

Technology-Based Learning Media for EFL Class in Elementary School in Taiwan

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Abstract

Traditional learning media such as textbooks and flashcards are still widely used in EFL classrooms in Taiwanese elementary schools, but they often fail to engage digital-native students. This research aims to describe the use and challenges of digital-based learning media, including games, songs, and videos, in enhancing student engagement in EFL learning. The study uses a descriptive qualitative approach to explore the effectiveness of these media. Data were collected through questionnaires distributed to elementary school teachers in Taiwan. The results show that while digital-based media offer more interactive and engaging learning experiences, issues such as accessibility, technical difficulties, and student boredom still persist. The study concludes that integrating game-based, song-based, and video-based media can address these challenges and significantly improve student participation and learning outcomes in EFL classrooms.

Keywords: digital-based learning media, elementary school, EFL, Taiwan

Introduction

In elementary schools across Taiwan, traditional learning media remain widely used in English as a Foreign Language (EFL) classrooms (Tseng, 2021; Miauw, 2021; Chien, 2024). Teachers often rely on printed textbooks (Luo, 2023; Lai, 2025; Lin, 2025), workbooks, and flashcards to support language instruction. These materials are structured, easy to follow, and aligned with the national curriculum. In addition, blackboards and whiteboards are used frequently for grammar explanation and vocabulary drills. While effective to a certain extent, these conventional tools may not fully engage digital-native students or address diverse learning styles.

Modern classrooms are increasingly incorporating digital-based learning media to enhance the teaching and learning experience (Liao, 2024; Tin-Chang, 2023; Lee, 2023). These tools include online platforms, educational apps, interactive whiteboards, and multimedia content. Digital media allows for more interactive, personalized, and flexible instruction that caters to different student needs. With access to the internet and digital devices, students can learn English through videos, games, and virtual lessons. As a result, digital learning media are becoming a popular choice among educators aiming to make language learning more engaging and effective.

Despite its advantages, the use of digital-based media in EFL classrooms is not without challenges (Alice-CHen, 2023; Lin, 2022; Tseng, 2024). One common issue is the difficulty of integrating technology effectively, especially for teachers who are not tech-savvy. Access to digital devices and reliable internet connections can be limited in some schools, particularly in rural areas. Additionally, while digital media can be engaging at first, students may quickly lose interest if the content is repetitive or not interactive enough. These factors contribute to lower student engagement and reduce the overall effectiveness of digital learning in the classroom.

To address the challenges of digital learning media, teachers can incorporate game-based learning to make complex material more accessible and enjoyable (Hung, 2023; Hsu, 2023; Tang, 2023). Games foster active learning and increase student motivation, especially when the content is challenging. For classes where students show signs of boredom or disengagement, song-based learning media can be used to make the environment more lively and interactive. Songs help reinforce language patterns, pronunciation, and vocabulary through rhythm and repetition. Additionally, video-based learning can provide an easily accessible and visually rich medium for instruction, making lessons more dynamic and inclusive for all students.

This research aims to describe the use and challenges of digital-based learning media, including games, songs, and videos, in enhancing student engagement in EFL (English as a Foreign Language) learning among elementary school students in Taiwan. To guide this investigation, the study focuses on three main research questions. First, how are digital-based learning media—such as educational games, songs, and videos—currently implemented in EFL classrooms? Second, what challenges do both teachers and students encounter when using these types of media in language instruction? Third, how do these digital media formats influence student engagement and participation in EFL learning activities? By answering these questions, the study seeks to provide insights into the practical application and effectiveness of digital media in improving language education at the elementary level.

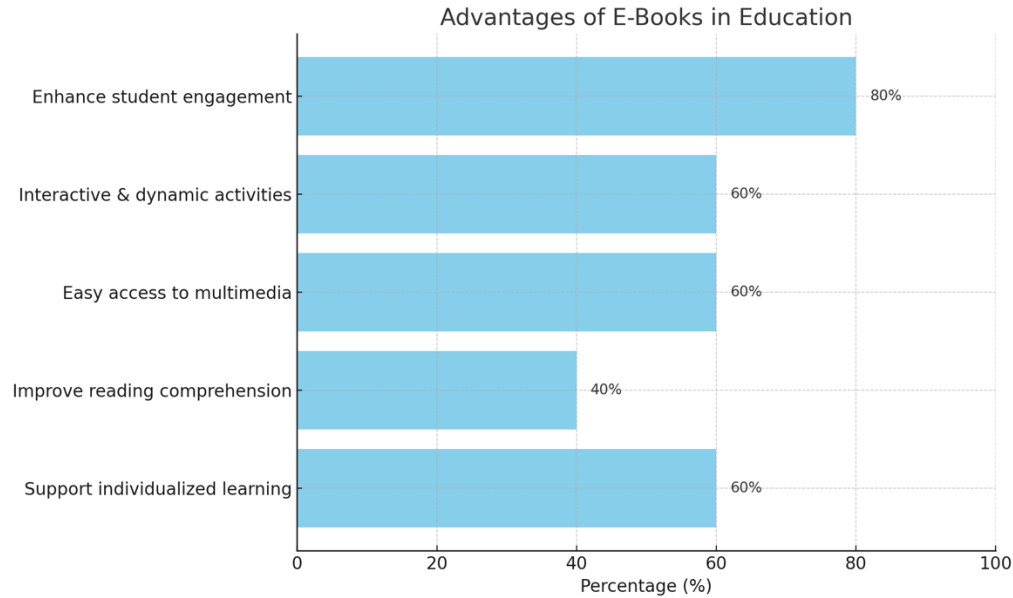
Methodology

This study employs a descriptive qualitative research design to explore the use and challenges of digital-based learning media in EFL classrooms. The primary method of data collection is a questionnaire distributed to five elementary school teachers in Taiwan who are involved in teaching English as a Foreign Language. The questionnaire is structured into three main sections, each focusing on a specific type of digital-based media: game-based learning media, song-based learning media, and video-based learning media. Teachers were asked to share their experiences, perceptions, and challenges in using these media formats. The data collected from the questionnaires are analyzed using thematic analysis to identify recurring patterns, key themes, and insights regarding the effectiveness and obstacles of implementing digital-based learning tools in the classroom.

