Games Preferences for Vocabulary Learning Opportunities among Young ESL Learners in Secondary School Education in Malaysia

Paramasivam Muthusamy[1], Atieh Farashaiyan[2], Athar Nasek[3], Hui Zhang[1], Chen Sun[1], Heng Xu[1], Jiao Li[1], Junying Du[1], Qiao Mu[1]

[1] Faculty of Education and Liberal Arts, INTI International University, Selangor, Malaysia

[2] Faculty of Literaure and Humanities, Zand Institute of Higher Education, Shiraz, Iran

[3] Faculty of Literaure and Humanities, Shiraz University, Shiraz, Iran

Correspondence: Atieh Farashaiyan, Faculty of Literaure and Humanities, Zand Institute of Higher Education, Shiraz, Iran. E-mail: atieh_farashaiyan@yahoo.com

Received: March 7, 2025 Accepted: May 21, 2025 Online Published: September 29, 2025

doi:10.5430/wjel.v15n8p369 URL: https://doi.org/10.5430/wjel.v15n8p369

Abstract

This quasi-experimental study aimed to investigate which mode of language games—paper-based or computer-based—is preferred by Form Four ESL learners for acquiring vocabulary, particularly at the 2000-word level. A total of 70 students participated in the study, divided into two groups of 35 each. Experimental Group 1 first received Treatment A (computer-based games), followed by Treatment B (paper-based games), while Experimental Group 2 experienced the treatments in reverse order. By the end of the experiment, both groups were exposed to both vocabulary-learning methods. A questionnaire and semi-structured interviews were used to assess the participants' preferences for acquiring vocabulary. The data were presented using a descriptive analysis as percentages. The results indicated that computer-based games were generally preferred over paper-based games for vocabulary enhancement. However, paper-based games were not entirely disregarded by the participants.

Keywords: vocabulary, game preference, computer-based, paper-based, secondary school, education, learning opportunities

1. Introduction

1.1 Background of the Study

Words serve as essential tools for communication, enabling individuals to convey their messages effectively. When ideas and messages are expressed clearly and comprehensibly, they reflect adequate and acceptable vocabulary knowledge. Many language learners recognize how limited vocabulary can hinder their communication ability (Calafato, 2023; Raimes, 1985; Rød & Calafato, 2024; Vijayaratnam et al., 2025). This challenge is especially evident among less proficient writers who struggle to articulate their ideas due to insufficient vocabulary, resulting in incomplete or unclear messages. Similarly, learners with limited vocabulary face significant challenges in their educational progress. In this regard, a lack of vocabulary knowledge is most apparent in the productive skills of speaking and writing (Read, 2000), while it also hinders learners' ability to extract meaning from reading texts. Consequently, vocabulary acquisition is increasingly recognized as a critical aspect of language learning (Lee & Lu, 2023).

Vocabulary, or lexicon, plays a central role in language acquisition and learning (Aminath et al., 2024; Farashaiyan et al., 2017, Calafato & Clausen, 2024; Laufer, 2002). Mastery of vocabulary involves more than simply knowing a large number of words; learners must also be able to access and use these words effectively in both spoken and written tasks (Read, 2000). Additionally, fostering vocabulary development should be a key focus across academic disciplines, as a rich vocabulary is essential for listening, speaking, reading, and writing in all curriculum areas (Edigar, 1999; Uztosun & Kök, 2023). A limited vocabulary hinders learners' writing efforts (Raimes, 1985), as they often struggle to retrieve the necessary words to articulate their thoughts. In evaluating written work, vocabulary is one of the key criteria, with lexical richness serving as a measure of the variety and sophistication of vocabulary used in L2 writing (Engber, 1993; Laufer & Nation, 1995). Lexical richness reflects how learners can incorporate diverse vocabulary into their written tasks (Kumar & Vairavan, 2024; Nyamupanemunda & Deshinta, 2022).

Earlier methods for measuring lexical richness, such as lexical originality, lexical density, lexical sophistication, and lexical variation, have been criticized for being neither valid nor reliable (Laufer, 1994) due to significant flaws. To address these limitations, Laufer and Nation (1995) developed the Lexical Frequency Profile (LFP), a tool designed to measure the percentage of words learners use at different vocabulary frequency levels in an essay. The LFP frequency measure provides insights into a learner's vocabulary size, while the range indicates whether learners effectively utilize their vocabulary knowledge (Barjestesh et al., 2025; Laufer & Nation, 1995; Muthusamy et al., 2025).

As such, it is essential to approach vocabulary development seriously and implement strategies that engage learners effectively. These strategies should be creative, imaginative, and innovative, incorporating activities that inspire excitement and enjoyment. Additionally,

they should motivate learners to actively participate in vocabulary learning, enabling them to enhance their skills and use vocabulary more effectively in speaking and writing. E-learning offers a promising avenue, not only meeting user expectations but also serving as an innovative approach to language learning (Azabdaftazi & Mozaheb, 2012; Khong et al., 2025). In addition, the studies demonstrated that using mobile phones improved vocabulary acquisition more effectively than traditional flashcards. As part of broader research on vocabulary learning strategies, this study focuses on exploring how game-based techniques can enhance the lexical proficiency of ESL learners.

1.2 Objective of the Study

The objective of this study is to investigate whether learners can enhance their vocabulary through vocabulary games using two different modes: computer-based and paper-based games. Specifically, the study seeks to answer the research question:

1.3 Research Question of the Study

1. Why do learners prefer a certain mode of vocabulary games?

1.4 Significance of the Study

This research will guide future researchers in understanding and studying vocabulary-learning methods, including both computer-based and paper-based games. In addition, this study will inform curriculum and materials developers about using these two methods in language learners' coursebooks.

2. Literature Review

2.1 Theoretical Framework

This study was guided by the input-process-output model developed by Garris et al. (2002). The model consists of three components: input, process, and output. It demonstrates the effectiveness of learning vocabulary through computer-based and paper-based games. The input domain includes various language games that learners can play during their free time or in the classroom. While engaging with these games, learners go through the process domain, referred to as the Game Cycle. This cycle involves user judgment or reactions, user behaviour, and system feedback or reflections. A key aspect of gameplay is that learners typically do not stop after playing once but continue repeatedly, as games are often engaging, immersive, and even addictive (Garris et al., 2002). Learners' high motivation drives this sustained engagement**.**

During gameplay, learners assess the game by judging whether it is fun, interesting, enjoyable, or engaging. Positive judgments encourage positive behaviour and motivate learners to stay engaged with the game. Highly motivated learners are more likely to play for extended periods than less motivated ones (Garris et al., 2002). Learners' interest and involvement in the games reflect their behaviour, while system feedback or their reflections on the game influence the judgment-behaviour-feedback cycle.

Learners' feedback about their progress toward learning goals inspires more efforts and focus on tasks (Garris et al., 2002). This engagement during gameplay ultimately leads to specific learning outcomes, as illustrated in Figure 1. Cognitive learning outcomes are evident when learners apply newly acquired vocabulary in their writing.

