motivation and Self-Efficacy

Gamification has been found to have a positive impact on both motivation and self-efficacy among students. Based on the systematic review, gamification has indeed proved to positively influence motivation and self-efficacy among students. Motivation is a critical ingredient needed for the development of active participatory individuals involved in learning, while self-efficacy reflects students' beliefs in their ability to be successful condition important for language learning success. Subhash and Cudney (2018) emphasized

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that game systems can be an effective means of increasing the motivation of students through badges and leaderboards, at the very least. These game elements have constituted an engaging atmosphere that drew students' attention and encouraged them to work toward their learning goals. Literature has referred to the fact that stronger motivation has driven better learning performances. Zhang and Yu (2022) identified that there was a big difference in intrinsic motivation and self-efficacy brought about by the interventions of gamification. Rewards, progress tracking, and more frequent feedback have helped students feel confident and take a very positive attitude toward language learning. The findings further showed that, with success in small incremental pieces in the game, students developed an increase in self-efficacy.

Chan and Lo (2022) examined the impact of gamification on learners during the COVID-19 pandemic related to the usage of game-based platforms, which enhanced students' self-confidence in using digital tools, directly influencing their self-efficacy. The authors said that this was when appropriate institutional support and resources were provided, the positive effects of gamification could be significantly noticeable in improving self-efficacy. Similarly, Huseinović (2024) also contributed some positive influences of gamification to self-efficacy in that the low-pressure gamified context helped in decreasing student anxiety and developing their confidence. The continuous feedback through the tools of gamification was available to the learner so they could monitor their progress more the greater feeling of competency probably resulted. Besides these, Oliveira et al. (2023) pointed out the usage of individual approaches to gamification in enhancing the students' self-efficacy. This resulted in a higher level of motivation and confidence and, therefore, students could go at their own pace. Khaldi, Bouzidi, and Nader (2023) also identified that properly designed game elements combined with motivational theories helped boost self-efficacy.

These reviews show that gamification brings tremendous motivation and self-efficacy among students through the creation of an interactive and supportive environment in learning. Gamified elements create an appealing atmosphere that motivates students to participate in their learning process, making this process interactive. Additionally, these elements contribute to incremental success, making a student gain confidence and develop a positive attitude toward language learning. In particular, gamification approaches allow students to advance at their own pace and have been particularly effective in enhancing motivation and self-efficacy. Gamification can help students remove themselves from anxiety with a greater belief in their capabilities by offering them personalized support and an opportunity for growth. Also, it is important that institutional support and well-designed game elements support each other to maximize positive effects; in this respect, students will be provided with sufficient resources throughout the learning process. Gamification bolsters intrinsic motivation and self-efficacy in general by proposing a low-pressure setting where students learn actively, always feeling supported in approaching their goals in language. Overall, the findings suggest that feedback, rewards, and support in the learning environment involve students' increased motivation and self-efficacy attributed to gamification. At the same time, however, adequate resources and support should be determined as necessary if such gamified approaches are to reach full effectiveness in enhancing such outcomes.

Gamified Strategies for Building Student Confidence

Another important underlying theme emerging from the systematic review is that gamification reinforces students' confidence. Confidence is a critical matter in language learning because of its role in developing a willingness in students to take risks and actively participate in learning activities. Zhang and Hasim (2023) found in their study that the gamified learning environment has influenced the students' attitudes and responses positively. Features such as leaderboards, badges, and quizzes establish a competitive but supportive atmosphere that would encourage participation and should uplift students' general feeling of confidence in language learning. The study also delved into and mentioned the fact that game elements allowed students to achieve a feeling of success, in turn strengthening their overall confidence. In the experimental vocabulary acquisition study conducted by Kazu and Kuvvetli (2023), a great difference in performance was observed between students who used such gamified platform Quizziz and those in the control group. This in-game competition and quick feedback helped students be more confident in using the newly acquired vocabulary. It was emphasized that competition if dosed adequately, may provoke students and help them feel more confident about their skills.