Result and Discussion

Result

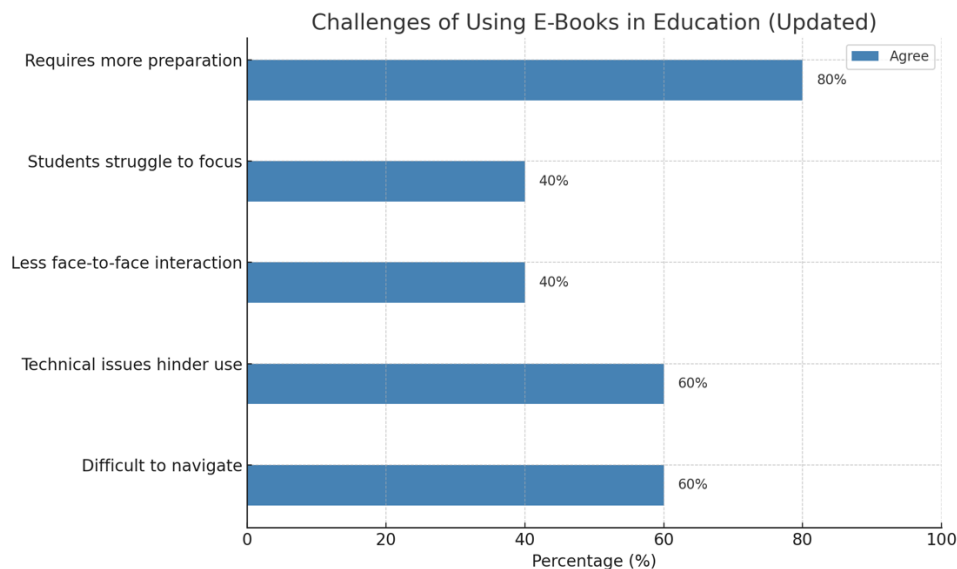
e-book advantages



Picture 1 advantages of e-book

The chart titled *"Advantages of E-Books in Education"* presents the perceived benefits of e-books based on percentage responses. The most significant advantage is enhancing student engagement, acknowledged by 80% of respondents. Following this, 60% of respondents highlight three key benefits: the ability of e-books to support interactive and dynamic learning activities, provide easy access to a variety of multimedia content, and support individualized learning. Meanwhile, 40% of respondents note that e-books contribute to improving students' reading comprehension. Overall, the data suggests that e-books are especially valued for their potential to foster engagement and support diverse, personalized learning experiences in educational settings.

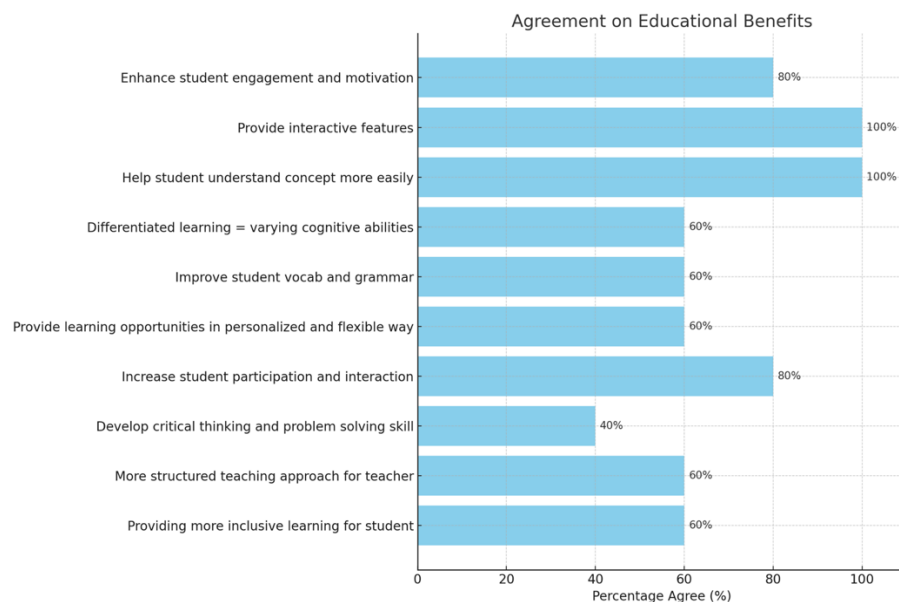
Disadvantage ebooks



Picture 2 challenges of using e-book

The chart titled *"Challenges of Using E-Books in Education (Updated)"* illustrates several commonly reported difficulties associated with e-book use in educational settings. The most significant challenge, as agreed upon by 80% of respondents, is that e-books require more preparation from teachers, highlighting the increased planning and effort needed to integrate digital content effectively. Both technical issues and difficulty in navigation were each acknowledged by 60% of respondents, indicating that usability and technological reliability remain key concerns. Additionally, 40% of respondents agree that e-books are less effective in promoting face-to-face interaction and that students struggle to focus when using them. This data suggests that while e-books offer many benefits, their implementation also presents specific challenges that must be addressed, particularly in terms of teacher readiness, platform usability, and maintaining student engagement.

