Commercial Video Games and English Language Skills Development: A Systematic Review

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Abstract
Digital games are increasingly used in education to boost engagement and reduce stress. Digital game-based learning (DGBL) has improved the learning experience. However, further investigation is needed to determine the specific impact of commercially available, off-the-shelf (COTS) video games on English language skills. This study provides a comprehensive overview of DGBL literature, specifically focusing on how COTS games enhance English language skills in ESL and EFL classrooms. The systematic review methodology, following PRISMA guidelines, involved searches across database like Scopus, Springer, Science Direct, and Web of Science, and other sources, and 16 articles were selected for detailed analysis from 19,201, screened articles. The systematic review examines the positive impact of commercial games on improving English language skills , identifying different game genres, and elements and linking game elements with the four perspectives of game-based learning (GBL): affective, motivational, cognitive, and socio-cultural, highlighting their direct contribution to English language skills development. This study contributes to ongoing discussions on innovative pedagogical methods to meet learners' evolving needs in a technologically advanced educational landscape. The study provides valuable insights for policymakers, educators and researchers by highlighting the potential of commercial video games in enhancing English language learning.
Keywords: *Systematic Review, Digital Game-based Language Learning, Commercial Games, Video Games, English Language Skills*

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Introduction

Education stands as a fundamental human necessity, crucial for a nation's development, fostering economic growth, social progress, and individual empowerment (National Education Policy [NEP], 2020). Within this context, a key challenge emerges—the selection of dynamic teaching strategies that foster critical thinking skills among students (Senthamarai, 2018; Tavoosy & Jelveh, 2019). Effective methods by educators and the active engagement of learners play pivotal roles in nurturing critical thinking abilities (Nelson, 2017).

In response to evolving educational landscapes, the integration of technology and GBL approaches has emerged as an innovative strategy aimed at enhancing critical thinking skills in the 21st century (Vnucko & Klimova, 2023). The extensive use of technology, encompassing ICT elements such as audio, video, games, and animations, initially associated with entertainment, has evolved into potent educational tools that make learning more learner-centered (Plass et al., 2015). These tools not only improve critical thinking but also technical skills, argumentation abilities, and foster innovative thinking and new educational paradigms (Ding et al., 2017; Noroozi et al., 2020). Digital sgames in education represent a prominent global pedagogical approach for contemporary learners, aimed at enhancing interactive, inspirational and engaging learning experiences and promoting deeper understanding (Ongoro & Fanjiang, 2023). The increased use of digital games has made it a recognized field of study that introduces variation in teaching methods and has shown positive effects on student engagement and motivation (Hung et al., 2018; Ishak et al., 2021; Eltahir et al., 2021). With millions engaging across various genres and languages, digital games continue to demonstrate potential in educational contexts (Reinhardt, 2017).

Today's students, often referred to as digital natives, have grown up with digital technology, fostering confidence, autonomy, and creativity (Igel & Urquhart, 2012; Lorenzo-Alvarez et al., 2020). The widespread adoption of games in education has brought attention to DGBL as a valuable approach (Sun et al., 2021; Ray & Ilangovan, 2024) promoting "learning by doing" (Ragni et al., 2023, p. 15). Advocating for educators to embrace technology and gamified learning approaches, Phuong and Nguyen (2017) emphasize their role in making learning to become more interactive, and thereby enhancing students' English language proficiency (Rueckert et al., 2020; Esteban , 2024). Digital natives eagerly anticipate innovative learning techniques, digital assignments, and engaging assessment models (Creighton, 2018). Incorporating games into education revitalizes traditional teaching methods, offering opportunities for cultivating critical thinking, problem-solving abilities, collaboration, and deep knowledge retention. This transformation aims to make learning a more learner-centered, experiential, holistic, enjoyable, and flexible empowering learners as active participants in the learning process. As highlighted by Von Wangenheim and Shull (2009) and Nadeem et al. (2023), video games and computers offer valuable self-reconstruction through new learning worlds.

Plass et al. (2015) highlight four GBL perspectives: Motivation, cognitive

processing, affect, and sociocultural interaction. Figure 1 illustrates the effectiveness of the GBL strategy in education.

Figure 1

Basic Concept of Game-Based Learning Strategy (Hafeez, 2021)
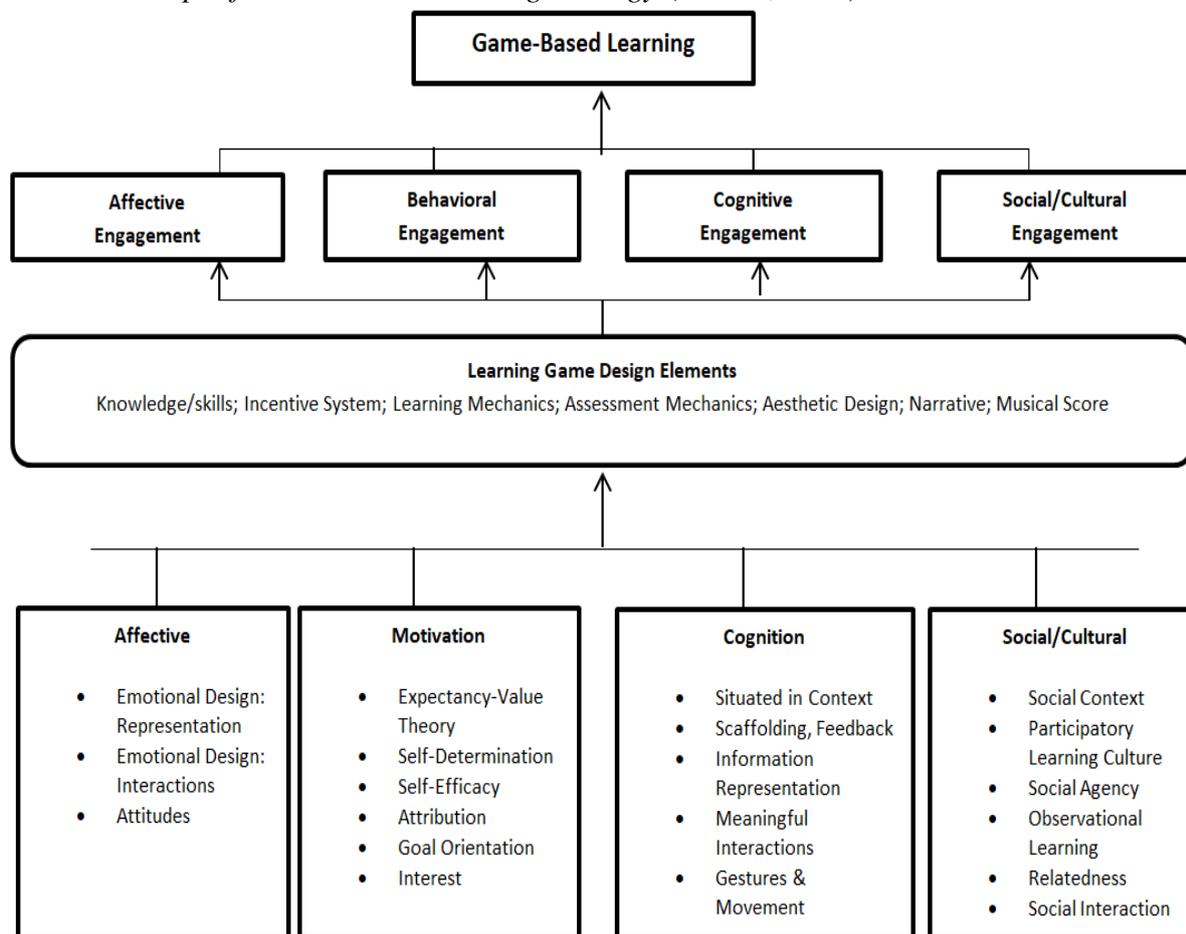
Games have a longstanding history in language learning contexts, offering contextualized input through role-play, challenges, and competition to engage learners (Meyer, 2013). Digital games can significantly enhance learning outcomes by providing immersive and engaging experience (Bakhtiari et al., 2024), while also supporting language skill development, as they have become a daily language-mediation activity around the world, serving as an informal language-learning tool for many people (Reinhardt, 2017).