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Research by Ardi and Rianita (2022) investigated the implementation of Kahoot! Into the grammar classrooms of English as a foreign language. Their findings showed that this game-based learning platform increased students' goal-oriented, playful learning and reward approaches. These lead not only to increasing their participatory engagement but also their confidence in mastering grammar materials. As was underlined in the framework, teachers should be at the core of using gamified tools for creating effective reinforcement in students' confidence. Ng and Lo (2022) explored the effects evoked by the integration of gamification within flipped classrooms. As can be noted in their results, a gamified flipped classroom model encourages learner engagement and confidence because learners could be responsible for their learning. Incorporation of game elements within learning makes it more enjoyable and accessible, and hence the students were motivated to engage actively in course materials. De La Cruz et al. (2023) added that elements related to progress tracking and rewards created an atmosphere in which experimentation was not punished but rather earned rewards and thus gradually increased students' confidence levels. Garland (2015) reported that continued use of gamified activities resulted in longer-lasting confidence.

Based on the systematic review, gamification contributes to building student confidence through aspects of the learning experience that create nurturing and motivating environments. Gamified elements such as leaderboards, badges, quizzes, progress tracking, and more significantly help gain a sense of achievement and encourage students to take risks unquestionably, thus strengthening their confidence in language learning. Gamification can make students feel more capable of mastering new skills through rapid feedback and opportunities for competition in a supportive environment. The process is enjoyable due to features such as goal-setting, playful learning, and rewards; students want to participate and try things without fear of failure. This process gradually builds their confidence to take ownership of their learning. Teachers play a very vital role in effectively delivering these tools and guiding the students through gamified activities that are designed for better participation and confidence. The more sustained the exposure to such activities, the greater and longer-lasting the boost in students' confidence, therefore enabling them to rise above language learning challenges and participate in their education with more meaning. Overall, gamification is a dynamic methodology for building student confidence since it makes learning active, supportive, and rewarding.

Academic Performance Improvements Through Gamification

Gamified learning approaches can help enrich students' performance by creating activity-based, playful learning processes. Subhash and Cudney (2018) found the increase in academic performance to be significantly related to the gamified system of learning. The authors highlighted how badges, leaderboards, and interactive challenges helped students build a more serious interest in the course material, which then led to improved learning outcomes. Huang, Li, and Shang (2023) researched GPBL integration and found that it benefited students in applying their language competencies in real-life situations. The research determined that GPBL supported the development of higher-order thinking skills, which enhanced academic performances, especially regarding learning the English language. However, they added that technical issues may inhibit GPBL from realizing its full potential in its resultant effects.

Kazu and Kuvvetli (2023) showed that gamified vocabulary learning had positive effects. This in-class experimental study has demonstrated that the students exposed to game-based learning platforms such as Quizziz attained higher levels of retaining vocabulary compared to the group of students that the instructor taught using the traditional method. It became obvious that in-game competitions, rewards, and fast feedback had a great impact on improving the academic performance of the students. Luo (2023) stated that mixed findings were found in examining the very concept of gamified tools' impact on academic performances. While there were studies that reflected positive change, there were some that showed no significant alternation or even negative ones. These divergences were caused partly by methodological flaws, technical issues, and learner-specific moderators; thus, thoughtful design and implementation are crucial to gamified tools' success in improving academic performances. Besides, Chan and Lo (2022) have reiterated that such institutional support goes a long way toward better performance on the part of students when the teachers are correctly trained to handle these gamified tools. Oliveira et al. (2023) indicate that personalization resulted in better performance to the extent that the latter were able to focus on aspects that needed further improvement.

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Consequently, this review has brought into view that gamification creates a playfully interactive environment that motivates students to hopefully become more eager to engage with the learning content. It offers incentives for attracting the attention of students and making them work toward achieving higher scores by incorporating game elements such as badges, leaderboards, complex interfacing challenges, and personalization features. Including game-based approaches, such as project-based learning, will not only develop high-level and active participation but also enhance higher-order thinking, especially regarding the application of language skills to real life. Competition in games, rewards, and fast feedback is instrumental in enhancing students' retention and understanding for more active and efficient learning. Without proper planning and construction, however, gamified learning will not just magically make learning effective. Technical limitations, issues over methodology, and individual differences in learners may further affect the outcomes. The institutional support and teacher training are so that gamified interactive tools can be put properly to use in exploiting fully their potential for enhancing academic performance. Personalized gamification approaches, focused on their individual points of improvement, further round out the performance by allowing students to target their particular points of need. Overall, though gamification can achieve improved academic outcomes, success is contingent upon well-designed implementation, adequate institutional support, and reflecting thoughtfully on personalization.