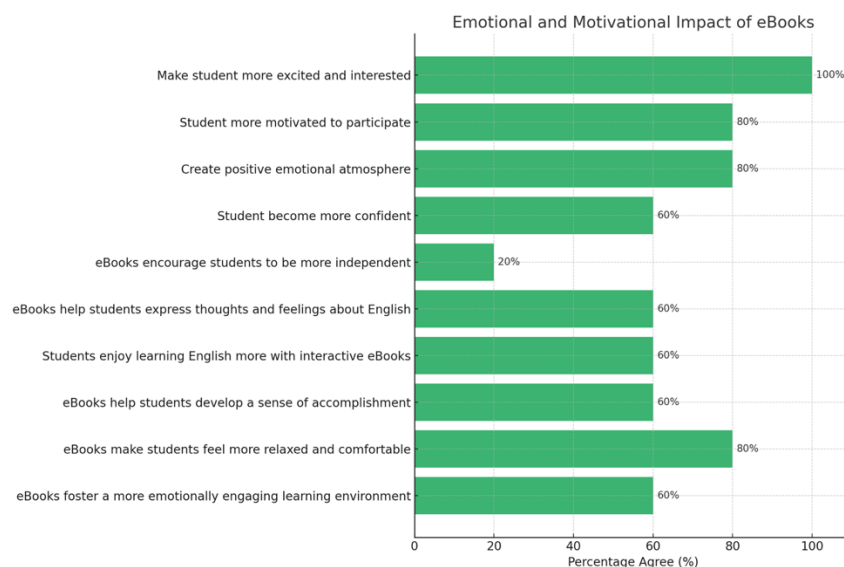
Cognitive aspect of e-book



Picture 3 cognitive aspect of e-book

The horizontal bar chart illustrates the percentage of agreement on various educational benefits among respondents. The highest level of agreement (100%) was observed for statements highlighting the ability to provide interactive features and to help students understand concepts more easily. These were followed by strong agreement (80%) on enhancing student engagement and motivation, as well as increasing student participation and interaction. A moderate level of agreement (60%) was recorded for five areas: differentiated learning for varying cognitive abilities, improving student vocabulary and grammar, offering personalized and flexible learning opportunities, providing a more structured teaching approach, and promoting inclusive learning environments. The lowest agreement (40%) was found in the area of developing critical thinking and problem-solving skills. Overall, the results emphasize a strong consensus on the importance of interactivity and conceptual clarity in education, while indicating potential areas for further development in fostering higher-order thinking skills.

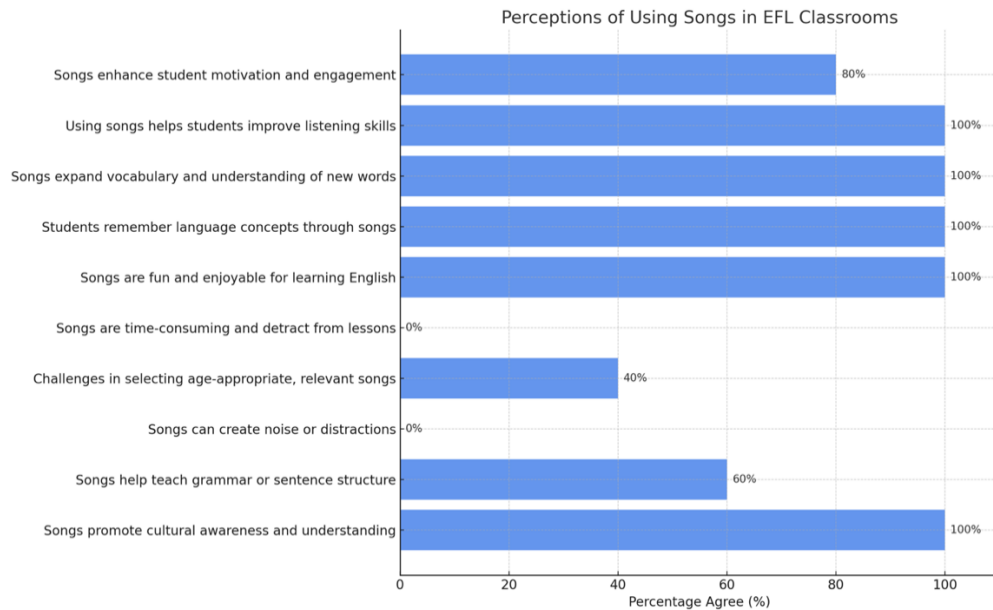
Affective aspect of e-book



Picture 4 affective aspect of e-book

The horizontal bar chart presents respondents' levels of agreement regarding the emotional and motivational impact of using eBooks in English language learning. The highest agreement (100%) was observed for the statement that eBooks make students more excited and interested in learning. High levels of agreement (80%) were also recorded for statements indicating that students are more motivated to participate, that eBooks create a positive emotional atmosphere, and that they help students feel more relaxed and comfortable while learning English. Moderate agreement (60%) was found in several areas: increased student confidence, enhanced ability to express thoughts and feelings about English, greater enjoyment through interactivity, a stronger sense of accomplishment, and a more emotionally engaging learning environment. Notably, only 20% of respondents agreed that eBooks encourage students to become more independent in their learning. Overall, the data suggest that eBooks are widely perceived as effective tools for enhancing motivation, emotional engagement, and enjoyment in language learning, though their role in fostering learner autonomy may require further support or emphasis.