While Western education systems are often seen as forward-thinking and innovative, some Asian countries' systems are seen as reserved and conservative (Bowen et al., 2024). Nevertheless, even in these countries, digital game-based language learning (DGBLL) is gaining popularity. Therefore, as noted by Reinhardt (2017), it is not surprising that in recent years, researchers have been exploring digital games as potential resources for learning a foreign or second language.

This review explores literature on the use of commercial off-the-shelf (COTS) games, or commercial games in an EFL and ESL classroom, providing insights to address the following research questions

Research Questions

RQ₁: What is the impact of adopting commercial games on language skills in EFL and ESL classrooms?

RQ₂: How do commercial games in reviewed studies develop English language skills in EFL and ESL classrooms, focusing on game functions, genres, and elements?

The forward-looking and innovative nature of the topic intrigued me, which grew even more after the COVID-19 pandemic outbreak, which compelled educational institutions worldwide to adapt to digital teaching methods. This crisis highlighted the potential for DGBL to emerge as a central and innovative form of education in the face of evolving educational demands. In conclusion, this review underscores the potential of commercial games in advancing language education, offering insights into their varied impacts on language skill development in diverse educational settings. It contributes to ongoing discussions on innovative pedagogical methods that are poised to meet the evolving needs of learners in an age of motivation.

Method

The study utilized a systematic review methodology to examine how the adoption of the DGBL approach impacts English language education through the use of entertainment-focused video games and to determine whether there are positive or negative outcomes. In this review, the framework known as "preferred reporting items for systematic reviews and meta-analyses (PRISMA)" by Moher et al. (2009) was used. The review methodology is shown in Figure 2. In the review, we thoroughly examined available, pertinent information involving data extraction and analysis of data with the aim of addressing a specific research question (Schaefer & Myers, 2017). The review followed Cooper (2016) research synthesis stages, including (1) formulation of research questions, (2) search strategies, (3) specification of search terms, (4) study inclusion/exclusion criteria, (5) extraction of data, (6) assessment of quality, and (7) data synthesization. After completing the synthesis stage, we proceed to analyze the results, interpret them, and report our findings and conclusions.

Identification of Papers

The literature search on DGBL and English language skill development was conducted using Scopus, Web of Science, PubMed, Science Direct, Springer and other databases. Figure 2 presents the stages of paper selection during the literature search.

Development of a Search

A search for pertinent literature began on February 4, 2022. The following search terms and word groups were used in the search: ("COTS games" OR "commercial video games" OR "entertainment games" OR "digital game-based learning" OR "digital game-based language learning" OR "game-based learning"). Next, the search also included terms related to language: ("language learning" OR "language acquisition" OR "language education" OR "foreign language" OR "second-language" OR "language class" OR "L2 learning from gameplay"). Then, the search has been expanded to include both the EFL and ESL

abbreviations to investigate studies dealing with "English as a second language" OR "English as a foreign language". Finally, to search for outcomes: ("effects" OR "impacts" OR "outcomes" OR "evaluation" OR "motivation" OR "engagement" OR "skills") these terms were combined with the Boolean operator "AND" to find the outcomes in studies included in this review.

Inclusion and Exclusion Criteria

The focus of the review was the use of entertainment-focused video games in the development of English language skills within ESL/EFL teaching and learning contexts. Table 1 provides the criteria for literature inclusion and exclusion.

Table 1

*Inclusion and Exclusion Criteria* (Krumsvik & Røkenes, 2019)

Category	Inclusion Criteria	Exclusion Criteria
Pertinence	Articles those are pertinent to answering the research questions.	Articles those are not pertinent to answering the research questions.
Custom Year	January 2010 – March 2024.	Literature published before January 2010.
Source Type	Only original articles from peer-reviewed journals.	Books, book chapters, conference proceedings, and grey literature.
Language	English language.	Non-English languages.
Game Type	Entertainment video games or COTS games /commercial digital games.	Serious games or educational games, and custom-built games by researchers.
Focus on L2 Learning	Discusses L2 learning through gaming, especially ESL and EFL learning.	Literature reviews that do not present primary research findings, and do not provide information about any particular genre/game.
Outcome Discussion	Studies discussing the impact of gaming on language development.	Articles lacking full-text availability or containing incomplete data or with significant methodological flaws.

As shown in Figure 2 the PRISMA flowchart was used to present the process involved in selecting the articles for the review. The search was conducted between February and June 2023, with the final search string identified on August 10, 2023. Through a thorough search process the researcher collected 19201 articles, carefully examining their content and selecting relevant articles on the established inclusion and exclusion criteria. After screening sixteen articles were finalized for this review.

Analysis Strategy

According to Creswell & Creswell (2017, p. 30) recommendations the selected studies were thoroughly reviewed, collected, coded, and categorized. The extracted data was compiled into an overview table 2. This review's coding scheme categorizes research questions into three main groups: general features, digital games in included studies, and outcomes.