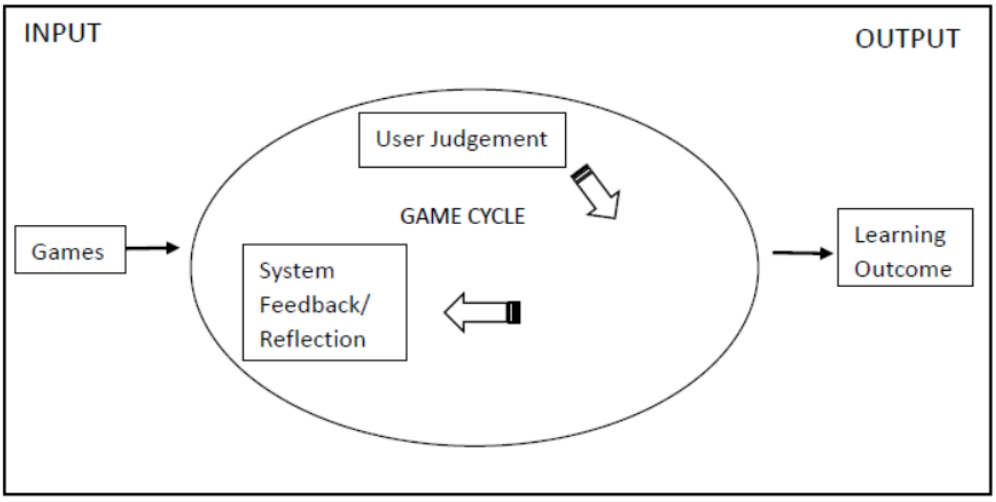

Figure 1. Input-process-output game model (adapted from Garris *et al*., 2002, p.456)

2.2 Past Studies

In this section, first, studies related to vocabulary acquisition, language games, and computer-based games are discussed, followed by local and global research.

2.2.1 Vocabulary Acquisition

Mastering a word requires a thorough understanding of various aspects of word knowledge before achieving complete proficiency (Nation, 2001; Schmitt, 2000). However, the exact process of acquiring words remains unclear (Nation, 1995). In this regard, Nation (2000) summarised the progression of L2 vocabulary development as follows:

In the literature, an overall theory of vocabulary acquisition does not exist. As such, we possess general information about vocabulary acquisition from some studies. We certainly do not know the acquisition stages that particular words might move through. Additionally, we do not know how the learning of some words affects how other words are learned (Schmitt, 1995, p.5). Vocabulary acquisition involves two key processes: explicit or intentional learning, which focuses on studying words, and incidental learning through exposure, which emphasizes using the language rather than deliberately learning it (Schmitt, 2000). Similarly, language learning extends beyond merely acquiring vocabulary, particularly for academic purposes. It is a dynamic process influenced by numerous factors, with vocabulary acquisition being just one component.

No one possesses complete knowledge of the English vocabulary, as understanding individual words enhances both receptive and productive language skills. For second language learners, acquiring approximately 3,000 high-frequency words is essential (Nation & Waring, 1997). Additionally, learners must develop strategies to comprehend and learn low-frequency words to become proficient language users (Nation, 1990). Learning vocabulary from context has proven to be effective, as native speakers acquire most of their vocabulary in this manner (Krashen, 1985; Sternberg, 1987). Other methods of vocabulary acquisition include problem-solving (Joe et al., 1996) and formal classroom activities where vocabulary learning is not the primary focus. Furthermore, vocabulary learning tends to be more effective when learners focus on meaning rather than form (Krashen, 1985).

2.2.2 Language Games

Language games are more than simple ice-breaking activities or fillers used at the start or end of a lesson; they hold significant pedagogical value. While incorporating games into language learning brings fun and laughter, they also help learners effectively acquire the target language (Lee, 1995). This effectiveness stems from the fact that games, especially in pair or group activities, encourage learners to communicate naturally and meaningfully in the target language (Oller, 1993).

Language learning becomes more meaningful when games are integrated into appropriate contexts or situations. Learners are more likely to grasp the language's meaning through games than through traditional classroom drills. Similarly, to foster effective communication, language should be learned as part of everyday experiences rather than in isolation. A well-designed game can enhance the learning process by providing visualisation and breaking the monotony of routine activities (Littlewood, 1981, p.38).

Hadfield (1999, pp. 102-104) further classifies the games into two main classifications: linguistic games and communicative games. Linguistic games focus on accuracy, while communicative games concentrate on the successful exchange of information and ideas. In this classification of games, Hadfield (1999) categorised the language games into nine categories, which are summarised (see Table 1) below.

Table 1. Classification of Games by Hadfield (1999)

No	Games Category	Details of the game
1	Sorting, ordering or arranging games.	For instance, learners have a set of cards with different products on them, and they sort the cards into products found at a grocery store or a department store.
2	Information gap games.	In this game, one or more learners have information, and others need to complete a task. For example, a learner might have a drawing, and the partner needs to create a similar drawing by listening to the information given by their friend who is having the drawing. Other tasks, such as Spot-the, are a two-way information gap activity.
3	Guessing Games	One of the best-known Guessing Games is 20 Questions. In this game, one learner thinks of a famous person, place or thing and the other participant can ask 20 Yes/No questions to find clues to guess who or what is on the person's mind.
4	Search Games	This is another two-way information gap game, where everyone gives and seeks information. Find someone who is a well -known example. Learners are given a grid, and the task is to fill all the cells in the grid with a suitable name of a person in the class. For example, someone who is a vegetarian. Learners ask and question others to complete their own grid.
5	Matching Games	Learners need to find a match for a word, picture or card. For example, learners place 30 word cards, composed of 15 pairs, face down in random order. Each person turns over two cards at a time, aiming to find a matching pair by using their memory.
6	Labelling Games	Participants match labels and pictures according to the tasks in the activities.
7	Exchanging Games	This is a form of card game where participants barter cards, other objects or ideas.
8	Board Games	Scrabble is a popular board game that highlights language use.
9	Role play Games	The word role play, drama and simulation are used interchangeably but each has its differences. Role play involves learners taking roles that do not exist in real life, while in simulations, learners replicate roles of a real environment. Dramas are presentations that have been scripted dialogues, whereas in role play and simulations, learners have to come up with their own dialogues, although groundwork is often useful.

All the games discussed above exhibit similarities and overlaps across various categories. These games can be played individually, in pairs, or in groups, depending on the objectives set for the learners. Different games can be used for various objectives. Games are

diverse, and their techniques vary (Luu, 2012). This study uses most games except role-play, simulation, drama, jigsaw, card games, description, and discussion. To be specific, paper-based language games were used to enhance learner vocabulary.

2.2.3 Advantages of Language Games

Language games come in various forms; selecting the right one requires careful consideration. The game's difficulty should match the learners' language level and align with the lesson's purpose and content (Carrier, 1990). Since finding a perfect match is challenging, games can be adapted to suit learners' needs (Deesri, 2002). Language games offer numerous benefits, including enhancing learner communication and expanding vocabulary effectively. Games are practical tools for enhancing vocabulary acquisition because they provide repeated exposure to target words through repeated play. Learning is an ongoing process involving acquiring, storing, retrieving, and applying information (Rubin, 1987). Research indicates that exposure to and use of words in varied contexts significantly improve vocabulary acquisition in a second language (Schmitt, 2000). Learners typically require 5 to 16 exposures to a word before mastery is achieved (Bunch, 2009; Nation, 1990).

Games effectively promote vocabulary by motivating learners through their competitive and engaging nature (Avedon, 1971; Uberman, 1998). If games are played in a relaxed and enjoyable atmosphere, they make learning fun, helping learners retain new words more easily (Nguyen & Khuat, 2003). Pair or group-based games encourage friendly competition, sustain interest, and foster active participation (Deesri, 2002). These activities create meaningful contexts for language use, supporting the unconscious acquisition of input (Jung, 2005) and enabling learners to recall material enjoyably and entertainingly (Uberman, 1998). Games enhance learner motivation and reduce stress and anxiety through elements of play and competition, improving vocabulary exposure and retention (Luu, 2012). They encourage learners to use the language confidently in real-world contexts, focusing on the message rather than fearing mistakes. Thus, games should not be seen as mere time-fillers (Lee, 1995) but as valuable tools for learning the target language, particularly vocabulary (Uberman, 1998).