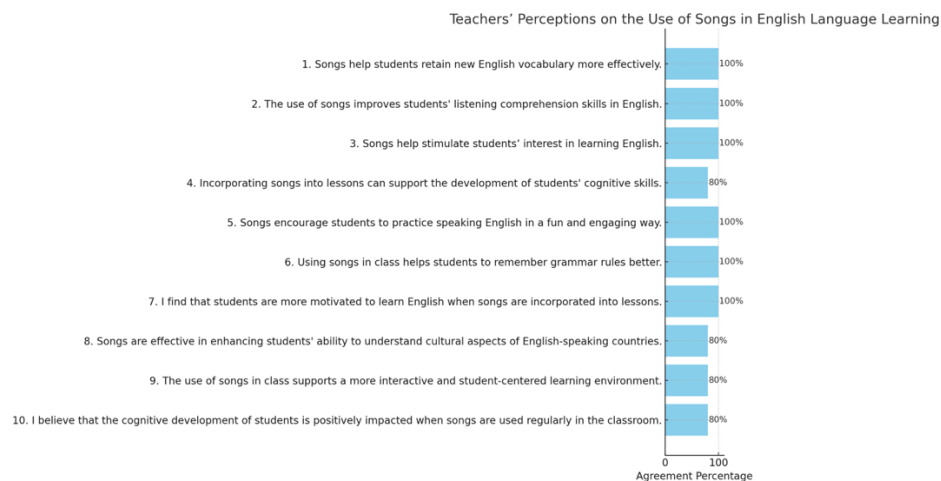
advantage and disadvantage of song



Picture 5 advantage and disadvantage of song

The horizontal bar chart displays educators' perceptions of using songs in English as a Foreign Language (EFL) classrooms. A significant majority (100%) agreed that songs help improve listening skills, expand vocabulary, aid memory of language concepts, provide enjoyable learning experiences, and promote cultural awareness of English-speaking countries. Additionally, 80% of respondents agreed that songs enhance student motivation and engagement. A moderate 60% felt that songs are useful for teaching grammar or sentence structure, while 40% acknowledged facing challenges in selecting songs that are age-appropriate and aligned with the curriculum. Notably, 0% agreed with the negative views that songs are time-consuming or that they create noise and distractions in the classroom. These results strongly suggest that songs are widely regarded as effective, engaging, and enriching tools in EFL instruction, with minimal perceived drawbacks.

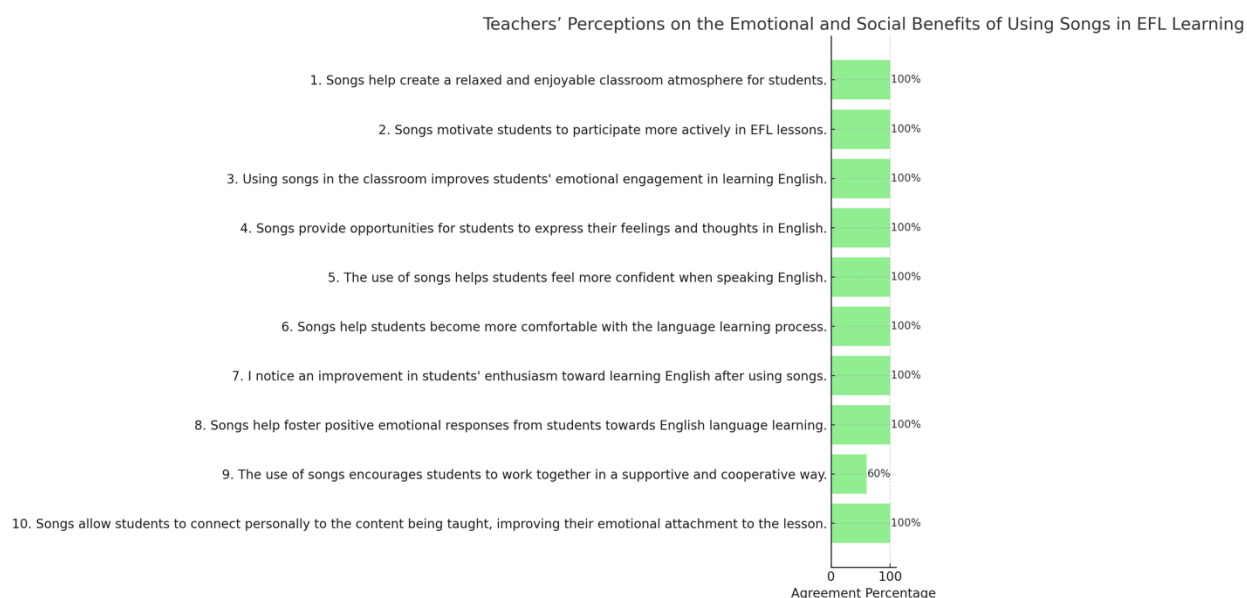
Cognitive aspect of song



Picture 6 Cognitive aspect of song

The horizontal bar chart presents the perceptions of teachers regarding the integration of songs in English language instruction. The data indicates a strong consensus among respondents, with 100% agreement on seven out of the ten statements. These include the perceived effectiveness of songs in enhancing vocabulary retention, listening comprehension, student interest, speaking practice, grammar retention, motivation, and the promotion of a more interactive, student-centered learning environment. Notably, 80% of respondents agreed with statements concerning the role of songs in supporting cognitive development and fostering an understanding of cultural aspects associated with English-speaking countries. These slightly lower percentages suggest a degree of reservation or variability in beliefs regarding the deeper cognitive and cultural impacts of using songs in the classroom. Overall, the results reflect a highly favorable view among teachers toward the pedagogical value of songs, particularly in terms of engagement, linguistic skills development, and classroom dynamics. The findings support the argument for incorporating music-based activities as a meaningful component of English language pedagogy.