Figure 2

The Process of Screening and Selection (Moher et al. 2009)
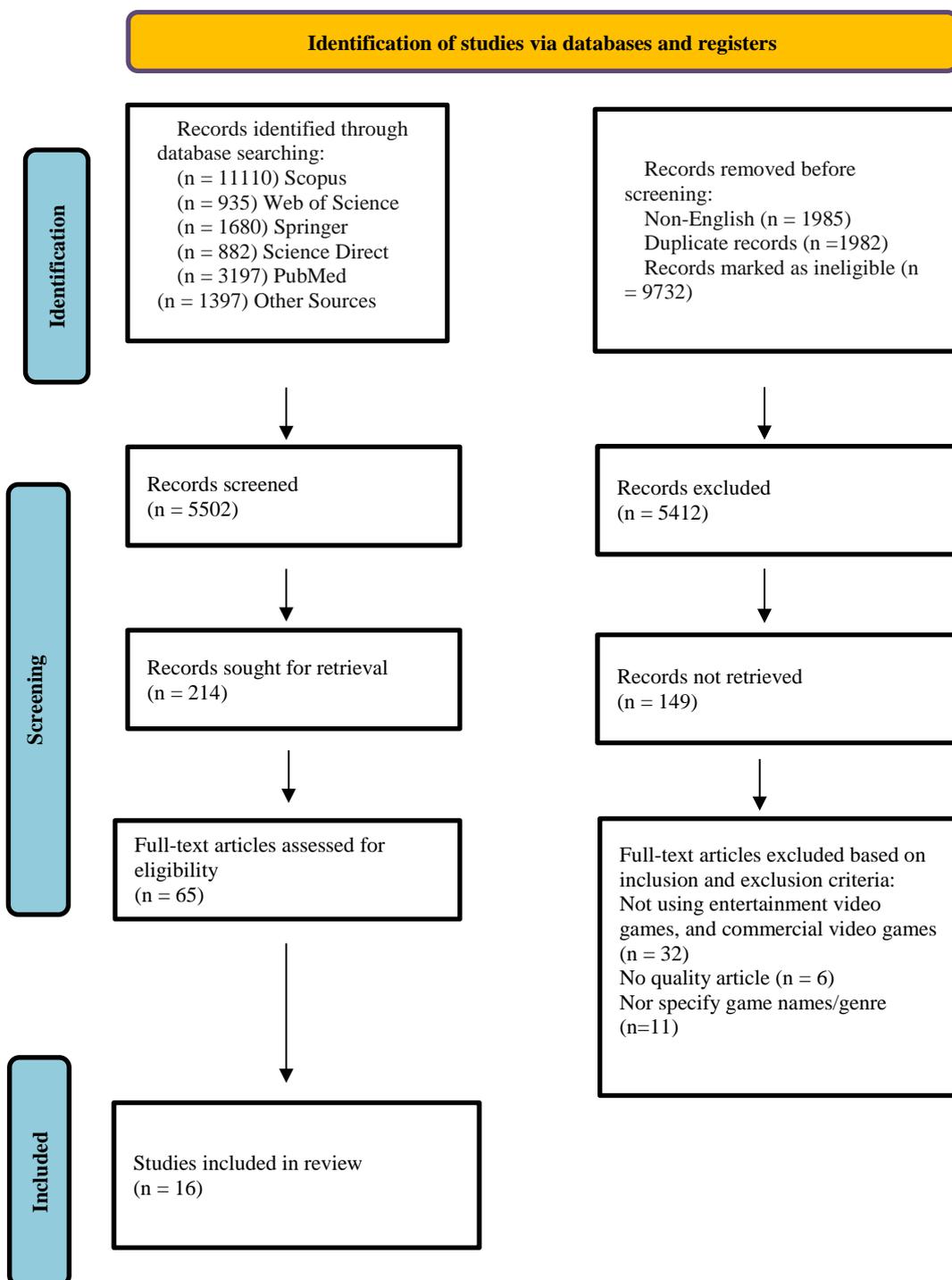
Results

Within the relevant headings, Table 2 presents the results and findings of 16 studies summarizing the information gathered to address the research questions.

Table 2

Overview of Information Gathered from the Studies Included

Authors & Year	Country	Sample Size/ Age	Research Design/ Data Collection	ESL/ EFL learners	Genre	Digital Game Elements	English Language Skills	Learning Outcome
Chen and Huang (2010)	Taiwan	University-level learners/15 Participants	Qualitative/ *observational + reflection papers	EFL	Role-playing adventure game /Sid Meier's Pirates and episodic adventure game/ Telltale Sam & Max	-Interesting storyline -Clear goals - Multimodal support	-Vocabulary -Listening -Reading	Students found both the game genres were helpful for vocabulary, listening, and reading improvement. They appreciated the graphics but noted the games' difficulty, especially for beginners, with adventure games being more challenging yet deemed more useful for acquiring language.
DeHaan et al. (2010)	Japan	university undergraduates/80 participants	Quantitative/ experimental design + Post-Procedure Vocabulary Recall Test + Delayed Vocabulary Recall Tests + survey	EFL	Music video game/ Parappa the Rapper 2	-Clear goals -Visual Support -Interactivity -Repetition	-Vocabulary	The study revealed that those who watched and those who played the game recalled vocabulary, but watchers recalled significantly more words than players. The study highlighted the challenges concentrating on both gaming and vocabulary learning at the same time.
Suh et al. (2010)	South Korea	Elementary students/specific age range not provided; sample size not explicitly	Mixed method/ experimental design + pretest and posttest	EFL	MMORPG/ Monster Hunter	-Interaction -Adaptive challenges	-Vocabulary acquisition -Reading comprehension -Listening skills -Speaking skills	The study found that a massively multiplayer online role-playing game (MMORPG) based instruction was effective in improving English language skills among elementary students. The interactive and immersive nature of MMORPGs facilitated better engagement and language practice, leading to

		stated Groups: 1) control and 2) experiment al.						significant improvements in vocabulary, reading, listening, and speaking skills.
Sylvén and Sundqvist (2012)	Sweden	Age:11-12/86 participants	Quantitative /* three proficiency tests + questionnaires + diary	ESL	Simulation games/ The Sims, and Restaurant City, MMORPGs/Counter-Strike, and World of Warcraft	-Authenticity -Interaction -Rich language input	-Vocabulary -Listening -Reading	Frequent gamers outperformed moderate gamers and, consequently, non-gamers. Despite the lack of direct evidence, the findings suggest that collaborative interaction in MMORPGs could facilitate L2 acquisition
Bakar and Nosratirad (2013)	Malaysia	Age:23-29/3 participants Groups 1) Participant A: freshman,2) Participant B: waiter, and 3) Participant C:salesman	Mixed-methods/ case study + pretest and posttests + observations+ interviews + self-report checklist	ESL	Simulation/SIMs 3	-Clear goals. -Autonomy -Authenticity	-Vocabulary	Findings showed that adult ESL learners improved English vocabulary knowledge by playing the game. And reported gaming continuous to provide enjoyable, and independent learning experiences

Chen and Yang (2013)	Taiwan	Study 1- Age:19/ 22 Participants Groups: The Experimental group was allowed to take notes on unknown words while the control group was not allowed to do so	Quantitative/ experimental design + pretest and posttest	EFL	Adventure/BONE 1 and BONE 2	-Rich language input - Multimodal support -Sensory stimulation	-Vocabulary	The adventure game significantly enhanced vocabulary learning in both groups, but there was no significant difference was observed in post-test scores between the groups that took notes and those that did not.
		Study 2- Age:19/ 35 Participants	Qualitative/ Short written report + questionnaire				-Listening -Reading -Vocabulary skills	Students found the game helpful in improving their English language skills, enhancing their motivation for language learning, and appreciated the engaging game design.

Vahdat and Behbahani (2013)	Iran	Age:23-27/40 participants Groups: 1) control and 2) experimental.	Quantitative/ quasi-experimental design + simulated TOEFL test + achievement test + Likert scale questionnaire	EFL	Adventure/Runaway: A Road Adventure	-Clear goals -Repetition	-Vocabulary	The study found that vocabulary acquisition improved significantly for both female and male EFL learners through video-game for learning, with greater inclination observed in males than in females, suggesting it outperforms traditional methods
Ashraf et al. (2014)	Iran	Age:16-22/24 participants Groups: 1) control and 2) experimental.	Quantitative/ experimental design + pretest and posttest	EFL	There are Several game genres	-Interaction -Relaxed atmosphere	-Vocabulary	The results demonstrate that the experimental group performed statistically better than the control group, as evidenced by the significant performance difference observed at post-test. Thus, the study asserts that online games are more effective for these students in learning English vocabulary.
Bytheway (2014)	Australia	Age:20-30/6 participants	Qualitative/ case study + observations + Interviews + email texts + in-game texts	ESL	MMORPGs/World of Warcraft	-Interaction -Autonomy -Rich language input -Relaxed atmosphere	-Vocabulary	The study identified 15 vocabulary learning strategies used by experienced gamers, revealing insights into autonomous learning in digital contexts.
Ebrahimzadeh et al. (2016)	Iran	Age:12-18/136 participants	Quantitative / experimental design +pretest and delayed	EFL	Strategy/ Warcraft III: The Frozen Throne	- Adaptive Challenges -Interaction -Clear goals -Autonomy	-Vocabulary	The study compared vocabulary learning between players and watchers, finding a significant difference in their performance. The Findings suggesting that enjoyment