2.2.4. Local Studies

Among local research, Hasram et al. (2020) examined students' vocabulary improvement. The participants included Year 5 students from a national primary school in Negeri Sembilan, following the syllabus of The English Language Curriculum for Primary Schools (KSSR). The descriptive and dependent t-test were utilised to analyse the data. The findings revealed a moderate level of satisfaction, attention, relevance, confidence, and volition among the participants. Furthermore, a paired sample t-test indicated a significant improvement in the students' vocabulary scores after employing Word Wall (WOW) as a supplementary vocabulary learning resource. This study offers valuable insights for primary school English teachers on how to integrate online games as valuable tools for enhancing English language learning, particularly in expanding students' English vocabulary knowledge.

In addition, Ling & Abdul Aziz (2022) investigated the students' challenges in English vocabulary learning and their perspectives of using game-based learning strategies. The findings illustrated that these strategies are helpful and practical in augmenting students' knowledge of English vocabulary. However, the challenges identified included a lack of adequate learning resources, difficulties in pronouncing and understanding the meanings of English words, interference from the students' first language, and a lack of ongoing professional training for teachers.

In another study, Abdullah and Xe (2024) conducted a study to explore ESL students' perceptions and experiences on using Figgerits in an ESL context. The subjects were 36 Form 3 Alnair students having diverse English proficiency levels. As such, semi-structured interviews were employed as a data collection method. The findings showed that students remarked on Figgerits to improve their vocabulary acquisition and classroom engagement substantially. This research underscores the importance of merging digital game-based language learning (DGBLL) with educational theories, promoting a cooperative and inspiring milieu for learning and highlighting their capability to augment language learning consequences and student motivation.

More recently, Suta (2025) inspected the impacts of the Digital Game-Based Learning in teaching Vocabulary for young learner. As such, library research was employed as data collection method. The findings illustrated that Kahoot and Quizizz are considered as the best platform in teaching vocabulary to adult learner as both of them presents appropriate features for the learners.

2.2.5 Global Studies

2.2.5.1 Research on Language Games

Language games can be printed on paper or presented on a computer screen or any electronic device. In a study conducted in Poland, Uberman (1998) compared paper-based vocabulary games with other methods, such as visual techniques, verbal explanations, and dictionary use. The game used in the study, "Puzzle Piece Board," aimed to assess whether games were more effective for teaching and revising vocabulary than traditional methods. The results revealed that the experimental group, which learned through paper-based games, outperformed the control group. The study concluded that using games for vocabulary presentation is highly effective and enjoyable for learners. In the second part of her study, Uberman (1998) examined vocabulary revision with first-year university students. The experimental group used crossword puzzles, while the control group completed traditional written exercises. A test at the study's conclusion showed that games were more effective for vocabulary revision, with learners acquiring and consolidating vocabulary better. Additionally, learners favoured games over traditional activities, as games motivated, entertained and facilitated word retention and retrieval.

Nguyen and Khuat (2003) conducted a study in Vietnam to explore why learners are often unmotivated to acquire vocabulary and to determine if games can improve vocabulary learning. Over two weeks, they introduced various games to their learners. The study revealed that quiet and shy learners actively participated in the games. The relaxed atmosphere, competitive element, and motivation fostered by the games created a positive perception of learning English, particularly vocabulary. Learners reported that games significantly aided their vocabulary learning and improved recall. Luu (2012) conducted a study in Vietnam to evaluate the effectiveness of games in reinforcing vocabulary retention. The study involved 121 elementary school students divided into experimental and control groups. The experimental group used labelling games, while the control group completed exercises without games. Results indicated that the experimental group outperformed the control group in immediate and delayed vocabulary retention, demonstrating the effectiveness of games for vocabulary reinforcement.

Research consistently supports using games to promote vocabulary learning due to their numerous advantages. Vianna (1994) emphasised the effectiveness of games during the vocabulary revision stage, as they help learners feel at ease. Uberman (1998) agreed, noting that games aid in enjoyably recalling material, motivate learners, promote communicative competence, and foster fluency. She further concluded that games provide intensive practice while remaining enjoyable. Nguyen and Khuat (2003) highlighted the relaxed, fun atmosphere games create, which aids vocabulary retention and encourages active participation through friendly competition. They also noted that games bring real-world contexts into learning, enhancing flexible and communicative use of English. Luu (2012) echoed these findings, showing that games improve vocabulary retention compared to traditional methods and energise learners, making them more motivated to study. Games are considered valuable tools in vocabulary learning, but they should be carefully selected to maximise their effectiveness in instructional settings.

2.2.5.2 Research on Computer-based Games

With its multimedia and hypermedia capabilities, the computer is a highly effective learning tool for students. It enables the use of multisensory elements such as text, sound, images, video, and animation, all of which create meaningful contexts to enhance comprehension (Butler-Pascoe & Wilbur, 2003). Additionally, computer games help learners link words and sentences to visuals or animations within specific settings. These games also support understanding more complex vocabulary and concepts by incorporating animation and audio features. Not all exercises effectively enhance communicative competence, as learners' emotional needs are often overlooked (Macedonia, 2005). Games address this by encouraging active, creative involvement and reducing anxiety (Uzun, 2009). By alleviating the fear of making mistakes, games help lower the affective barrier, making learners more relaxed and willing to participate (Farashaiyan, & Muthusamy, 2017; Jones, 1982; Nemitcheva, 1995).

A study on one hundred engineering undergraduates at the University of Hong Kong found that learners preferred vocabulary learning supported by digital educational games over traditional activity-based lessons (Yip & Kwan, 2006). Participants used two vocabulary websites: Professional Word Web for professional terminology and University Word Web for general English vocabulary. These platforms featured games like tile moving, crossword puzzles, and timed challenges such as space invaders and snake, focusing on drill-and-practice exercises. Learners using computer games in an electronic environment were more successful at acquiring new vocabulary than those taught through traditional methods. Uzun (2009) found that computer games sustain learners' interest and help them acquire vocabulary more quickly. He developed a game called VocaWord, which consultants praised; it features varying intelligence levels and awards certificates to players who follow instructions. The first player to earn all certificates wins. The game allows learners to practice words, challenge others, and learn new vocabulary while also improving spelling and reducing errors in writing. Additionally, the element of luck in the game helps lower learner anxiety.

A study in Turkey on children learning English as a foreign language highlighted the benefits of computer games in language acquisition (Turgut & Irgin, 2009). Many Turkish children spent hours in cafes playing online games, which helped them learn new words, improve pronunciation, and use vocabulary in meaningful and enjoyable ways. These games created social contexts that blended fun and learning, offering interactive experiences with immediate linguistic feedback. This feedback was particularly valuable for shy learners, who used the games to practice language skills before engaging in real-world communication. Additionally, the repetitive nature of the games provided continuous exposure to the target language, enhancing vocabulary acquisition.

Failure to get the correct answer allows learners to learn from their mistakes. In gameplay, learners will get feedback after several trials and errors. This is a primary way to learn and is considered a motivation for learners to keep on trying. In gameplay, feedback is provided in action instead of a text explanation in instructional material (Prensky, 2000). Numerous studies have explored the impact of computer games on L1 and L2 learners, highlighting their effectiveness in teaching vocabulary and supporting language acquisition. Computer games are gaining recognition as a learning tool, particularly among today's digitally native generation. This study examines the use of selected offline computer games as language learning activities.

Drawing on both global and local studies, the present research situates itself at the intersection of these trends. By directly comparing computer-based and paper-based vocabulary games among Malaysian ESL learners, the study responds to a gap in the literature: few empirical investigations have systematically evaluated how different modes of game-based vocabulary learning perform in this context. This dual consideration of international and regional findings provides a clearer framework for interpreting the results and strengthens the study's relevance in both local and broader educational discourse. In addition, this study contributes to the limited body of research on vocabulary learning strategies among Malaysian ESL learners. While previous studies have often examined traditional instructional

methods or general game-based learning approaches, few have directly compared computer-based and paper-based vocabulary games within the Malaysian ESL context. By doing so, the study addresses a clear gap in the literature. It provides empirical evidence relevant to local educational settings, while also offering insights applicable to comparable regional environments where English is taught as a second or foreign language.