Challenges Associated with Gamified Learning

Although gamification has demonstrated several advantages, there are challenges and limitations that can arise from implementing gamification into higher education, impacting the overall potential scalability and effectiveness of gamified learning approaches. Luo (2023) identified some such methodological limitations influencing gamification research: biases in experimental settings, technical problems, and technique insufficiencies regarding measurement. Such conditions make it difficult to identify effective gamified learning. Huang et al. (2023) added that GPBL requires technical expertise and resources not always available. This also applies to the sustainability of gamified learning approaches and diminishes the potential impact that can be fully expected with regard to better learning results.

Chan and Lo (2022) highlighted that technological literacy at levels of both students and educators is a precondition for the consequential usage of gamified platforms. This paper concluded that the effectiveness of gamification depends to a large extent on institutional support consisting of training and access to needed digital tools. Khaldi, Bouzidi, and Nader (2023) also stated were related to the identification of appropriate game elements when there is variance in learning contexts. Garland (2015) has reported that longer interventions have often been linked to superior outcomes, but sustaining a student's interest over time is difficult to achieve. This view is similarly propagated by Oliveira et al. (2023) when they indicated that personalization challenges in gamified learning may make learning less effective for some learners.

Conclusively, in the reviews of 15 papers, though gamification in higher education combines a number of advantages, its application has numerous challenges that may reduce its effectiveness and scalability. One of the methodical issues involves biases in experimental settings and deficit measurements, which make it impossible to get reliable conclusions on the general impact of gamified learning. Technical limitations include the special skills and resources needed to keep the gamified approaches up and running, thus limiting the educative potential of gamified approaches. The effectiveness of gamification highly depends on the technological literacy of both the students and educators. In general, without proper training and institutional support, gamified learning is far from being effective. Other critical challenges include the selection of appropriate game elements, as the effectiveness of points, badges, and leaderboards would vary depending on the context and the needs of the individual learner. A further challenge remains with sustaining interest in longer interventions; student interest is better maintained with varied and engaging content that keeps them motivated.

Personalization in Gamified Education

Gamified learning is mainly determined by personalization. Studies have shown the need to adopt tailored gamification approaches, entailing specific characteristics or preferences of learners. A review of tailored gamification conducted by Oliveira et al. (2023) revealed that most systems using gamification were not

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sufficiently personalized and, hence less effective in enhancing learning outcomes. They underlined that personalized gamification can respond much better to individual learner needs, thus creating better motivation, engagement, and self-efficacy. Khaldi, Bouzidi, and Nader (2023) highlighted that not all students equally respond to common game elements used in point, badge, and leaderboard approaches. They recommended that individual differences be taken into account when gamification designers choose which game elements to use to create effective and more engaging learning experiences. Zhang and Yu (2022) showed that personalized gamification strategies are more influential in influencing intrinsic motivation and self-efficacy rather than generic ones. Their study recommended that future research should be directed towards gamified systems development which would be able to adapt to the needs, preferences, and learning styles of particular learners. Most importantly, according to De La Cruz et al. (2023), it is necessary to take into account cultural differences when considering personalization. Personalized feedback was found to be most effective for enhancing motivation and performance among the different types (Huseinović, 2024).

From the review, it can be said that, the personalization significantly enhances the effectiveness of gamified learning, as it addresses the individual needs and preferences of learners. Personalized gamification strategies may lead to a significant increase in motivation, engagement, and self-efficacy through tailored support that caters to unique learning styles and challenges. Personalization of game elements, such as points, badges, and leaderboards, means that every single student will find the gamified experience more in tune with them; thus, a more interactive and efficient learning process will be achieved. Personalization in learning encompasses more than just individual preferences; also, cultural considerations mean that not all students may react in the same way to these gamified elements. Personalised feedback also creates better motivation and performance because it can help students understand their strengths and weaknesses, and thus make learning more meaningful. Personalization is very effective but is not utilised yet in many gamified systems, hence limiting the potential benefits that can be derived from them. To fully realize these latter advantages of gamified learning, designers need to provide adaptive systems that will meet the needs of each learner's preferences and differences in culture. These will allow learners of all kinds to benefit from a personalized, supportive educational experience.

