

Minnie Sites and Enhancing Malaysian Upper Primary ESL Learners Vocabulary during VUCA Times

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Abstract

Since mastering English has emerged as one of the most crucial abilities for students to gain, teaching English as a Secondary Language in the dynamic age of evolution takes a rigorous effort. As one of the most important abilities to improve in learning English is vocabulary, Malaysian Upper Primary ESL learners have been exposed to a list of vocabulary relating to their everyday lives through a CEFR-aligned curriculum at school. However, acquiring vocabulary is a time-consuming process that requires the learners to master the form and meaning range of a specific lexical word. Therefore, this paper investigated the use of Minnie Sites as a way to enhance vocabulary acquisition among upper-primary ESL learners. It involved 33 participants who were in their Upper Primary school level from a rural school in Kota Tinggi, Johor. This study uses a Design and Development Research (DDR) approach to generate interest in English vocabulary learning through five stages in the ADDIE model. Based on a comparison between the pre-and post-tests, findings indicated that there is a significant effect of using Minnie Sites to enhance vocabulary. This study implies the effectiveness of applying Minnie Sites among learners, teachers, and parents who value their children's vocabulary acquisition mainly at primary levels.

Keywords

Digital Game Based-Learning, Learning Website, Game-Based Learning, Vocabulary Acquisitions Vocabulary Learning

1. Introduction

Globalization plays a vital role in transforming ESL lessons from a traditional

approach to a more contemporary setting (Shliakhovchuk, 2021). The onset of globalization in the 21st century has fostered significant modifications and adaptations in educational context (Saquing, 2018; Rafiq et al., 2019). As education evolves and progresses in this technology driven-world, the integration of VUCA (volatile, uncertain, chaotic and ambiguous) has been highlighted. According to Hadar et al. (2020), the United Nations Educational, Scientific and Cultural Education Organization (UNESCO) has emphasized the importance of preparing learners for the VUCA world. Subsequently, English education should equip learners to encounter elements in VUCA. Prior to this matter, developing English proficiency among learners is crucial, as it has become the language to garner various knowledge of the world (Lin, 2020). In bracing the impact of fast-paced global development, the incorporation of the VUCA environment in the ESL lesson is seen as an ideal approach, because it can create a more meaningful and challenging learning experience. Teaching English as a second language (ESL) during the VUCA (volatile, uncertain, chaotic and ambiguous) period demands vigorous efforts since English proficiency has become one of the most required skills. According to Seow et al. (2019), ESL teachers need to be proactive in integrating various learning activities that target learners' competency and skills in coping with real situations related to VUCA times. In addition, Wong and Yunus (2021) believed that incorporation of VUCA in the ESL lessons makes teachers create learning experiences with interesting global content and unprecedented challenges. As highlighted by the World Economic Forum (2016), there are 16 skills needed to position oneself as globally competitive in the 21st century, which are categorised under three big components which are foundational literacies, competencies and character qualities. Based on the skills highlighted, there is a need for competence in literacy and communication so to compete within the surrounding. This reiterates the role of language as significant since it is instrumental for daily communication. As a *lingua franca*, English has undergone a substantial shift from a homogenous language spoken by a few countries to an international language enunciated by various speakers worldwide (Cameron & Galloway, 2019).

As one of the world's fast-developing countries, Malaysia has recognised English as its second language, after the Malay language. This has led to the adoption of a bilingual education system since Independence in 1957. Realising the importance of English proficiency within recent years, the Ministry of Education (MoE) of Malaysia has implemented many approaches, policies, and programmes to ensure that the proficiency among its learners is adequate. One of the initiatives include the formulation of the Malaysia Education Blueprint (MEB), which includes a specific framework for the education transformation (2013-2025). In order to prepare its learners towards becoming globally competitive, 11 shifts in transforming the education system were introduced in the blueprint. Besides the introduction of MEB as the new guideline for the national education system, the MOE had also included the Common European Framework of References for