3. Method

This section describes the research design, participants, procedure, sampling, and materials.

3.1 Research Design

The present study adopted a quasi-experimental design that employed a counter-balanced method to compare the effects of two modes of language games on participants' vocabulary size.

Table 2. Counterbalanced Design

Groups	Treatment	
Experimental Group 1	Treatment A Computer-based Games	Treatment B Paper-based Games
Experimental Group 2	Treatment B Paper-based Games	Treatment A Computer-based Games

3.2 Participants and Sampling

A semi-urban secondary school in Petaling Jaya was randomly selected from the district's schools for this study. Two intact Form Four classes (16-year-old students) were chosen as experimental groups, with both groups exposed to two treatments: computer-based games and paper-based games. Each group comprised 35 learners. Intact classes were utilised to minimise differences between groups, as administering the same treatments to all learners ensures the results are not influenced by pre-existing variations among participants (Ary et al., 2002, p. 320). The learners had been studying English as a second language for eight years, starting with 90 minutes per week in Year Three of primary school and increasing to 150 minutes per week in secondary school. Most participants demonstrated an average proficiency level in English. In this research, learners were assigned to groups according to the existing class structures, which limited randomisation; however, there were some endeavours to balance the groups concerning proficiency and demographic characteristics.

Experimental Group 1 received Treatment A (Computer-based Games) first, followed by Treatment B (Paper-based Games), while Experimental Group 2 was exposed to Treatment B first, followed by Treatment A. At the end of the experiment, both the experimental groups had been exposed to both treatments of learning vocabulary ,and this is the counterbalancing design, which is shown in Table 2. This simple form of counterbalancing is called AB-BA counterbalancing, which accomplishes two goals. First, every condition occurs in every position equally. Hence, in AB-BA counterbalancing, A occurred in both the first and last positions. This is also true for B. Secondly, each condition precedes every other condition just as many times as it follows that condition. Therefore, in AB-BA counterbalancing, A precedes B once and follows B once. This symmetry is balanced (Mitchell & Jolley, 2007, p. 412).

Each treatment was conducted for seven weeks. Seven types of games were played for each treatment, and each game was played for 30 minutes once a week during an English lesson. The researchers conducted both treatments for the experimental groups to reduce researcher bias.

3.3 Research Instruments

3.3.1 Computer-based and Print-based Games Selection

For the computer-based games, only 20 games that utilised words from the General Service List (GSL) and were appropriate for the participants' proficiency levels were selected for the study. Based on these criteria, eight games were identified as suitable due to their appropriate difficulty levels, unique variety, and inclusion of GSL words. These games also incorporated vocabulary from the Academic Word List (AWL). Of the eight selected games, 6 featured multiple difficulty levels. A comprehensive list of distinct words from these games revealed 189-word families at the 1000-word level and 321-word families at the 2000-word level. This list encompassed words from the eight games and various difficulty levels within each game. However, since higher levels of the games included lower-frequency words, only words from the first to the fourth levels were included in the final list.

The compiled list included 833 words, with 22.7% (189) at the 1000-word level, 38.5% (321) at the 2000-word level, and approximately 39% (323) beyond the 2000-word level. This study focused on the most frequent 2000-word level, as Nation (2001) noted that 80% of the words in any text are high-frequency words within this range. Understanding and using these high-frequency words is particularly beneficial for learners pursuing academic studies (Nation & Hwang, 1995). Laufer and Nation (1999) emphasized that introducing the foundational 2000 high-frequency words is the responsibility of language teachers, as it requires focused instruction. However, vocabulary beyond the 2000-word level becomes the learners' responsibility, achieved through strategies such as guessing from context and memorization. While the computer-based games include vocabulary beyond the 2000-word level, they are designed to help learners become more proficient language users by practising and incorporating these words.

Table 3. Summary of Word List Used in the Games

Games	1000 word-level	%	2000 word level	%	Beyond 2000
Computer- based Games	189	22.7	321	38.5	39%
Paper based Games	186	22.3	279	33.4	44.3%

The paper-based games were selected using the same criteria as the computer-based games. To warrant comparability between the two conditions, both the paper-based and computer-based games were designed to include the similar set of target vocabulary items. This control measure permitted variations in learners' responses to be ascribed to the method of delivery, rather than to difference in content.

Each paper-based game was designed to match its corresponding computer-based game type and difficulty level. However, the paper-based games included more words from the 1000-word level, as the pilot study indicated that students generally found these games more challenging. This was attributed to the lack of immediate feedback, which computer-based games provided to support progression and maintain engagement. Graphic elements were incorporated to make the paper-based games appealing to learners. While computer-based games were animated, interactive, colourful, and featured engaging audio effects, paper-based games lacked these features and relied solely on teacher feedback during discussions. Therefore, efforts were made to present the paper-based games attractively and engagingly, using appropriate picture clues wherever possible.

An analysis of the eight selected paper-based games revealed 186-word families from the 1000-word level and 279-word families from the 2000-word level. This list included vocabulary from the different difficulty levels within each game type, resulting in a total of 835 unique words. Of these, 22.3% (186) belonged to the 1000-word level, 33.41% (279) to the 2000-word level, and 44.31% (370) were beyond the 2000-word level. This 44.31% supports learners' independent vocabulary expansion. Table 3 summarizes the word lists used in both game formats. Table 4 summarizes the games used in both the computer-based and paper-based formats, ensuring they are parallel.

Table 4. The Parallel Games

No.	Computer-based Games	Paper-based Games	Game Description
1	Mystery Games	Hidden Pictures	Learners identify hidden pictures based on word clues.
2	Foul Words Letter Rip	Word Maze Jumbled Words Missing Letters	Learners form new words by spelling the letters.
3	Crossword Puzzles	Crossword Puzzles	Learners write letters into horizontal or vertical grids to form correct words based on descriptors.
4	Irregular Plurals Prefix Homonyms Speed Word	Prefix and Suffix Riddles Proverbs	Learners complete words or phrases related to grammar knowledge.

3.3.2 Questionnaire

A questionnaire was used to collect data on respondents' demographics, vocabulary learning strategies, computer experience, attitudes toward essay writing, and preferred learning methods. It was administered to both groups after their exposure to two modes of vocabulary games. The questionnaire was chosen for its efficiency, ease of scoring, and suitability for quantitative analysis (Patten, 1998). It also proved to be a cost- and time-effective tool (Fraenkel & Wallen, 1996).

The responses were analyzed descriptively using frequency counts. The questionnaire design was based on Karen Bond's (2002) and Patten's (1998) guidelines, with adaptations from Schmitt's (1997) framework on vocabulary learning strategies. It comprised five sections: Section A covered demographic information, Section B focused on vocabulary learning strategies, Section C explored computer experience, Section D addressed attitudes toward essay writing, and Section E examined preferred learning methods.

3.3.3 Interview

An interview was conducted to complement the questionnaire findings and provide deeper insights into respondents' opinions on the two modes of vocabulary games (computer-based and paper-based). While the questionnaire offered a broad overview, the interview allowed for a detailed exploration of respondents' preferences and strategies for vocabulary acquisition. It also helped clarify or confirm findings not easily represented through quantitative data (Patten, 1998).

A structured interview format ensured consistency, focus, and comparability across respondents, with questions arranged systematically to maintain uniformity (Patton, 1987). The interviews were conducted at the end of the study. As such, they offered respondents an opportunity to share their opinions on the two modes of vocabulary games, describe their vocabulary acquisition strategies, and explain their preferences. In this regard,

3.4 Research Procedure

This study introduced two modes of language games—paper-based and computer-based—to respondents over 14 weeks. The first group played computer-based games for seven weeks, while the second played paper-based games. After seven weeks, the groups switched modes.