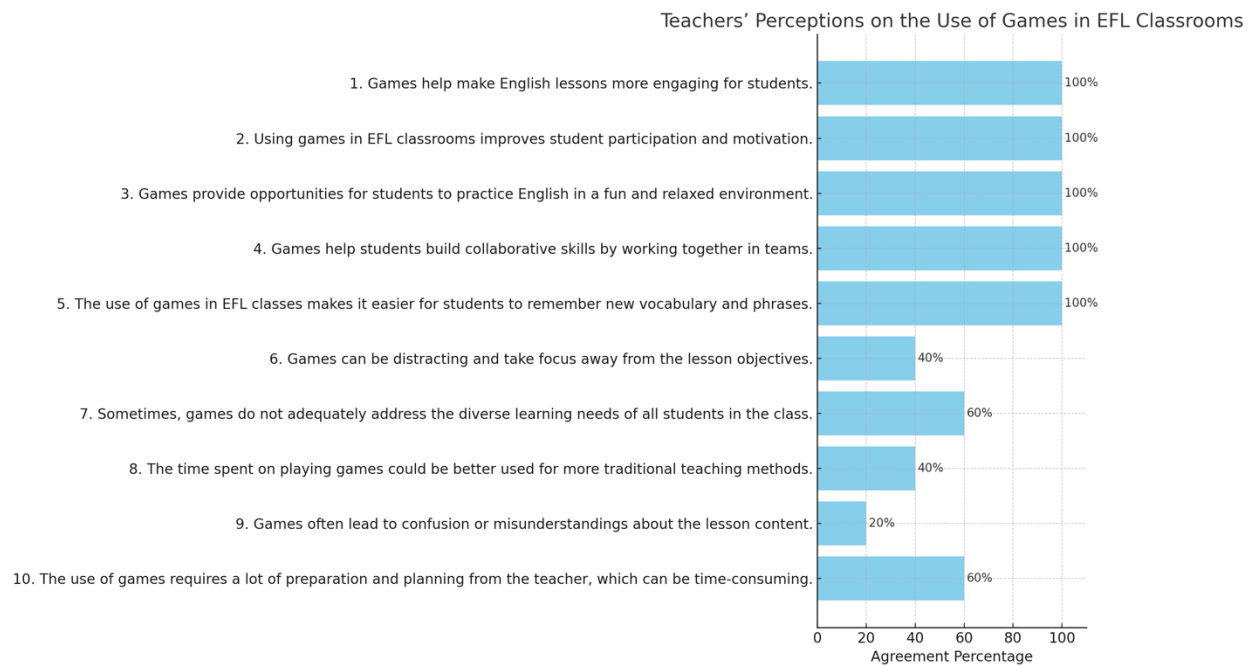
Affective aspect of song



Picture 7 Affective aspect of song

The horizontal bar chart illustrates teachers' perceptions regarding the emotional and social impacts of integrating songs into English as a Foreign Language (EFL) instruction. The data reveals unanimous agreement (100%) among respondents on nine out of ten statements. These include the belief that songs help create a relaxed and enjoyable classroom atmosphere, motivate active student participation, enhance emotional engagement, support self-expression, increase students' confidence and comfort in language learning, boost enthusiasm, foster positive emotional responses, and strengthen personal connections to lesson content. One statement—concerning the role of songs in promoting cooperative and supportive peer interaction—received a slightly lower agreement rate of 60%. This suggests that while most teachers recognize the social and emotional advantages of using songs, perceptions may vary in relation to their impact on collaborative student dynamics. Overall, the findings highlight a strong consensus among educators regarding the emotional and motivational value of songs in EFL contexts. The consistent high levels of agreement emphasize the potential of musical activities to enhance affective engagement and create a more supportive, enjoyable learning environment.