			posttest + field notes					can motivate students to sustain language learning for long periods.
Ebrahimzadeh and Alavi (2017)	Iran	Age:12-18/241 participants Groups: 1) Players, 2) Watchers, and 3) Readers	Quantitative experimental design + pretest and posttest	EFL	Strategy/ *Warcraft III: The Frozen Throne*	-Clear goals -Autonomy -Interaction -Ongoing - feedback -Repetition	-Vocabulary	In terms of vocabulary retention over short and long periods, watchers and players outperformed readers
Horowitz (2019)	Puerto Rico	College-level students/ 76 Participants	Mixed method/quasi-experimental design + surveys + interviews	ESL	MMORPGs /World of Warcraft.	-Interaction -Adaptive challenges	-Willingness to communicate in English -Reduction of communicative anxiety -General communicative competence	The study found that playing MMOs positively affected students' willingness to communicate in English and reduced their communicative anxiety. The games' immersive and interactive nature helped students feel more comfortable and confident in using English.
Sundqvist (2019)	Sweden	Age:15-16/1069 participants	Mixed methods/ experimental design +semi-structured Interviews + vocabulary tests + surveys	ESL	There are several game genres	-Clear goals -Interaction	-Vocabulary	Playing COTS video games significantly enhanced English vocabulary and positively was correlated with time spent playing and test scores. with a positive correlation between playing time and test scores.

| Calvo-Ferrer and Belda-Medina (2021) | Spain | Age:16-18/54 participants

Groups: 1) intentional and 2) incidental condition group | Quantitative/ experimental design + pretest and posttest | EFL | Social deduction game/ Among Us | -Clear goals
-Interaction
-Repetition | -Vocabulary | The study found that using new vocabulary language words in the game enhances vocabulary retention compared to those who merely encounter them. Additionally, intentional vocabulary input triggers incidental vocabulary learning for other users, and repetition positively impacted vocabulary acquisition. |
| Lai and Chen (2021) | China | Age:17-18/30 participants

Groups: 1) Played a Sci-fi visual novel game on a PC 2) Virtual reality (VR) group played the same game on a VR headset. | Quantitative / experimental Design + pretest and Posttest | EFL | Sci-fi –virtual reality (VR) visual novel) game/ Angels and Demigods | -Authenticity
-Repetition
-Interesting storyline
- Multimodal Support
-Interaction | -Vocabulary | The study found that both groups improved their vocabulary. Nevertheless, participants in the VR group had a higher mean score in the delayed posttest for vocabulary transition. Both groups found the game enjoyable and eager to use it to learn vocabulary. |

Ray and Ilangovan (2024)	India	Age:18-19/24 Two Groups: 1) control and 2) experimental.	Mixed-Methods quasi-experimental design + one-group pretest-posttest, close-ended questionnaire and focus group interviews	ESL	Adventure game/Life is Strange 1 Episode-1	-Clear goals -Interesting storyline - Multimodal support -Rich language input -Repetition -Contextual Learning	-Listening skills	The study found that playing the game significantly improved the participants' listening skills, and increased their confidence in understanding spoken language, and enhanced their contextual learning abilities.

* Indicates that the study did not specify its research design
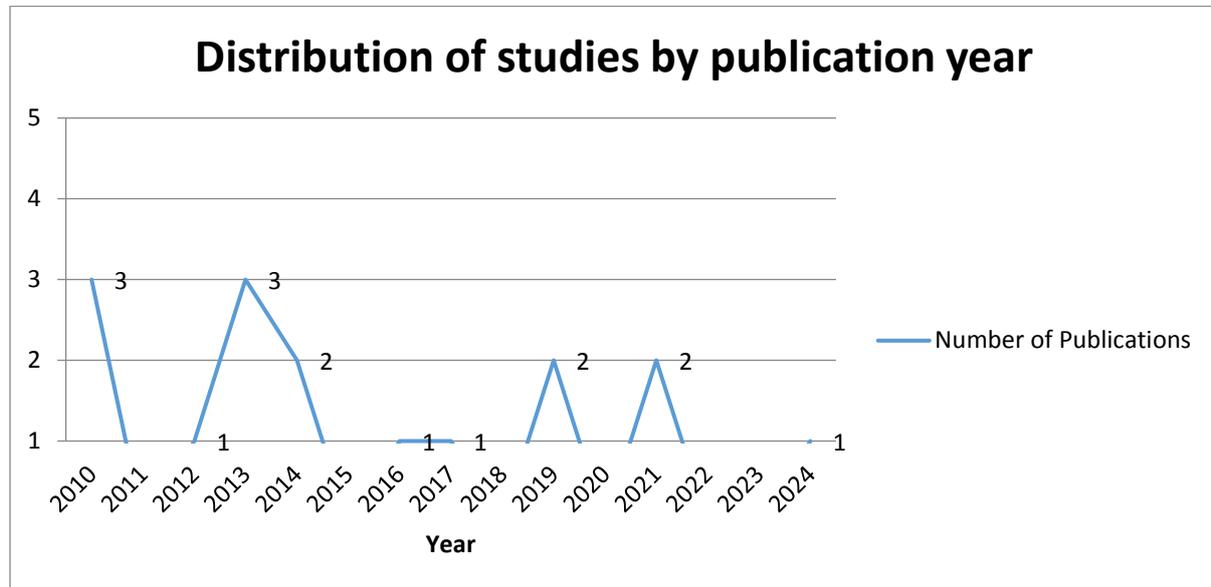
General Features

Distribution of studies by publication year

Through the application of inclusion criteria, 16 studies published over the past 14 years, from 2010 to 2024, were illustrated in Figure 3.

Figure 3

Distribution of Studies by Publication Year

With the rise of digitalization (Olofsson & Lindberg, 2021; Gustafsson, 2021), educational institutions have increasingly adopted new technologies to facilitate teaching processes (Annamalai, 2019; Poláková & Klímová, 2019; Hmidani & Zareian, 2022). Research on DGBL has gradually increased from 2010 to 2024, particularly from 2019 onwards. This finding aligns with Holon IQ (2021), which indicates a significant rise in educational technology investments, particularly in Asian countries like China and India, since 2018.

DGBL's trend in language learning studies may be linked to increased investments in technology for education, resulting in increased interest on digital learning platforms.

The increase in DGBL research since 2019 might be due to the COVID-19 pandemic, resulting in a shift towards digital learning (van der Spoel et al., 2020). Due to the closure of educational institutions, many countries have used online platforms for various educational purposes, including personalized content, formalized programs, and real-time virtual lessons led by teachers, and students have to participate digitally from home. (Nilsberth et al. 2021). This new challenge of unfamiliar distance teaching and emergency distance teaching led many teachers to experiment with digital technologies like digital games. With the emergence of distance teaching as the new "normal," researchers could have looked into the potential of DGBL and its application in classrooms to support and advance learning. Wati and Yuniawatika (2020), stated that DGBL is a motivating and fun teaching method that can improve students' learning outcomes. This led researchers' interest to explore its potential outcomes through this teaching method.