The computer-based games were played in the language laboratory for 35 minutes weekly, with additional practice allowed at home using CD-based games that did not require internet access. The paper-based games were played in the classroom during English lessons for 35 minutes weekly, with opportunities to complete unfinished or additional game sheets at home. Answers were reviewed in subsequent sessions, and new games were introduced weekly.

Respondents completed a questionnaire at the end of the treatments to indicate their preferred learning method. An interview was conducted to validate the questionnaire responses and explore the reasons behind their preferences for the two modes of language games.

4. Results and Discussion

The questionnaire data on respondents' preferences for learning methods, presented in Table 5, showed a strong preference for computer-based games over paper-based games. Across eight statements, most respondents preferred computer-based games due to their engaging features, such as illustrations and sound effects. The key findings revealed a strong preference for computer-based games as a vocabulary learning method, with 74.3% of respondents favouring them compared to 21.7% for paper-based games. 90% found computer-based games more enjoyable and engaging, while 87.1% appreciated the illustrations in these games for aiding vocabulary acquisition. Additionally, 78.6% believed computer-based games were more effective in expanding their vocabulary. For word retention, 71.4% favoured computer-based games and reported higher confidence in their vocabulary, though with slightly lower percentages compared to other factors. Respondents overwhelmingly preferred computer-based games for vocabulary learning due to their interactive, visually appealing, and engaging elements.

Table 5. Preference for Vocabulary Learning (n=70)

No	Statements	Computer-based Games		Paper-based Games	
		freq	%	freq	%
1	I **like** learning vocabulary using the	52	74.3	18	25.7
2	I had **fun** learning vocabulary using the	63	90	7	10
3	Learning words through this method is more **interesting**	63	90	7	10
4	The **illustration** in the games were very helpful in acquiring vocabulary	61	87.1	9	12.9
5	This method of learning has **expanded** my vocabulary	55	78.6	15	21.4
6	I am able to **remember** the words better through	50	71.4	20	28.6
7	I am more **confident** with my vocabulary after using	40	57.1	30	42.9
8	This is the best **technique** to acquire new words	61	87.1	9	12.9

Since the data in Table 5 represent categorical frequencies (preferences for computer-based vs. paper-based games), a Chi-square test of independence was applied to determine whether there were statistically significant differences between the two groups across each statement. A significance level of $p < 0.05$ was adopted. The results revealed significant differences in seven of the eight statements (χ^2 values = 12.86–44.80, $p < 0.001$), indicating that learners consistently preferred computer-based games over paper-based games. The only exception was the statement "I am more confident with my vocabulary after using …" ($\chi^2 = 1.43$, $p = 0.232$), where no significant difference was found.

Table 6. Learners' preferences for Vocabulary Learning Methods (n=70) with Chi-square results

No.	Statement	Computer-based Games (freq)	Paper-based Games (freq	χ^2	p-value	Sig.
1	I **like** learning vocabulary using the	52	18	16.51	< 0.001	***
2	I had **fun** learning vocabulary using the	63	7	44.80	< 0.001	***
3	Learning words through this method is more **interesting**	63	7	44.80	< 0.001	***
4	The **illustration** in the games were very helpful in acquiring vocabulary	61	9	38.63	< 0.001	***
5	This method of learning has **expanded** my vocabulary	55	15	22.86	< 0.001	***
6	I am able to **remember** the words better through	50	20	12.86	< 0.001	***
7	I am more **confident** with my vocabulary after using	40	30	1.43	0.232	ns
8	This is the best **technique** to acquire new words	61	9	38.63	< 0.001	***

Note. $p < 0.001$, $p < 0.01$, $p < 0.05$, ns = not significant.

Having validated and complemented the questionnaire data, structured interviews were performed to discover respondents' inclinations for the two modes of language games. The interviews were recorded, transcribed, coded, and analyzed by grouping responses into thematic categories. This approach provided more profound insights and clarified findings that could not be adequately represented through statistics or graphs.

The interview data showed both positive and negative reasons for respondents' preference for paper-based games (Table 6). On the positive side, 24.3% of respondents felt they could learn new words, 17.1% found the pictures fun and attractive, and 8.6% explained that the games facilitated word recall and communication. A few respondents also noted he games as challenging. One learner explained, "Even though it was paper, I still learned new words I hadn't seen before," while another noted, "The pictures made the words easier to remember."

However, the majority of comments reflected negative perceptions. About 44% of respondents described the paper-based games as uninteresting, while 20% felt the pictures were unattractive. Additionally, 15.5% compared the games to routine workbook exercises, and

12.9% reported difficulty remembering and retaining the vocabulary. A few respondents also described the games as non-challenging (11.4%) and non-interactive (4.3%). One participant remarked, “It felt like doing another worksheet—nothing new,” and another added, “I couldn’t remember the words afterward; the activity didn’t stay in my mind.” Overall, the interview data indicated that respondents expressed more negative than positive opinions about learning vocabulary through paper-based games. This finding complements the questionnaire results, which also showed a clear preference for computer-based games.

Table 7. Acquiring Vocabulary through Paper-based Games (n=70)

Reasons	Freq	%
Positive Reasons		
Can learn new words	17	24.3
Pictures are fun and attractive	12	17.1
Can recall words easily and use them for communication	6	8.6
Challenging	6	8.6
Negative Reasons	20	44
Boring and not interesting	14	20
Pictures not attractive	11	15.5
Like doing exercises in a workbook	9	12.9
Not challenging	8	11.4
Very few new words	3	4.3
Not interactive	3	4.3

The interview data revealed predominantly positive feedback about learning vocabulary through computer-based games, as detailed in Table 8. A majority (67.1%) found the games interesting due to their colourful pictures, while 48.6% emphasized the fun, excitement, and enjoyment they experienced. Additionally, 31.4% appreciated the variety of games, which helped them learn many new words, and 25.7% noted that pictures made it easier to remember words. Other positive aspects included the games being challenging with different difficulty levels (17.1%), the flexibility to play at their own pace (10%), and a sense of relaxation while playing (2.9%). Negative feedback was minimal, with 7.1% finding the vocabulary difficult to remember and some noting that the words used were less common in communication. Overall, respondents expressed significantly more positive than negative opinions about computer-based games for vocabulary learning.

Table 8. Acquiring Vocabulary through Computer-based Games (n=70)

Reasons	Freq	%
Positive Reasons		
Interesting and colourful pictures	47	67.1
Fun, exciting and enjoyable	34	48.6
A Variety of games and can learn many new words	22	31.4
Easy to remember words with pictures	18	25.7
Challenging games with many levels	12	17.1
Learn at your own pace	7	10.0
Feel relaxed when playing on the computer	2	2.9
Negative Reasons		
Vocabulary is difficult and cannot recall words	5	7.1
Words in games are used less frequently in communication	2	2.9

When choosing their preferred mode of vocabulary learning, which is shown in Table 9, 74.3% of respondents favoured computer-based games, citing their fun illustrations, sound effects, and interactive features, compared to 25.7% who preferred paper-based games.

Table 9. Preferred Mode to Acquire Vocabulary (n=70)

Games	Freq	%
Computer-based Games	52	74.3
Paper-based Games	18	25.7

The data in Table 10 showed that respondents believed computer-based games were more effective in expanding their vocabulary than paper-based games. Among respondents, 42.9% credited computer-based games for helping them learn many new words, while 21.4% attributed their effectiveness to being interesting, fun, and exciting. Another 21.9% appreciated the wide range of words used, and 8.6% highlighted the challenging nature of the games, supported by visuals, sound effects, and colourful images.

In comparison, 11.4% of respondents found paper-based games beneficial because writing answers on game sheets helped them remember new words. Additionally, 4.3% valued the teacher's explanations, which aided their understanding, and 2.9% cited the games' challenging nature. Overall, respondents overwhelmingly favoured computer-based games for their ability to expand vocabulary effectively due to their engaging and interactive features.