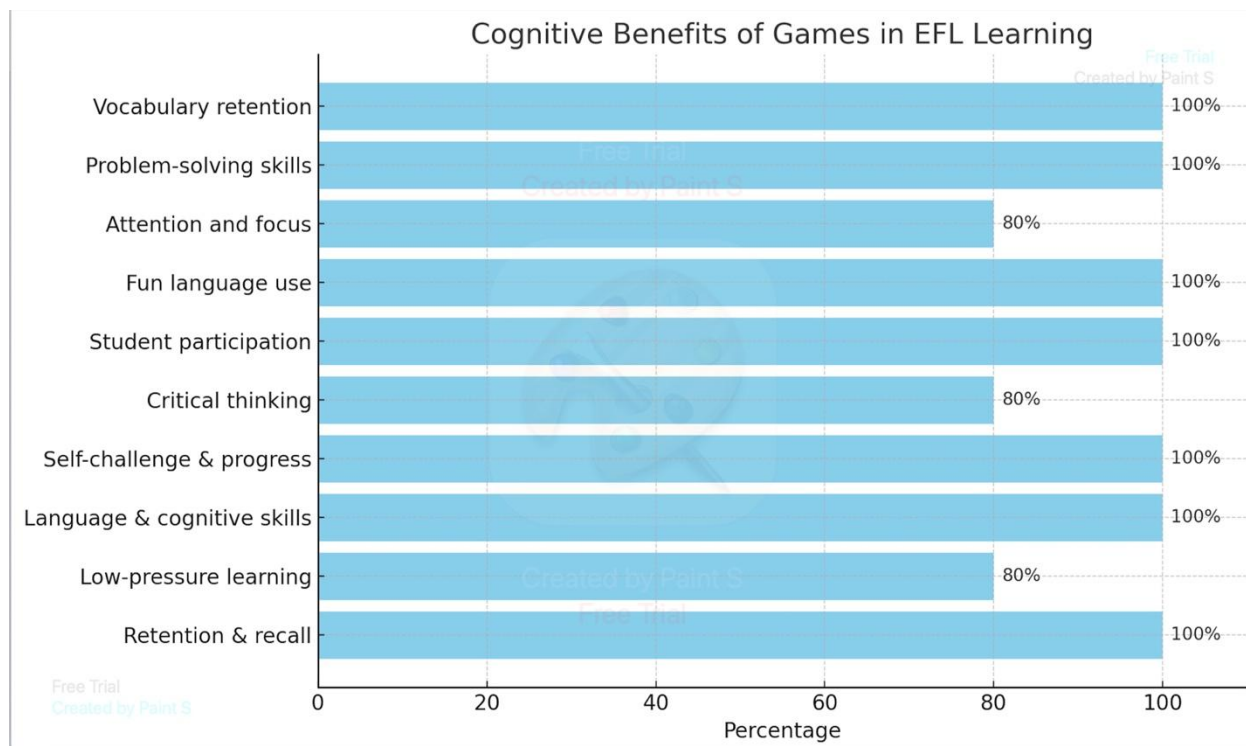
Advantage of game



Picture 8 advantage of game

The horizontal bar chart presents teachers' perceptions regarding the effectiveness and challenges of using games in English as a Foreign Language (EFL) classrooms. A high level of agreement (100%) was recorded for the first five statements, reflecting a unanimous belief that games enhance lesson engagement, improve student motivation and participation, facilitate language practice in a relaxed setting, promote teamwork, and aid vocabulary retention. In contrast, responses to the remaining five statements indicate varying degrees of concern about the limitations and drawbacks of using games. Sixty percent of respondents agreed that games may not adequately address the diverse learning needs of all students and that their use can be time-consuming due to the planning required. Meanwhile, 40% believed that games could distract from lesson objectives or that instructional time might be better allocated to traditional teaching methods. Only 20% of respondents felt that games often cause confusion or misunderstandings about the lesson content. These findings suggest that while teachers overwhelmingly recognize the pedagogical value of games in promoting engagement and active learning, they also acknowledge certain practical and instructional challenges. The data underscores the importance of balancing interactive, game-based activities with structured pedagogical planning to optimize their effectiveness in EFL classrooms.