*Distribution of Studies by Publication Countries*

The current review includes 16 studies, with 11 of them (68.75%) being conducted in Asian countries. Notably, four studies were conducted in Iran, representing 25% of the total. Additionally, two studies were conducted in Taiwan, accounting for 12.5% of the total. One study each came from India (6.25%), China (6.25%), Malaysia (6.25%), Japan (6.25%), and South Korea (6.25%). These numbers indicate a substantial interest in DGBLL in Asian countries. The remaining studies originated in Sweden (12.5%), Spain (6.25%), Puerto Rico (6.25%), and Australia (6.25%) (Figure 4).

Figure 4

*Distribution of Studies by Publication Country*
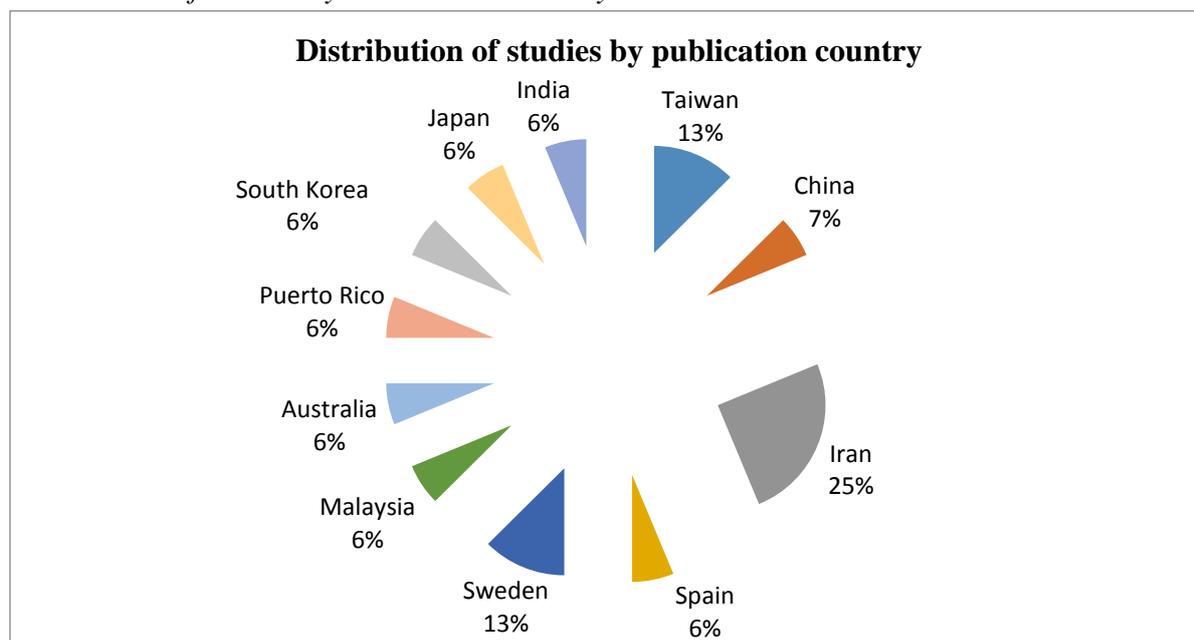
The significance of the English language in Asian countries is evident from 68.75% of studies conducted in these countries. Proficiency in English is linked with better living standards, social development, higher income, innovation, and more investment in research and development (Muslimin, 2017). Thus, several Asian countries, due to their strong desire to learn the language, invest heavily in English education and training. It is arguable that Asian countries prioritize English language development among their population in order to improve future prospects and quality of life. Researchers are investigating whether DGBLL, as an innovative method, can facilitate English language learners to become more proficient by providing practice in authentic contexts. Compared to the significant number of studies carried out in Asia, Europe produced just three studies, two from Sweden (12.5%) and one from Spain (6.25%). Breen (2019) states that Europeans rank very high on the English Proficiency Index. These studies illustrate the potential of DGBL to address proficiency disparities within the region. Oceania had one study (6.25%) from Australia, and North America contributed one study from Puerto Rico (6.25%), highlighting the global reach and effectiveness of video games in enhancing language skills, highlighting widespread interest and applicability of DGBL across diverse educational contexts worldwide.

The greater emphasis on studies from Asian countries may reflect recognition of the role of English proficiency in enhancing social and economic opportunities. English is often seen as a gateway to global communication, higher education, and better job prospects, which is particularly relevant in rapidly developing Asian economies. Therefore, the high proportion of DGBLL studies from Asia underscores the region's commitment to finding innovative and effective methods to teach English and improve language proficiency among its populations.

Methodologies Employed

As shown in Figure 5, the included studies (16) predominantly employed quantitative methodology, with eight (50%) employed quantitative methods, 37.5% employed a mixed method, and 12.5% employed a qualitative method. These studies examined the integration of DGBL in language learning in ESL/EFL classrooms. The experimental design for data collection highlights the advantages of quantitative methods when compared to other methods.

Figure 5

Studies Distributed by Methodology
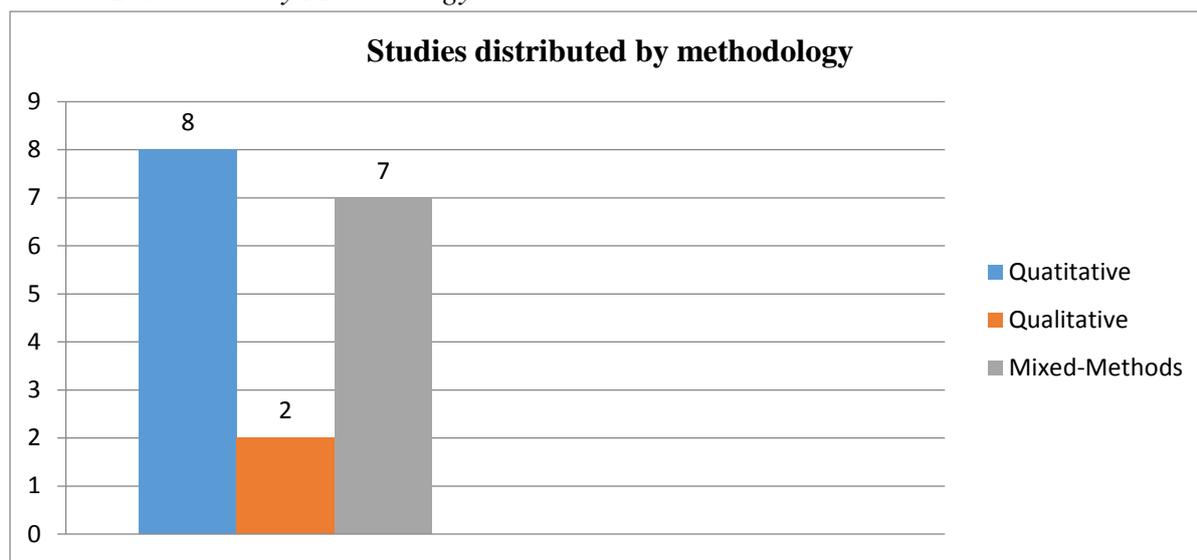
Similar to past literature reviews, including the work of Xu et al. (2019), these findings identified that most studies employed quantitative methods. However, the findings are in contrast to Hung et al. (2016) and (2018) reviews of studies reviewed from 2010-2014 and 2007-2016 and Jabbari and Eslami's (2019) review of research works published after the year 2000 showed that most studies used either qualitative or mixed methodology.