Table 10. Games that Helped to Expand Vocabulary (n=70)

Games	Freq	%
Computer-based Games		
Can learn many new words	30	42.9
Interesting, fun and exciting	15	21.4
Has a wide range of words	15	21.4
Challenging	6	8.6
Visualization, sound effect, colourful	4	5.7
Paper-based Games		
Helps to remember words	8	11.4
The teacher discusses and explains the word	3	4.3
Can learn many new words	3	4.3
Challenging	2	2.9

The data in Table 11 indicated that respondents found computer-based games more effective than paper-based games for retaining newly learned vocabulary. Among the respondents, 44.3% noted that the attractive and captivating graphics in computer-based games made the words easier to remember. In comparison, 22.9% attributed their retention to fun and enjoyable games. Additionally, 17.1% found the games interesting and said they felt happy while playing, which helped them recall the new words. For paper-based games, 24.3% said writing out answers helped them remember the words and their spellings better, as computer-based games often required only clicking. Another 8.6% appreciated the ability to revise words easily by referring to the game sheets, while 4.3% credited the pictures in the sheets, and 4.3% highlighted the teacher's explanations for aiding their memory.

Overall, respondents favoured computer-based games for their engaging and visually appealing graphics, which made learning more enjoyable and enhanced vocabulary retention.

Table 11. Games that Helped to Retain Vocabulary (n=70)

Games	Freq	%
Computer-based Games		
Easy to remember words	31	44.3
Fun and enjoyable	16	22.9
Interesting	12	17.1
Paper-based Games		
Can recall and remember words when writing	17	24.3
Can be revised anytime by using the worksheet	6	8.6
Pictures help to remember	3	4.3
The teacher explains the word	3	4.3

Finally, the respondents were asked about the game mode that enabled them to use the newly learned words in writing. The data in Table 12 revealed that both game modes were effective in helping respondents use newly learned words in writing, though for different reasons.

For paper-based games, 25.7% of respondents found them helpful as writing answers reinforced their memory, enabling them to use the words in writing. Additionally, 11.4% found the words more meaningful and relatable, making them suitable for writing, while 4.3% noted that rereading the words from game sheets improved retention and facilitated their use in writing.

For computer-based games, 21.4% of respondents appreciated the wide range of new words they learned and used them to improve their writing, sometimes achieving higher essay scores. Another 15.5% highlighted the colourful graphics and sound effects that aided memory and made learning enjoyable. The challenging nature of the activities (11.4%) motivated them to use the words, and 7.1% noted that help resources in the games enabled them to construct and later apply difficult words. Additionally, 2.9% said they understood word meanings better through the games, helping them incorporate the words into their writing.

In conclusion, while paper-based games had a slightly higher percentage of respondents who used the words in writing, both game modes effectively enhanced vocabulary application, with unique benefits tailored to each method.

Table 12. Games that Helped the Use of New Vocabulary in Writing (n=70)

Games	Freq	%
Computer-based Games		
Many new words were learnt and used in writing	15	21.4
Help to remember new words (learn through play)	11	15.5
Challenging activities (promotes learning)	8	11.4
Can construct words	5	7.1
Understand words better	2	2.9
Paper-based Games		
Writing the words during the activity (can remember)	18	25.7
Words are meaningful and suitable	8	11.4
Can remember words	3	4.3

This study augmented the understanding of learner preferences by discovering the connections between survey results and the perspectives accumulated from interviews. As illustrated through the questionnaire and confirmed by Chi-square analyses, the strong penchant for computer-based games was directly connected to learners' experiences of enjoyment, interactivity, and visual support. Many learners highlighted that the interactive features of digital games made vocabulary learning enjoyable and motivating. This feedback aligns directly with the survey items, indicating higher levels of interest and enjoyment in the computer-based learning condition.

Similarly, learners who preferred computer-based games often cited self-paced learning as a benefit, explaining that they could “try again until I got the word right” without the pressure of classroom correction. This finding aligns with with the observation that learners reported greater confidence and retention when using digital games. On the other hand, the minority who favoured paper-based games often valued simplicity and focus. Interviewees noted that paper-based activities allowed them to take notes and avoid distractions, which correlates with the survey responses from participants who felt less confident or less engaged with computer-based tools.

By examining these correlations between preferences and underlying reasons, the study provides deeper insights into the mechanisms that drive effective vocabulary learning. Enjoyment, interactivity, and self-paced practice emerged as key factors that enhance vocabulary acquisition in a digital environment. At the same time, learners who prefer traditional methods highlight the need for simplicity and direct engagement with text.

The findings highlight that computer-based games are generally preferred over paper-based games for enhancing vocabulary learning. Respondents favoured computer-based games due to their appealing visuals, sound effects, and interactive features, which made learning engaging and memorable. The multisensory elements of computer-based games, such as animations and sound, helped learners understand complex vocabulary and retain words better. Additionally, respondents appreciated these games' relaxed, self-paced nature, immediate feedback, and ability to progress through levels, fostering independent learning quickly. Research supports these benefits, showing that computer games enhance vocabulary retention, spelling, and writing skills while reducing anxiety.

However, paper-based games were not entirely rejected. Some respondents valued them for requiring written responses, which improved recall and spelling. The portability of game sheets and their ease of revision were also appreciated. Studies show that writing and completing puzzles in paper-based games can significantly enhance vocabulary acquisition.

Overall, the findings suggest that digital learners benefit from game-based learning techniques. Gamification can engage, inform, and educate, addressing challenges like boredom in traditional classrooms. Games' trial-and-error and cooperative nature also promote collaborative problem-solving and active participation, making them an effective tool for vocabulary learning.

5. Conclusion

The study revealed that computer-based games were preferred over paper-based games for vocabulary learning. Respondents favoured computer-based games because they found them fun, interesting, and engaging, with colourful illustrations that helped them remember words better. Additionally, the ability to play at their own pace, without waiting for teacher feedback, allowed for greater independence in learning. This independence was supported by interactive features like icons for checking answers and tracking progress. Respondents also felt more relaxed and motivated while using computer-based games, a finding consistent with previous studies. While computer-based games were preferred, some respondents still valued paper-based games for their portability and the process of writing answers, which helped with word retention and spelling. Moreover, they appreciated the teacher's ability to provide explanations, which were unavailable in computer-based games.

Overall, the study suggests that both modes of games have their merits and can be integrated into vocabulary learning. Games, whether computer-based or paper-based, can stimulate interest, motivation, and reduce anxiety, making them valuable tools for vocabulary acquisition.

Having situated within established theoretical frameworks of "Dual Coding Theory, "cognitive load theory, "gamification principles", and "second language acquisition (SLA) models, " this research's findings can be better comprehended and contextualised. For example, Dual Coding Theory (Paivio, 1986) helps explain why learners reported that visual illustrations in the computer-based games enhanced recall; processing information through both verbal and visual channels supports deeper encoding of vocabulary. Similarly, Cognitive Load Theory (Sweller, 1988) suggests that interactive and engaging game formats can reduce extraneous load, empowering students to concentrate on important vocabulary acquisition. The observed learner motivation is also in alignment with gamification principles, where elements such as rewards, challenges, and interactivity foster engagement and persistence. In addition, the results resonate with Second Language Acquisition (SLA) models, particularly the Input Hypothesis (Krashen, 1985). This theory underscores the significance of comprehensible input and repeated contact with novel vocabulary in meaningful contexts.

6. Practical Implications

Besides theoretical contributions, the findings of this research have essential practical implications. Regarding ESL teachers, the strong learners' inclinations for computer-based games suggest that incorporating digital tools into vocabulary instruction can augment learners' engagement, motivation, and retention. As such, to cater to different learner preferences, teachers may consider mixing interactive digital games with traditional practices. For educational technology developers, the findings emphasise the importance of incorporating features such as visual support, interactivity, and immediate feedback into game design. Learners identified these elements as enhancing recall, enjoyment, and confidence, making them critical components for effective vocabulary learning tools.