Languages (CEFR) into the English Language Curriculum. The implementation of CEFR has resulted in changes to the syllabus, curriculum, and resources to align with the international guideline set. CEFR was developed by the Council of Europe as a comprehensive reference tool for deciding a standard language proficiency, which is in line with the national aspiration for its learners to compete at international level, regardless of their proficiency. The implementation of CEFR in the language curriculum is suitable as it is widely used and recognized internationally (Bakar & Ismail, 2021). One of the primary goals as highlighted in the National English Language Curriculum is to enable fluent communication among the Malaysian learners in the targeted language (MoE, 2017). With this, learners' mastery of a broader range of vocabulary at the primary, secondary, and tertiary levels is crucial. Past studies have looked at the contribution of vocabulary at enabling learners' English proficiency. Ariffin (2021), for instance, drew on a strong foundation on vocabulary as one of the fundamental components in mastering English, besides grammar and pronunciation. Others called on its role as the "building block" that vocabulary plays (Deris & Shukor, 2019) and the absence of its substantial knowledge will disrupt ESL learners' ability to comprehend reading, listening and speaking (Yusoff, 2022). Thus, having a sizable vocabulary knowledge is an effective and fundamental tool in mastering English, especially for ESL learners.

Malaysian Upper Primary ESL learners are generally exposed to a vocabulary list that is related to their real life as part of the CEFR-aligned syllabus where this list is embedded in the teaching of all four language skills. These learners are introduced to new vocabulary in each unit of the textbook either in listening or reading form. This unintentional approach, however, does not cohere with Schmitt and Schmitt's (2020) suggestion; intentional vocabulary learning through word lists helps enhance vocabulary acquisition among language learners. In fact, the main problem with vocabulary learning is educators' refusal to use intentional vocabulary methods in the classrooms, mainly because of the time factor (Burkett, 2021). Thus, taking into consideration that intentional vocabulary learning is beneficial for learners, a solution to overcome the problem of time constraints in learning vocabulary has to be explored. Nurdiansyah et al. (2019) indicated that language learners need to have extensive vocabulary language thus, providing appropriate exposure to a variety of vocabulary is highly demanded. However, acquiring vocabulary is a laborious process that necessitates the students to master the structure and variety of meanings of a particular lexical word. To cater to this problem, different approaches to teaching and learning vocabulary have been introduced and implemented in vocabulary learning lessons. Specifically, digital game-based learning (DGBL) is seen as one of the effective approaches in learning vocabulary (Zhang & Wu, 2019). Moreover, the intentional vocabulary method is indirectly adopted through vocabulary learning that integrates the DGBL approach.

Therefore, a vocabulary learning site called "Minnie Sites: A Pit Stop in En-

hancing Vocabulary among Upper Primary ESL Learners” was developed using the ADDIE model. This vocabulary learning site, “Minnie Sites” is designed by the researchers to assist upper primary ESL learners in acquiring vocabulary that is aligned with the CEFR (Year 4, 5, and 6 syllabus). In this learning site, chosen vocabulary from the upper primary CEFR syllabus is compiled and categorized under three themes. The themes are Healthy Lifestyle, Getting Active, and All Around Us. Each theme consists of a vocabulary learning presentation and five types of games as enrichment exercises. This vocabulary-learning website offers a pragmatic and practical way of acquiring vocabulary as learners are able to learn the Upper Primary vocabulary that is aligned with the syllabus, on the same site and practice their understanding through the games provided in it.

Thus, this paper investigated the use of “Minnie Sites” in enhancing vocabulary acquisition among Upper Primary ESL learners. In this study, the effectiveness of “Minnie Sites” in enhancing Upper Primary ESL learners are examined through the application of this learning site among the research participants. Besides identifying the effectiveness of the site, learners’ perceptions on the use of “Minnie Sites” are also discovered in the study. As this learning site is designed and developed by the researcher, learners’ perceptions in using the “Minnie Sites” are important in collecting information on how it helps in enhancing their vocabulary. Moreover, it is also believed that learners’ perceptions in any practice of learning application are important to be explored, as it helps teachers understand the way learners perceive their learning and how the perceptions influence their studying process (Tudor et al., 2010). Therefore, in order to fulfil the research aims, the research questions listed below are provided.

- 1) How does Minnie Sites help in enhancing ESL Upper Primary learners’ vocabulary?
- 2) What are the perceptions of ESL Upper Primary learners on the use of Minnie Sites in enhancing their vocabulary?