There was no clear reason for these contradictory findings that our review could find. However, it is worth noting that all of these previous reviews were a few years old and examined studies published before the ones included in this review. The present review included studies conducted during these years and predominantly employed quantitative

methodology, therefore raising the question of whether there has been a change in methodology choice in recent years, which could be relevant for future research.

Data Collection Methods

The study found that experimental designs were the most commonly used research design (8 out of 17, 50%). 13 out of 16, 81.25% studies used tests like pretests, posttests, and delayed posttests as their main data collection method. Eight studies included surveys, questionnaires, and interviews to collect information from participants. However these, methods may not effectively capture more details information. Few studies included diaries, field notes, reflection papers, short written, email texts, and in-game texts, and observation provided a more comprehensive understanding of the impact of DGBL in language learning. In total, ten studies (56.25%) used multiple data collection methods to obtain more detailed findings. The varied data collection approaches facilitated a richer and more nuanced finding.

Focused English Language Skills

Figure 6 shows that studies examined the development of English language skills, focusing on vocabulary and multiple language skills. Some studies examined communicative skills and listening skills, and vocabulary (62.5%) was clearly the most frequently examined skill.

Figure 6

Studies Focusing on Different English Language Skills
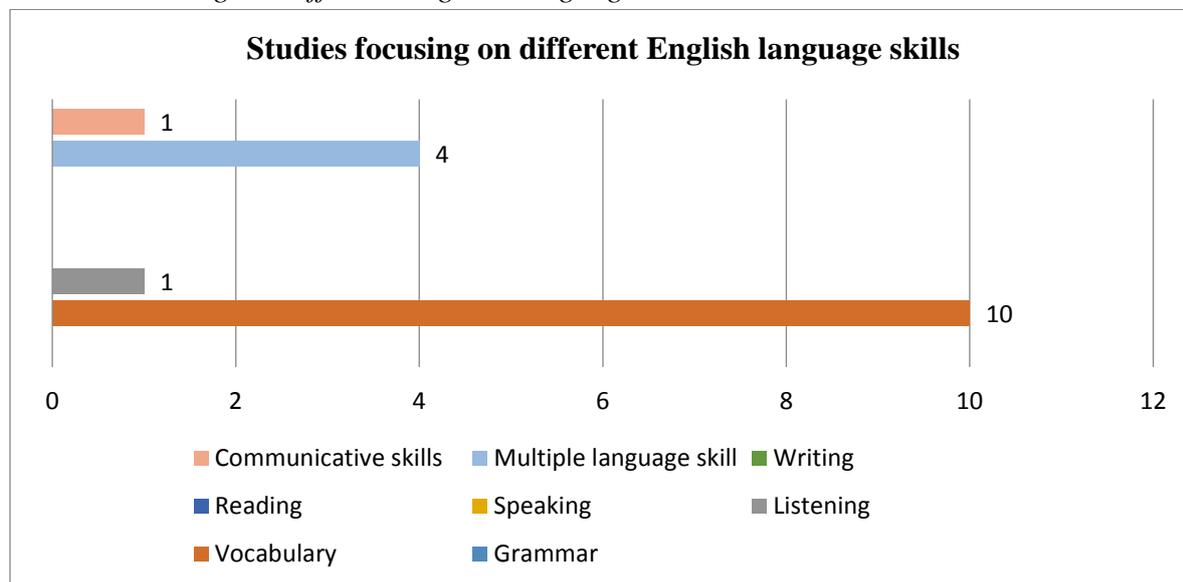
Digital Game Function Type

This study aims to explore the potential of commercial games or COTS games for ESL/EFL learning, highlighting their relevance and effectiveness in enhancing language acquisition. This review classified game function types based on entertainment video games or commercial games initially produced for entertainment purposes. According to Dixon et al. (2022), games intended for amusement seem to have a higher positive learning outcome rate than games designed for second language instruction. However, the review focuses on how

commercial games can improve English language skills. Although serious games are not mentioned in the study does not imply they are irrelevant for language learning. Instead, there are ample research studies directly focused on serious games for English language skills development.

Digital Games' Genres

This review examines the types of games and how the improvement of English language skills depends on this aspect. The study aimed to identify and classify game genres based on available information about games but faced challenges in identifying them due to lack of explicit specifications. In cases with limited game information, the authors made subjective interpretations which may be open to discussion.

As shown in Figure 7, the study identified eight digital game genres from 16 included studies, and in some studies, several games were used. Excluding two studies included several games from different genres and did not provide information about any particular genre. Findings from studies revealed that simulation games (12.5%), followed by MMORPGs (18.75%), adventure games (18.75%), strategy games (12.5%), and other genres include role-playing games, science fiction games, social deduction games, and music video games (6.25%).

Figure 7

Number of Studies Using each Game Genre
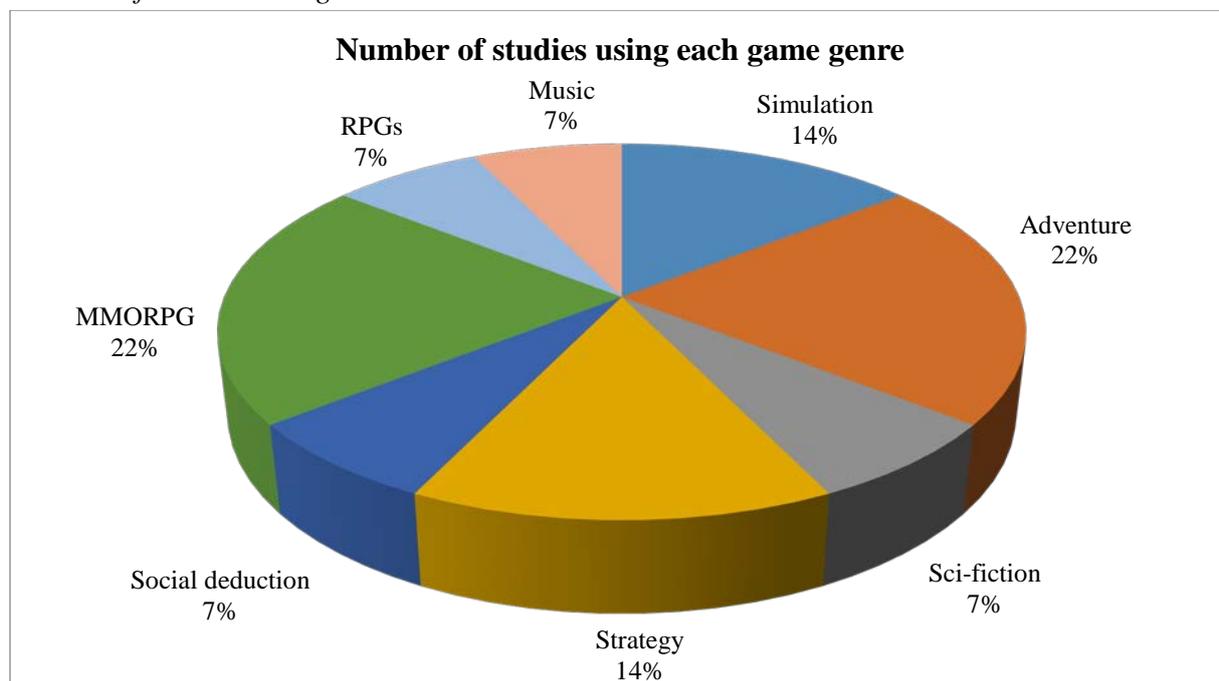
Findings indicated that no game genre stood out significantly remarkable for English language skills improvement, suggesting that learning outcomes were not dependent on specific game genres. Conversely, this may also imply that this review contains too little data to determine if certain game genres are more effective than others for DGBL in

English language education. However, this review's data were able to document that different types of genres can facilitate the improvement of English language skills.