Having situated the study within the broader discourse of Malaysian and regional ESL education and outlining clear pedagogical and technological applications, this research not only fills an existing gap but also offers actionable insights for both practitioners and developers.

7. Limitations and Suggestions for Further Research

This study has several limitations. The first limitation is that the data were confined to a semi-urban secondary school in Petaling Jaya and Form Four classes (16-year-old students). Second, the games also incorporated vocabulary from the Academic Word List (AWL). Regarding outcome measurement, the present study concentrated primarily on learners' preferences and perceptions of vocabulary learning methods. Pre- and post-tests of vocabulary acquisition were not administered, which represents a limitation of the current design. As such, future research should include vocabulary quizzes, pre-tests, and post-tests to provide stronger empirical evidence of learning achievements as well as learner attitudes. In addition, another limitation is the study's focus on a single group of learners within a specific institutional setting, which constrains the generalizability of the findings.

Future studies are suggested to extend the participants to include learners from multiple schools, regions, and educational levels to strengthen the robustness and applicability of results. They can also use other resources for choosing the vocabulary. In addition, further research can be conducted to explore different contexts, such as universities or language institutes. Finally, the results offer promising directions for hybrid instructional models, combining the interactivity and engagement features of computer-based games with the familiar and reflective nature of paper-based activities. Such blended approaches may suggest a more balanced and effective method of vocabulary instruction, capitalizing on the strengths of both modalities while accommodating diverse learner preferences.

Acknowledgments

We greatly appreciate the valuable contributions of our community advisory committee members. We would also like to each author who took the time to contribute to this research including drafting the manuscript, collecting and analyzing data, writing and revising the paper.

Authors' contributions

All authors contributed to the conducting and writing the paper. In addition, all authors read and approved the final manuscript.

Funding

Not applicable

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

References

Abdullah, N. A. Z. H. B. H. I., & Xe, W. N. Y. (2024). Figgerits Application for Malaysian Secondary School Students' Vocabulary Development and Motivation. *International Journal of E-Learning Practices, 7*, 190-200.

Aminath, N., Subashini, K. R., Aniyath, A., & Dheeba, M. (2024). Influence of Reading Strategies on ESL Students" Reading Comprehension in Secondary Schools in Mal é, Maldives. *World Journal of English Language, 141*, 492-500.

https://doi.org/10.5430/wjel.v14n1p492

Ary, D., Jacobs, L., & Razavieh, A. (2002). *Introduction to Research in Education.* California: Wadsworth.

Avedon, M. E., & Brian, B. S. (1971). *Learning through games: The study of games.* Neyork: John Wiley & Sons.

Azabdaftazi, B., Mozaheb, M. A. (2012) *Comparing vocabulary learning of ESL leaners by using two different strategies: mobile learning vs flashcards. The EUROCALL Review, 20*(2), 47-58. https://doi.org/10.4995/eurocall.2012.11377

Barjestesh, H., Vijayaratnam, P., Sabzevari, M., Fatehi Rad, N., Rabani, K., & Manoochehrzadeh, M. (2025). Digital Literacy of Iranian English as a Foreign Language (EFL) Teachers: Teaching Experience in Focus. *Forum for Linguistic Studies, 7*(1), 163-171. https://doi.org/10.30564/fls.v7i1.7244

Bunch, S. (2009). *Tips to reinforce English context words.* Retrieved from http://www.suite101.com/content/esl-vocabulary-strategies-a121947

Butler-Pascoe, M. E., & Wibur, K. M. (2003). *Technology and Teaching English Language Learners.* Boston: Pearson Education.

Calafato, R. (2023). Charting the motivation, self-efficacy beliefs, language learning strat-egies, and achievement of multilingual university students learning Arabic as a foreignlanguage. *Asian-Pacific Journal of Second and Foreign Language Education, 8*(1), 20-30. https://doi.org/10.1186/s40862-023-00194-5

Calafato, R., & Clausen, T. (2024). Vocabulary learning strategies in extramural English gaming and their relationship with vocabulary knowledge. *Computer Assisted Language Learning, 4*, 1-19. https://doi.org/10.1080/09588221.2024.2328023

Carrier, M. (1990). Take 5: *Games and activities for the language learners.* UK: Cambridge University Press.

Deesri, A. (2002). Game is the ESL and EFl class. *The internet TESL Journal, VIII 9.* Retrieved from http://iteslj.org/Techniques/Deesri-Games.html

Ediger, M. (1999). *Reading and Vocabulary Development. Journal of instruction psychology, 26*(1), 7-15.

Engber, C. (1994). *The relationship of lexis to quality in L2 compositions.* Paper delivered at TESOL 1993.

Farashaiyan, A., & Muthusamy, P. (2017). The Linguistic Presentation of Speech Acts in Top-Notch Intermediate Textbooks. *International Journal of Linguistics, 9*(3), 166-185. https://doi.org/10.5296/ijl.v9i3.11433

Farashaiyan, A., Tan, K.H.,Muthusamy, P., & Sahragard, R. (2017). The Praxis of Interlanguage Pragmatics Instruction in an EFL Context *3L Journal: The Southeast Asian Journal of English Language Studies, 23*(4), 89-111. https://doi.org/10.17576/3L-2017-2304-08

Fraenkel, J. R., & Wallen, N. E. (1996). *How to design and evaluate research in education* (3rd ed.). New York: McGraw Hill Inc.

Garris, R., Ahlers, R., & Driskell, J. E. (2002). *Games, motivation and learning; A research and practice model, Simulations and Games, 33*(4), 441-467. https://doi.org/10.1177/1046878102238607

Hadfield, J. (1999). *Beginners' communication games*. London: Longman.

Hasram, S., Nasir, M. K. M., Mohamad, M., Daud, M. Y., Abd Rahman, M. J., & Mohammad, W. M. R. W. (2021). The Effects of Word Wall Online Games (WOW) on English Language Vocabulary Learning Among Year 5 Pupils. *Theory and Practice in Language Studies, 11*(9), 1059-1066. https://doi.org/10.17507/tpls.1109.11

Joe, A., Nation, P., & Newton, J. (1996). Vocabulary learning and speaking activities. *English Teaching Forum, 34*(1), 2-7.

Jones, K. (1982). *Simulations in language teaching.* Cambridge: Cambridge University Press.

Jung, C.I. (2005). Using games to promote communicative skills in language learning. *The Internet TESL Journal, 11*(2). Retrieved from http://iteslj.org/

Karen, B. (2002). *Identifying the characteristics, strategies and techniques of successful language learners.* Retrieved from http://www.telus.net/linguisticsissues/questionnaire.html

Khong, C. Y., Talib, A. T., Xue, F. Y., & Gill, S. (2025). Cultural Identity Struggles of the Jahut in Malaysia. *Pertanika Journal of Social Sciences & Humanities, 33*(S1), 23-38. https://doi.org/10.47836/pjssh.33.S1.02

Krashen, S. D. (1985). *The input hypothesis: issues and implications.* Harlow: Longman.

Kumar, P. K., & Vairavan, C. (2024). The Impact of Gamification on Motivation and Retention in Language Learning: An Experimental Study Using a Gamified Language Learning Application. *INTI Journal, 44*. https://doi.org/10.61453/INTIj.202444

Laufer, B. (2000). Task Effect on Instructed Vocabulary Learning: The Hypothesis of "Involvement". In AILA' 99 Tokyo Organizing Committee (Eds.), *Selected Papers from AILA'99 Tokyo* (pp. 47-62). Tokyo: Waseda University Press.