Role of Teachers and Institutional Support

Success in implementing gamified learning relies highly on the teacher and institutional support. Teachers are highly instrumental in embedding game elements into the curriculum, while institutional support will guarantee its availability in terms of resources and training. Ardi and Riananta (2022) emphasized that the role of the teacher in implementing gamified learning is critical. Their investigation reported that the game elements should be framed by the teachers in such a way that the learners' engagement is maximized and the gamification is used effectively. Chan and Lo (2022) insisted on institutional-level support for both students and educators. In fact, for them, the success of gamified learning is strongly related to the availability of training, resources, and support to the educational institutions. Without proper support, teachers will not be able to effectively incorporate game-based learning, and students will not benefit enough from a gamified experience.

As also pointed out by Huseinović (2024), for the useful implementation of gamified tools in classes, teachers should possess enough capacities and knowledge. The study suggested that universities should invest in professional development expenses which will support educators to integrate gamification into teaching. Ng and Lo (2022) argued very well that the unequal distribution of teacher reliance along with institution culture may impact the effectiveness of gamified learning. They added that support for, and resourcing of teachers are needed in making an enabling/positive learning environment from which student motivation and interest in learning stem. This is followed by Khaldi, Bouzidi, and Nader's (2023) plea for institutional policies to incentivize innovation with game-based learning among teachers. According to Huang, Li, and Shang (2023), "Sustainability depends on institutional commitment to ongoing support". However, gamified learning requires not only enthusiastic teachers who implement the idea but also institutional support, which would be needed by teachers.

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Teachers are crucial agents for gamification implementation into the curriculum, with their major role being game element alignment with educational goals so that students' engagement heightens and learning outcomes improve. Much more than technical competencies, their role requires creativity in the use of gamified tools in creative ways to meet specified educational objectives. This requires the institution to invest in the training and professional development programs of teachers so that educators can acquire the relevant skills and knowledge to apply gamified tools in practice. The institutional support also means providing sufficient resources, including but not limited to access to digital platforms and continued technical support. In any case, when such support has not been provided, the teacher may face possible difficulties in their implementation; hence, students will fail to reap the full benefits accruing from these innovative learning strategies. The same learning could also be supported by creating a culture of continuous improvement and pedagogical progress within the institution through encouraging policies for teachers to try out new ideas and innovate gamified learning. The long-term effectiveness and sustainability of gamified approaches require sustained institutional commitment regarding providing incentives, resources, and technical support to create such an environment that empowers both teachers and students.

Discussion

Gamification-Based PBL for College English Modules for Chinese Students

Based on the review of 15 papers, this paper can state that GPBL does improve academic achievements among Chinese college students learning English. More precisely, the review of 15 identified eight papers, which mentioned that gamification elements really have a positive impact on improving academic performance. Subhash and Cudney (2018) found that using gamification elements such as badges, leaderboards, and interactive challenges captures students' attention and motivates them to actively participate, which directly contributes to improved academic outcomes. Similarly, Kazu and Kuvvetli (2023) reported that game-based platforms like Quizziz significantly enhanced students' vocabulary acquisition through in-game competitions, rewards, and rapid feedback, leading to better retention and performance.

Huang, Li, and Shang (2023) showed that gamified project-based learning enhances students' ability to apply language skills in real-world scenarios, fostering higher-order thinking and boosting academic performance. This approach aligns with constructivist principles, where learning is facilitated through meaningful experiences, supporting better retention and application of knowledge. However, Luo (2023) presented mixed findings, noting that while some studies demonstrated positive outcomes, others showed no significant change or even negative impacts. Methodological limitations and individual differences were cited as factors contributing to these varied outcomes. Therefore, GPBL can be effective if it is thoughtfully designed and contextually adapted to address specific challenges (Subhash & Cudney, 2018; Kazu & Kuvvetli, 2023; Huang et al., 2023; Luo, 2023).

GPBL Role in Chinese College Students' Interest in Learning English

The review of 15 papers suggests that GPBL can significantly increase interest in learning English, with 9 out of 15 papers reporting positive effects on student interest and motivation. Ardi and Rianita (2022) found that using Kahoot! in EFL grammar classes boosted student interest through elements like goal setting, rewards, and playful learning. This gamified approach made the learning process more enjoyable and engaging, leading to increased participation and sustained interest. Similarly, Zhang and Hasim (2023) reported that incorporating elements such as leaderboards, digital badges, and quizzes created a competitive yet collaborative environment, fostering student interest in English learning.