Identified Digital Game Elements for Enhancing English Language Skills
The review of 16 studies identifies 13 digital game elements, despite their original researchers did not claim to be language learning, and the authors of this study interpreted these elements as promoting language. Table 3 provides a comprehensive overview of the 13 digital game elements identified, highlighting their significance and visibility in the review's findings.

Table 3
Overview of Identified Language-Promoting Game Elements

No	Digital game elements	Definition of digital game elements
1	Rich language input	Exposure to language used naturally in real-life situations.
2	Clear goals	Clearly defined goals.
3	Ongoing feedback	The ongoing feedback with players regarding their performance.
4	Interaction and collaboration	Interaction in this context refers to communication, conversation, discussions, and collaboration with other players in the game.
5	Repetition	Practice parts repeatedly can improve English language acquisition and help memorization.
6	Multimodal support (visual, auditory, textual)	The content includes visual, written, and spoken elements that help players in language learning, comprehension and to make progress in it.
7	Adaptive challenges	Dynamic challenges are adjusted according to the individual's abilities
8	Autonomy	Self-determination and its impact on development in the game.
9	Immersive storyline	The story draws the attention of the player.
10	Authenticity	Simulation creates situations that are very similar to real-life scenarios.
11	Contextual Learning	Engages learners in contextual language use.
12	Relaxed atmosphere	Create a safe and comfortable environment where the player can enjoy learning without being aware of it.
13	Rhythm and Lyrics	Involves the player following the lyrics and rhythms, which can help with pronunciation and expanding their vocabulary.

Discussion
DGBL, despite being a relatively new and innovative teaching practice, has recently gained more attention from many DGBLL researchers. Over the past decade, many studies have been conducted on this topic. This review presents an overview of the available studies on how DGBL, mainly focusing on commercial games, for English language skills development, addressing the two research questions. According to the findings for research question 1 in the results section above, the reviewed studies revealed that the adoption of commercial games in EFL and ESL classrooms appears to have a positive impact on language skills, particularly in terms of vocabulary acquisition, and communicative competence and multiple language skills. However, the success of this approach depends on careful game selection,

balanced integration with traditional methods, and ongoing research to optimize its use in language education.

About research question 2, however, no specific game genre was found to be particularly beneficial for English language skill development. On the contrary, the identified digital game elements were found to significantly contribute to improving English language skills. For instance, autonomy, as identified in Ebrahimzadeh, Alavi, and Wang (2016), allowed students to apply their class-taught skills to infer unknown vocabulary in other digital video games, thus, promoting self-learning. (p. 8). In Lai and Chen (2021, p. 11) the game element autonomy is portrayed with Angels and Demigods. In this VR game, where players could select dialogue choices to interact with characters in the game and alter the storyline, thereby improving their engagement and autonomy.

The plot of the game in Lai and Chen (2021, p. 20) is centered in a distant future world where a civil war has led humanity to the creation of genetically modified soldiers for war. Study participants reported learning new English vocabulary because of the game's immersive storyline.

The VR game, according to Lai and Chen (2021) can enhance authentic engagement through life-like interactions by creating a realistic and detached environment for players to experience. (p. 7). The game's immersive nature and embodied interaction potential may lead to improved performance among participants (p. 22). In Lai and Chen (2021), the game helps players improve their English language skills by giving players opportunities to watch in-game animations and watch spoken dialogue to get the meaning of certain words. Visual and textual cues help reinforce players' memories by associating words with images and sounds (pp. 10-11). In VR game as mentioned in Lai and Chen (2021), players enjoyed the virtual features, which made them more engaged and interactive with the game (p. 22). In the study of Ebrahimzadeh and Alavi (2017), ongoing feedback was identified as another game element. However, participants largely ignored the feedback. This was due to: 1) its irrelevance, 2) its inability to display relevant feedback on the screen, and 3) the participants' busyness in the game's battle. (p. 8). As Manninen (2003) highlights the importance of interaction in games, both between the player and the game and others and it is a key element in many studies reviewed in this review. Interaction is an important element that was apparent in many studies. For example, Sylvén and Sundqvist (2012) implemented MMORPGs, which were considered more effective for second language learning because they provided players with opportunities to interact with other players in the game (p. 306). According to Horowitz, K. S (2019) found that despite different achievement levels, students maintained friendly interactions while practicing speaking with the computer-assisted language learning (CALL) system in an EFL classroom. This positive atmosphere encouraged them to try and potentially fail, promoting active oral speaking practice in a relaxed environment (p. 249). In the study by Chen, H. J. H., and Yang, T. Y. C (2013) the results indicate that there is a significant correlation between both written and oral English input, specifically rich language input through gaming, and improvement in vocabulary scores (p. 1). In Ray and Ilangovan (2024) the results indicate that the study found that incorporating various learning styles, including images, visual aids, dialogue, subtitles, and

character interactions, enhanced the learning experience and made it more meaningful and enjoyable for the participant (p. 454). Rhythm and lyric, as identified in (DeHaan, J., Reed, W. M., and Kuwada, K (2010) the game's lyrics were used as stressed words to emphasize pronunciation and a vocabulary recall test was administered to assess retention (p. 81). These included studies demonstrate how commercial games incorporate various elements such as autonomy, rich language input, feedback, goals, and multimodal support enhance language learning experiences. However, the study highlights the positive impact of commercial games elements on improving English language skills and their relationship with the four perspectives of GBL: affective, motivational, cognitive, and socio-cultural. This review critically analyses the connection between digital game elements with each perspective, highlighting their direct contribution to English language skills development. The table below details their integration within each perspective:

Table 4

Alignment of Digital Game Elements with GBL Perspectives for English Language Development

GBL perspectives	Digital game elements
Affective	Rich language input (dialogue, text, storylines)
	Relaxed atmosphere
	Authenticity
	Immersive storylines
	Rhythm and lyrics (music-driven engagement)
Motivational	Clear goals
	Ongoing feedback
	Autonomy
	Adaptive challenges
Cognitive	Interaction and collaboration
	Repetition
	Multimodal support (visual, auditory, textual)
Socio-Cultural	Interaction and collaboration
	Immersive storylines
	Contextual learning

Affective Learning Perspective

As shown in Table 4 the review identifies five game elements that are linked to the affective perspective. The affective perspective on learning addresses learners' motivation, emotions, attitudes, and psychological comfort. COTS games, by design, provide engagement and immersion, fostering a relaxed atmosphere that alleviates anxiety. Anxiety is a unique form of affect that is crucial for language learners (Gass et al., 2020). Language acquisition research highlights the importance of reducing learner anxiety and increasing motivation. Krashen's Affective Filter Hypothesis suggests that low anxiety environments, paired with high motivation and self-confidence, allow for better language acquisition (Krashen, 1982). Rich language input, embedded in immersive storylines and meaningful contexts, exposes learners to diverse vocabulary and structures without the pressure of formal learning environments. For instance, adventure games with complex narratives provide extensive authentic language input, naturally engaging learners in the language as they focus on achieving in-game objectives rather than on language performance itself. This encourages motivation and enhances emotional investment, factors crucial for sustained language

learning. Language engagement is made fun and soothing by the rhythm and lyrics in rhythm-based games, which also improve affective learning, memory retention, and anxiety. Jazvin (2024) backs this up by emphasizing how music improves language acquisition by appealing to both emotional and cognitive qualities at the same time.