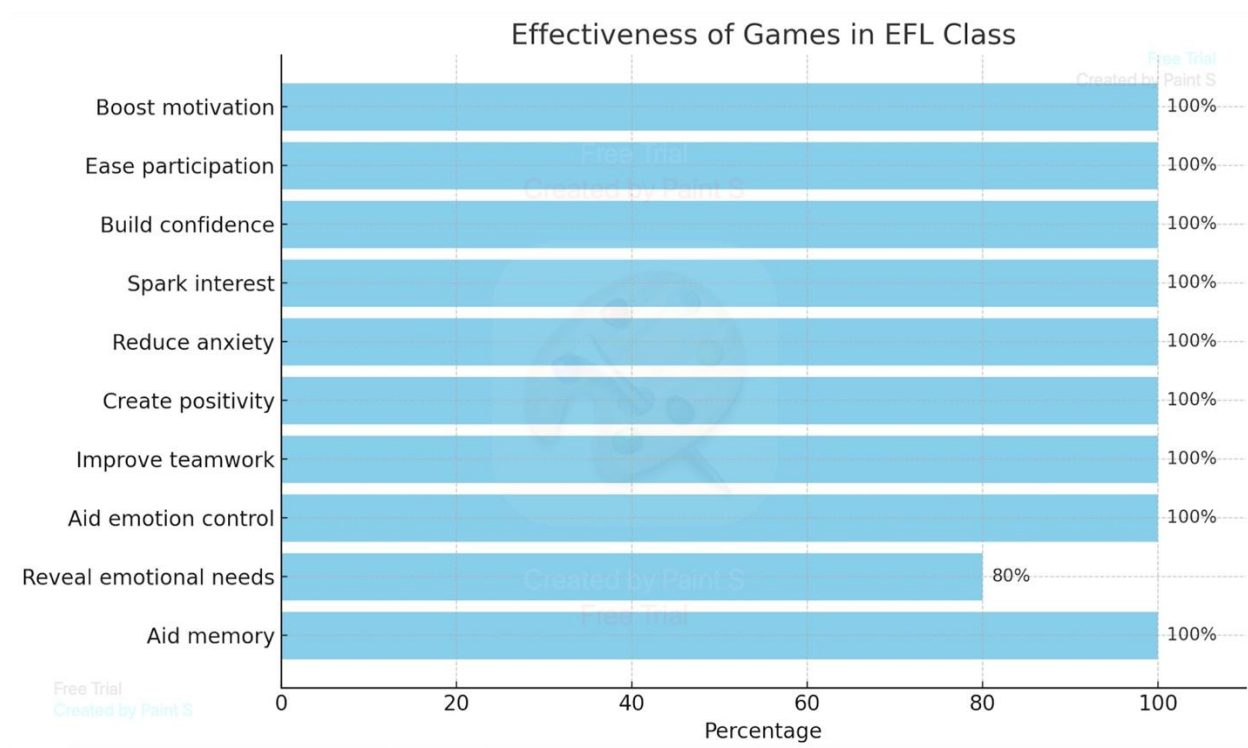
Cognitive aspect of game



Picture 9 cognitive aspect of game

The horizontal bar chart presents the cognitive benefits of using games in English as a Foreign Language (EFL) learning, with each benefit labeled by its corresponding effectiveness percentage. Vocabulary retention (100%), problem-solving skills (100%), fun language use (100%), student participation (100%), self-challenge and progress (100%), language and cognitive skills (100%), and retention and recall (100%) all show maximum effectiveness. Meanwhile, attention and focus (80%), critical thinking (80%), and low-pressure learning (80%) are rated slightly lower but still indicate notable benefits. These results highlight that game-based activities in EFL classrooms significantly support both language development and cognitive growth. Overall, the high percentages suggest that games are a powerful and versatile tool for enhancing students' learning outcomes in EFL education.

Affective aspect of game



Picture 10 affective aspect of game

The chart illustrates the perceived effectiveness of games in EFL classes across eleven key aspects, along with their respective percentages. Games are considered 100% effective in boosting motivation, easing participation, building confidence, sparking interest, reducing anxiety, creating positivity, improving teamwork, aiding emotion control, and aiding memory. The only aspect with a slightly lower percentage is revealing emotional needs, which stands at 80%. These results highlight the strong overall impact of games in EFL classrooms, particularly in supporting emotional, social, and cognitive development.

Discussion

Implementation of digital-based learning media in EFL classrooms

In Taiwanese elementary EFL classrooms, digital-based learning media are increasingly used to supplement traditional tools like textbooks, workbooks, and flashcards (Yang, 2023; Li, 2022; Hwang, 2024). While these conventional resources are still prevalent due to their alignment with the national curriculum, they often fall short in engaging digital-native students. As a result, educators are turning to more interactive formats such as educational games, videos, songs, eBooks, and multimedia platforms to enhance the language learning experience.

Educational games are commonly implemented to make the classroom environment more dynamic and enjoyable (Wang, 2021; Tsai, 2021; Sandy, 2023). Teachers use them to foster student participation, promote teamwork, and provide a relaxed setting for vocabulary and grammar practice. These games support both linguistic and cognitive development, making them suitable for active learning and student-centered teaching. Their interactive nature encourages self-challenge, improves retention, and keeps students engaged throughout the lesson.

Songs and videos also play an integral role in EFL classrooms (Pham, 2024; Huang, 2024; Chien, 2022). Songs are used to teach vocabulary, listening comprehension, pronunciation, and grammar in a rhythmic and enjoyable way. They are appreciated for their ability to create a fun, emotionally engaging atmosphere while promoting cultural awareness. Videos and eBooks are used to provide visual stimulation and individualized instruction. These tools help accommodate various learning styles, support flexible pacing, and improve conceptual understanding, making digital media a powerful complement to traditional instruction.

Challenges encounter by both teachers and students when using these types of media in language instruction

Although digital learning media offer significant benefits, their integration into EFL instruction is accompanied by several challenges (Chang, 2024; Tseng, 2021; Lin, 2021). One major issue is the technological readiness of schools and teachers. Many educators, especially those less experienced with digital tools, find it difficult to effectively navigate and implement these resources. Technical problems, including unreliable internet connections and a lack of digital devices, are common in certain areas—particularly in rural schools.

Teachers also face increased workload and preparation time when using digital media (Luo, 2021; Chien, 2022; Huang, 2025). According to the study, 80% of respondents reported that using eBooks and other digital tools demands more planning and effort compared to traditional methods. This extra preparation includes sourcing age-appropriate content, aligning materials with the curriculum, and learning to operate new platforms. For songs, some teachers find it difficult to select materials that are both engaging and instructionally relevant, noting that not all musical content is suitable for the classroom context.

From the students' perspective, sustained engagement and focus can become problematic (Tseng, 2021; Chang, 2024; Chien, 2022). While digital tools initially capture students' interest, repetitive or poorly designed content can lead to boredom or distraction. Some teachers (40%) observed that eBooks, in particular, may reduce students' attention spans and limit face-to-face interaction. Additionally, while games are engaging, some educators noted that they can be time-consuming to manage and may not always align with lesson objectives, which can impact the overall effectiveness of language instruction.

Influence of digital media formats on student engagement and participation in EFL learning activities

Digital media formats have a strong and largely positive influence on student engagement and participation in EFL learning (Chen, 2025; Chiu, 2025; Tsao, 2021). Teachers widely reported that game-based learning enhances students' motivation, boosts interest, and fosters a fun, low-pressure learning environment. Games were particularly effective in increasing participation, promoting teamwork, and improving vocabulary retention. Students also benefit cognitively through activities that build problem-solving, memory, and critical thinking skills.

Songs are another powerful tool for boosting emotional and active engagement in the classroom (Chien, 2022; Lo, 2024; Tang, 2023). Teachers unanimously agreed that songs create a relaxed and enjoyable atmosphere that motivates students to participate. Songs support self-expression, build

confidence, and increase students' comfort with the English language. In addition, they help foster emotional connections to lesson content and promote a more student-centered and inclusive environment. These emotional benefits contribute directly to greater willingness to speak, listen, and interact in English.