Ng and Lo (2022) found that gamified flipped classrooms during the COVID-19 pandemic were highly effective in increasing engagement and interest. Game elements made learning more accessible and enjoyable, which motivated students to take responsibility for their learning. Additionally, Khaldi, Bouzidi, and Nader (2023) emphasized that points, badges, and leaderboards were effective in enhancing motivation, though personalized approaches are needed to cater to diverse student preferences. Overall, the findings indicate that GPBL can successfully increase Chinese college students' interest in learning English by

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creating a competitive, enjoyable, and engaging learning environment (Ardi & Rianita, 2022; Zhang & Hasim, 2023; Ng & Lo, 2022; Khaldi et al., 2023).

Impact of GPBL on the Self-Efficacy of Chinese College Students in Terms of English Language Learning

Based on the reviewed literature, it is evident that GPBL positively impacts the self-efficacy of Chinese college students in learning English. Specifically, 7 out of 15 papers found that gamification enhanced students' confidence and belief in their abilities. Zhang and Yu (2022) reported that incorporating elements like rewards, progress tracking, and frequent feedback increased students' self-efficacy, motivating them to take on more challenging tasks. Chan and Lo (2022) similarly noted that the use of game-based platforms improved students' confidence in using digital tools, which, in turn, enhanced their self-efficacy and willingness to engage in learning activities.

Huseinović (2024) found that a low-pressure gamified environment helped reduce anxiety and build students' confidence in language learning. The frequent feedback provided through gamified tasks allowed students to monitor their progress and feel more competent. Oliveira et al. (2023) emphasized that personalized gamification approaches were more effective in boosting self-efficacy compared to generic methods. Tailoring game elements to match individual learner needs helped students build confidence and belief in their ability to succeed. Thus, GPBL can positively impact self-efficacy by providing an engaging and supportive learning environment that includes personalized feedback, progress tracking, and opportunities for incremental success (Zhang & Yu, 2022; Chan & Lo, 2022; Huseinović, 2024; Oliveira et al., 2023).

Conclusion and Limitations

Conclusion

The findings from 15 respective systematic reviews reveal that GPBL is truly effective in enhancing the field of learning among Chinese college students while studying English by embedding gamification into the PBL framework because it improved academic performance, gained motivation and interest, and improved certain aspects of self-evaluation. Results have shown that, of the 15 reviewed, 8 reported improved academic results; 9 reported increased interest and motivation among students; and 7 demonstrated a positive influence on self-efficacy among students. It is about gamification, consisting of badges, leaderboards, rewards, and progress tracking to motivate learners in an interactive and engaging learning environment. In this regard, it will encourage the participants to be active in the learning process and apply their language skills in real-life situations. Moreover, such influence on self-efficacy is crucially important in language learning since it reduces anxiety and boosts students' confidence to believe in their successful achievement of good results. Besides, GPBL can be effective if different aspects are taken into consideration. Thoughtful design, contextual adaptation, and support and availability of resources will account for the effectiveness of GPBL. Personalized gamification approaches are essential for the satisfaction of individual learner needs, reaping the most benefit from GPBL. These findings from this study suggest that GPBL has the potential to be a paradigm-shifting tool in the education of the English language and has to be effectively implemented and supported with adequate resources.

Limitations

Several limitations need to be conceded about this study. First, this review was limited to 15 studies, which may not represent the full spectrum of research on GPBL in the area of English language education. Variation also existed among the selected studies about research design, methodology, and sample size, which might contribute to any inconsistency in findings. Few of them found mixed or inconclusive results and mentioned that more rigorous and well-designed research should be conducted to establish definitive conclusions on GPBL effectiveness. Another limitation concerns the fact that it relies on secondary data from existing literature, which means that the results are as good as the quality and reliability of the studies reviewed. A few more methodological drawbacks concern biases in study design and variability in implementing gamified elements, which might have influenced the results reported in the reviewed studies.

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Additionally, the main barriers to success concern the technical problems of GPBL implementation, such as the usability and accessibility of platforms. These challenges will have to be dealt with to ensure that GPBL can be used in a variety of educational contexts.

Finally, the personal approach, along with institutional support, played a crucial role in the effective realization of GPBL; not every student responds equally to game elements, and the absence of personalized approaches can reduce, for some learners, the effectiveness of GPBL. Furthermore, the demand for technological resources and teaching training creates seriously challenging conditions, especially within environments with scarce resources of this type. Future studies should be done on addressing the challenges, developing more personalized gamification strategies, and more long-term effectiveness of GPBL on learning outcomes.

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