Motivational Learning Perspective

As shown in Table 4 the review identifies four game elements related to the motivational perspective in English language skills development. The motivational learning perspective addresses the role of goals, feedback, autonomy, and challenges in driving learners to stay engaged and persistent. These game elements naturally align with Ryan and Deci's, (2000) motivational theory, such as the self-determination theory, which suggests that learners' motivation is enhanced when learners experience competence, autonomy, and relatedness. In the context of GBL, these elements are inherently built into the game design.

Clear goals and ongoing feedback are fundamental to game mechanics, providing learners with a sense of direction and progress. Such as immediate rewards, and points advancements to new levels, enhanced participation and support language usage. Additionally, the ongoing feedback provided in games allows learners to assess their performance regularly, adjust their strategies without external judgment, and support intrinsic motivation. This type of feedback significantly improved reading and vocabulary tasks in digital gaming environments (Alakrash & Abdul Razak, 2021). Another element that plays a crucial role in language learning is autonomy. Autonomy gives players control over their decisions and learning pace, increasing their investment and persistence (Reinders & Wattana, 2015). This boosts engagement and, a sense of ownership. Meaningful interactions and improves communicative competence.

Games with adaptive challenges ensure that the difficulty level is appropriate for the learner's current capabilities, preventing frustration from overwhelming challenges or boredom from overly simplistic tasks. The importance of this balance in sustaining motivation is highlighted by Csikszentmihalyi's (1990) flow theory, which holds that tasks are most engaging when they are precisely balanced between difficulty and ease.

Repetition in games also enhances motivation by allowing learners to retry tasks and improve performance, facilitating deeper learning through deliberate practice. Language learners' benefit from repeated exposure to vocabulary and language structures in various contexts without monotony, as repetition is embedded in engaging gameplay.

Cognitive Learning Perspective

As shown in Table 4, three game elements are associated with cognitive perspective. The cognitive perspective relates to how learners process and internalize information. COTS games that integrate interaction, collaboration, and multimodal support (visual, auditory, and textual) align closely with cognitive load theory (Sweller, 1988), which suggests that delivering information in a manageable way prevents cognitive overload and enhances learning effectiveness. Games often present language-rich environments, exposing players to new vocabulary and language structures through text, spoken dialogue, and visual cues,

thereby reducing cognitive overload and enhancing retention. Interaction and collaboration are key cognitive processes in language learning. Multiplayer games require players to communicate effectively to achieve goals, using language in real time. This type of interaction simulates real-life communication, prompting learners to engage in discussions, negotiate meaning, and clarify understanding —key activities for practicing and improving both fluency and comprehension. According to Vygotsky's (1978) sociocultural theory, social interaction is deeply rooted and plays an important role in cognitive development, where interacting with others supports language learning and improves proficiency. In games, repetition helps in reinforcing learning because players repeatedly engage with phrases, vocabulary, and grammatical structures improving learning by allowing players to learn in various contexts. This built-in repetitive nature of engaging gameplay helps ensure that language is practiced and retained, avoiding the monotony commonly associated with traditional language exercises. Baddeley's (1997) study on memory suggests spaced repetition significantly helps in retaining information over the long term. Finally, the use of multimodal support, including visual, auditory, and textual elements, addresses different learning styles, ensuring that information is presented according to each learner's cognitive preferences. As an example, a player can simultaneously see visual cues, listen to a character's voice, and read dialogue. As per Paivio's (1990) dual coding theory, combining visual and verbal information improves both comprehension and memory retention. Games naturally provide this rich input which makes learning more engaging, enjoyable and effective.

Socio-Cultural Learning Perspective
As shown in table 4 the three game elements are connected to the socio-cultural perspective which focuses on the importance of cultural context and social interaction in the learning process. Games often place learners in situations where they must communicate with other players or game characters in the target language, making interaction and collaboration particularly relevant to this perspective. Immersive storylines further enhance language learning by embedding language use within a rich cultural context. For instance, role-playing games introduce players to culturally specific terms, behaviors, and language usage, thereby promoting both language skills and cultural competence. Thorne et al. (2009) emphasize how virtual worlds and role-playing games offer contextualized opportunities for language practice in culturally meaningful scenarios. Contextual learning in games occurs when learners use language to solve problems or complete tasks, closely mirroring real-life communication, where language is a tool for action. According to Patel (2018) situated learning theory, knowledge is best acquired when it is contextualized, making the language learning experience in games more applicable to real-world applications. It is important to note that no specific game genre—whether simulation, role-playing, or adventure—has been found to favor the development of one particular language skill over another. Instead, it is the underlying digital game elements that consistently contribute to skill development. These elements create environments where learners engage naturally with language in meaningful, interactive ways, fostering language growth across various competencies.

Conclusion

Based on the inclusion criteria, the review identified 16 studies, which were primarily conducted in recent years due to increased interest in digital learning, the COVID-19 pandemic, and the corresponding shift in teaching methods. Many studies are from Asian countries like India, China, Taiwan, Iran, Japan, South Korea, and Malaysia. Most studies used quantitative methods, with tests as the most common data collection tool, to measure potential English language skill development among participants. Studies show that students who engage in language learning through gaming often exhibit greater improvements in vocabulary, grammar, and communication skills. The findings of this study are consistent with previous research indicating the positive impact of GBL on language acquisition. The overall insights derived from the studies included in this systematic review provide a comprehensive understanding of the potential of COTS games in language education, offering educators valuable insights into optimizing learning environments that are engaging, interactive, and conducive to language proficiency development. In essence, these findings highlight that integrating digital and technology-based learning in English language teaching is a promising method for transforming education and engaging learners in innovative ways, making exploration of DGBL's potential in language learning a logical step for the future of education.

This study revealed the positive impact of commercial games on language development. However, it faces limitations in generalizing findings, as the reviewed studies come from varied contexts including different countries, education systems, proficiency levels, and age groups. The impact of commercial video games varies significantly between adult learners and young children, making it difficult to apply findings universally to EFL and ESL contexts. In addition, the majority of studies on commercial games and language acquisition emphasize short-term effects, resulting in a lack of understanding of long-term effects on language development. The majority of studies reviewed focused primarily on vocabulary learning, with relatively less attention to other language skills, particularly in ESL contexts. This gap emphasizes the need for more comprehensive research that examines the long-term effects of COTS games across a wide range of language skills on diverse learner populations.

The highlighted limitations emphasize the potential benefits of integrating COTS games into language education for educators, game developers, and policymakers. To begin with, commercial games are effective for vocabulary acquisition. However, educators should delve into different game genres and their role in expanding the development of language skills. Next, comparative research on simulation, role-playing, and strategy games will help determine the most effective games for specific educational objectives. In addition, teachers require comprehensive training and guidance to effectively integrate commercial games into classrooms, align game content with learning objectives and students' skill levels, and adapt teaching strategies to different age groups. Also, game developers can work with educators to develop hybrid games that combine entertainment elements with educational features, to appeal to the general public and educational institutions. Such integrations help ensure that COTS games not only facilitate language skills development but also provide entertainment. Lastly, educators and should support informal language learning through gaming outside of

academic settings, encouraging engagement with English-speaking gaming communities in authentic settings. This method improves the learners' English language skills outside of formal education settings.

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