Videos and eBooks further support engagement by making learning more visually rich and interactive (Shen, 2023; Su, 2021; Wu, 2022). EBooks, in particular, were seen as effective for enhancing student excitement, motivation, and comfort (Fang, 2025; Chen, 2023; Lai, 2023). They allow for flexible and personalized learning, enabling students to proceed at their own pace. While they are less effective at encouraging learner autonomy, they still offer a range of benefits such as boosting comprehension and catering to different learning preferences. Overall, these digital formats contribute to a more engaging, motivating, and effective EFL classroom experience.

Comparison with prior studies

The findings of this study largely align with existing literature on the benefits of digital learning media in EFL contexts (Ayuningtyas, 2023; Wati, 2024; Wijaya, 2024), particularly concerning student engagement (Nguyen, 2021; Wang, 2022; Pang, 2022) and motivation (Iswadi, 2021; Laksmi, 2021; Idaryani, 2021). Prior research consistently highlights how interactive digital tools, such as educational games (Patra, 2022; Habeb, 2023; Mohamed, 2021), songs (Putri, 2022; Rahman, 2024; Putra, 2022), and videos (Audina, 2022; Apoko, 2022; Purwanti, 2022), significantly enhance learner interest and participation. For instance, the high agreement (100%) among teachers in this study that games make English lessons more engaging and improve student participation and motivation corroborates numerous studies emphasizing game-based learning's positive impact on affective domains. Similarly, the unanimous consensus on songs improving listening skills, expanding vocabulary, and creating an enjoyable learning environment resonates with established pedagogical views on the efficacy of music in language acquisition. The positive emotional and motivational outcomes observed with eBooks, such as increased excitement and comfort, also echo prior studies on the role of multimedia in fostering a positive learning atmosphere.

However, this study also identified challenges that are frequently reported in the broader literature regarding technology integration in education (Marzuki, 2025; Han, 2022; Hafour, 2024). The issues of increased teacher preparation time, technical difficulties, and limited access to devices or reliable internet connections are recurrent themes in research on digital learning implementation (Dağgöl, 2023; Ginusti, 2023; Oktoma, 2023). The finding that 80% of respondents felt eBooks require more preparation time aligns with studies discussing the demanding nature of designing effective digital learning experiences. Furthermore, concerns about students struggling to focus or losing interest with digital content, as noted by 40% of teachers regarding eBooks, are consistent with observations in other studies about potential distractions and the need for carefully designed, non-repetitive digital activities to maintain sustained engagement.

While this study strongly supports the benefits of digital media for engagement and basic language skills, it also presents a finding that warrants further discussion in comparison to prior studies: the relatively lower impact on higher-order thinking skills (Millatina, 2024; Mansor, 2021; Hishamuddin, 2023; Samadi, 2024). Although games were perceived as highly effective for problem-solving skills (100%), the agreement on developing critical thinking was slightly lower at 80%. More notably,

for eBooks, only 40% of respondents agreed that they develop critical thinking and problem-solving skills, and only 20% felt they encouraged student independence in their learning. This contrasts with some proponents of digital learning who argue for its potential to foster deeper cognitive processes and learner autonomy through interactive and personalized experiences. This anomaly suggests that while digital tools effectively enhance engagement and foundational skills, their current implementation or design in Taiwanese elementary EFL classrooms may not be fully leveraging their potential for advanced cognitive development or promoting self-directed learning as effectively as some research might suggest, pointing to a potential area for pedagogical refinement or different types of digital activities.

It is important to acknowledge the limitations of this study's sample size, which consisted of only five elementary school teachers in Taiwan. This small sample, combined with a descriptive qualitative research design, means that the findings may not be generalizable to all EFL classrooms or teachers in Taiwan, let alone other regions. The insights gathered reflect the specific experiences and perceptions of a limited group of educators. Therefore, while the results provide valuable qualitative data and a deeper understanding of the phenomena within this specific context, they cannot be broadly applied without further research involving larger, more diverse samples and potentially different methodologies, such as quantitative or mixed-methods approaches, to confirm these observations on a wider scale.

Conclusion

This study investigated the implementation, challenges, and influence of digital-based learning media—specifically games, songs, and videos—in enhancing student engagement in EFL classrooms at elementary schools in Taiwan. The findings indicate that while traditional teaching materials remain prevalent, digital media are increasingly integrated to make learning more interactive and engaging for digital-native students. The research highlights a strong consensus among teachers regarding the positive impact of games and songs on student motivation, participation, vocabulary retention, and creating a relaxed learning environment. eBooks also contribute significantly to student excitement and comfort. These results affirm the pedagogical value of incorporating diverse digital tools to foster a more dynamic and student-centered EFL learning experience.

Based on these findings, several recommendations can be made to optimize the use of technology-based learning media in EFL classrooms. First, comprehensive teacher training programs are essential to enhance educators' digital literacy and equip them with the skills to effectively integrate and navigate various digital tools. Second, there should be a broader adoption and strategic implementation of song-based and game-based learning activities, given their demonstrated effectiveness in boosting student engagement, motivation, and language acquisition. Finally, robust infrastructure support is crucial, including ensuring reliable internet access and providing adequate digital devices in all schools, especially in rural areas, to overcome technical barriers that currently hinder effective digital integration.

For future research, it is recommended to expand the scope of investigation to include a larger and more diverse sample of teachers and students to enhance the generalizability of the findings. A longitudinal research design could provide deeper insights into the long-term effects of digital

media on student learning outcomes and engagement over time. Furthermore, incorporating experimental comparisons with control and treatment groups would allow for a more robust analysis of the causal relationships between the use of digital media and specific learning achievements, including the development of higher-order thinking skills such as critical thinking and problem-solving, which showed varying levels of agreement in this study.

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