Laufer, B., & Nation, I. S. P. (1995). Vocabulary size and use: Lexical richness in L2 written production. *Applied Linguistic, 16*(31), 305-322. https://doi.org/10.1093/applin/16.3.307

Laufer, B., & Nation, I. S. P. (1999). A vocabulary-size test of controlled productive ability. *Language testing, 16*(1), 36-55. https://doi.org/10.1191/026553299672614616

Lee, J. S., & Lu, Y. (2023). L2 motivational self system and willingness to communicatein the classroom and extramural digital contexts. *Computer Assisted Language Learning, 36*(1-2), 126-148. https://doi.org/10.1080/09588221.2021.1901746

Lee, S. K. (1995). Creative games for the language class. *Forum, 33*(1). Retrieved from http://exchanges.state.gov/forum/vols/vol33/no1/p35.html

Lewis, M., & Laufer, B. (2002). Vocabulary and second language acquisition. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 255-268). Cambridge University Press.

Ling, N. S., & Abdul Aziz, A. (2022). The Effectiveness of Game-based Learning Strategies on Primary ESL Learners' Vocabulary Learning. *International Journal of Academic Research in Progressive Education and Development, 11*(2), 845-860. https://doi.org/10.6007/IJARPED/v11-i2/13266

Littlewood, W. (1981). *Communicative Language teaching: An introduction.* Cambridge: Cambridge University Press.

Luu, T. T. (2012). Vocabulary recollection through games. *Theory and Practice in Language Studies, 2*(2), 257-264. https://doi.org/10.4304/tpls.2.2.257-264

Macedonia, M. (2005). Games and foreign language teaching. *Support for learning, 20*(3), 135-140. https://doi.org/10.1111/j.0268-2141.2005.00377.x

Mitchell, M., & Jolley, J. (2007). *Research design explained* (7th ed.). Thomson Learning.

Muthusamy, P., Nadaraja Pillai, N., Raman, K., Hui, Z. H., & Farashaiyan, A. (2025). Task Based Language Learning, Task Completion and Backwash in Second Language Education. *Pakistan Journal of Life and Social Sciences, 23*(1), 7569-7581. https://doi.org/10.57239/PJLSS-2025-23.1.00588

Nation, I. S. P. & Hwang, K. (1995). Where would general service vocabulary stop and special purpose vocabulary begin? *System, 23*(1) 35-41. https://doi.org/10.1016/0346-251X(94)00050-G

Nation, I. S. P. (1990). *Teaching and learning vocabulary.* Rowley, Mass: Newbury House.

Nation, I. S. P. (1995). *Learning to Read a Foreign Language.* London: Longma.

Nation, I. S. P. (2000). *Testing and teaching vocabulary. Guidelines, 5*(1), 12-25.

Nation, I. S. P. (2001). *Learning vocabulary in another language.* United Kingdom. Cambridge University Press. https://doi.org/10.1017/CBO9781139524759

Nation, I. S. P., & Waring, R. (1997). Vocabulary size, text coverage and word lists. In Schmitt, N. & McCarthy, M. (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp6-19). Cambridge: Cambridge University Press.

Nemitcheva, N. N. (1995). The psychologist and games in the intensive foreign language game - based course. In D. Crookall & K. Arai (Eds.), *Simulations and gaming across disciplines and cultures* (pp. 70-74). Thousand Oaks, CA: Sage publication.

Nguyen, T. N., & Khuat, T. T. (2003). Using games to teach English to young learners. *Asian EFL Journal, 5*(4), 1-17.

Nyamupanemunda, L., & Deshinta, A. D. (2022). Design and Implementation of Online Examination System for a Higher Educational Institution. *INTI Journal, 22*, 1-8. https://doi.org/10.61453/INTIj.202222

Oller, J. W. (1993). *Methods that work: Ideas for literacy and language teachers* (2nd ed). USA: Heinle & Heinle publishers.

Paivio, A. (1986). *Mental Representations.* New York: Oxford University Press.

Patten, M. (1998). *Questionnaire research: A practical guide.* California: Pyrczak Publishing.

Patton, M. Q. (1987). *How to use qualitative methods in evaluation.* USA: Sage Publications.

Prensky, M. (2000). *Digital Game-based Learning.* McGraw-Hill.

Raimes, A. (1985). What unskilled ESL students do as they write: A classroom study of composing. *TESOL Quarterly, 19*(2), 229-225. https://doi.org/10.2307/3586828

Read, J. (2000). *Assessing vocabulary.* United Kingdom: Cambridge University Press. https://doi.org/10.1017/CBO9780511732942

Rød, A. J., & Calafato, R. (2024). Exploring extramural English: Impacts, integration andfuture directions. In A. S. Skulstad (Ed.), *Current issues in English teaching* (pp. 117-140). Fagbokforlaget.

Rubin, J. (1987). Learner strategies: theoretical assumptions, research history and typology. A. Wenden & J. Rubin (Eds.), *Learner strategies in language learning* (pp15-30). Hertfordshire, UK: Prentice Hall International Ltd.

Schmidt, R. (1995). Consciousness and Foreign Language Learning: A Tutorial on the Role of Attention and Awareness in Learning. *Attention and Awareness in Foreign Language Learning, 9*, 1-64.

Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.

Sternberg, R. J. (1987). Most vocabulary is learned from context. In M. G. McKeown and M. E. Curtins (Eds.), *The nature of vocabulary acquisition* (pp. 89-105). Hillsdale, NJ: Erlbaum.

Suta, I. P. M. B. (2025). Exploring the Effect of Digital Game-Based Learning on Young Learners' Vocabulary. *IJODLLA*, *2*(1), 8-12.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, *12*(2), 257-285. https://doi.org/10.1207/s15516709cog1202_4

Turgut, Y., & Irgin, P. (2009). Young learners' language learning via computer games. *Procedia Social and Behavioral Science 1*, 760-764. https://doi.org/10.1016/j.sbspro.2009.01.135

Uberman, A. (1998). The use of games for vocabulary presentation and revision. *Forum*, *36*(1), 20-27.

Uztosun, M. S., & Kök, M. (2023). L2 skill-specific anxiety and communication appre-hension: The role of extramural English in the Turkish context. *Innovation in Language Learning and Teaching*, *18*(1), 17-31. https://doi.org/10.1080/17501229.2023.2217170

Uzun, L. (2009). An evaluation checklist for computer games used for foreign language vocabulary learning and practice. *Vocaword sample, Novitas-Royal*, *3*(1), 45-59.

Vianna, J. M. (1994). *Vocabulary teaching: A way to improve learners' fluency.* Retrieve from http://ericae.net/edo/ED371606

Vijayaratnam, P., Manoocherzadeh, M., Mim, F., Ahmed, F., Mohiuddin, M. G., & Gholipour, H. (2025). Gender Representation and Its Impact on the Quality of Education: A Comparative Analysis of EFT Textbooks for Grade Six (2022 vs. 2024 Editions). *Forum for Linguistic Studies*, *7*(4), 23-39. https://doi.org/10.30564/fls.v7i4.8332

Vijayaratnam, P., Mariam, K. A., Mohiuddin, M. G., Ali, Z. B., Manoochehrzadeh, M., & Rajanthran, S. K. (2025). The Impact of Watching English Cartoons on Preschoolers' Language Acquisition and Behavioural Development in Dhaka. *Forum for Linguistic Studies*, *7*(1), 626-639. https://doi.org/10.30564/fls.v7i1.6819

Yip, F. W. W., & Kwan, A.C.M. (2006). Online vocabulary games as a tool for teaching and learning English vocabulary. *Education media international*, *43*(3), 233-249. https://doi.org/10.1080/09523980600641445

Yu, Z., Xu, W., & Sukjairungwattana, P. (2023). Motivation, learning strategies, and out-comes in mobile English language learning. *The Asia-Pacific Education Researcher*, *32*(4), 545-560. https://doi.org/10.1007/s40299-022-00675-0