2. Literature Review

2.1. Cognitivism Theory

Cognitivism emphasizes the functions of mental processes including thinking, remembering, seeing, interpreting, reasoning, and problem-solving in the learning process (Clark, 2018). Cognitive Load theory (CLT) was developed in 1998 by John Sweller and highlighted the human mental process of learning. It discusses the cognitive process in human working memory and long-term memory as the total amount of strain that the mental capabilities of a learner exert while studying (Curum & Khedo, 2021). The working memory serves for the conscious processing of novel sensory information as well as the learned information from long-term memory (Jiang & Kalyuga, 2020) while long-term memory retains the information as part of their schemata. However, it is emphasized that there are limitations in processing capacity and cognitive resources since overloading its capability makes learning hindered if the demands are not made in a way that

serves the intended educational processes (Stiller & Schworm, 2019).

The load that causes the limitations and capability of learning new information proposed in this theory refers to the three cognitive loads: intrinsic; germane; extraneous. Intrinsic cognitive load is the work required to think about a certain subject while germane cognitive load refers to the effort put forth in developing a permanent store of knowledge, whereas extraneous cognitive load refers to the manner in which information or activities are presented to a learner. All of these processes occur in the working memory. Interestingly, Stiller and Schworm (2019) identified the whole process in four pillars as shown in Table 1.

In relation to these processes, pupils will discover those mental processes as they go through activities in the Minnie Sites. By watching the vocabulary being introduced, learners learn to see and remember what they see. By doing the games, learners use a lot of thinking, interpreting, and reasoning along the processes. Simultaneously, students construct their schemata in working memory which later retains in long-term memory and later develops understanding actively through this experience.

2.2. Vocabulary Learning

Past studies have identified the effectiveness of vocabulary learning in language acquisition. To define vocabulary learning, several studies perceived vocabulary learning in two directions: intentional and incidental learning. Intentional learning is defined as explicit learning activities (Kongprab, 2019; Hao et al., 2021) that focus on acquiring new vocabulary. Meanwhile, incidental learning does not directly aim at vocabulary learning per se (Hao et al., 2021) and is a by-product of other activities such as reading or listening (Kongprab, 2019). The former way of learning highlights the production of knowledge while the latter encourages the production of language. Hazar (2020) describes the occurrence of

Table 1. Cognitive load type according to four pillars by Stiller and Schworm (2019).

Cognitive Load Type	Description	Example
Working Memory	First Pillar with limited capacity; processes a small amount of new information at once	Limited ability to process complex information simultaneously
Long-term Memory	Second Pillar with infinite capacity; quality of knowledge impacts information processing in working memory	Quality of prior knowledge affects current information processing
Schemas	Third Pillar; mental structures that organize knowledge; aim to help learners develop suitable schemas	Developing mental structures to better understand new information
Automation of Schemas	Fourth Pillar; schemas become automated and require minimal mental effort	Information is processed automatically with little to no effort

both processes in the cycle that are correlated to one another; vocabulary knowledge facilitates language use, language use facilitates vocabulary growth, knowledge of the word also facilitates vocabulary growth, and so forth. Hazar (2020) also shows how language comprehension and production are both impossible without the presence of vocabulary knowledge. Therefore, both processes are crucial to keep the vocabulary in the learner's natural glossary for effective language acquisition. On the other hand, since English is considered as a second language (L2) in Malaysia, its learners' language-learning success depends on their ability to acquire a significant amount of vocabulary that they come across in textbooks or other resources (Chiew & Ismail, 2021). Here, it can be understood that the learners acquire vocabulary by noticing and retrieving words that are encountered through various resources. It is also believed that in vocabulary learning, there is a correlation between the frequency of word retrieval and the likelihood of vocabulary retention (Huei, Yunus, & Hashim, 2021). Thus, it can be simplified that L2 vocabulary is best taught only when the learners are exposed to numerous target language inputs.

2.3. Past Research Related to Game-Based Learning & Vocabulary Learning

To maximize vocabulary learning, many approaches were introduced, including incorporating games as part of the learning activities. Game-based learning approaches were developed in many forms, especially in physical form which was in vast use previously. However, game-based learning in digital form has become a recent trend among educators. Zou, Huang and Xie (2021) reveal 10 types of digital games that demonstrate positive effects in promoting short-term and long-term vocabulary learning and they are 1) tutorial games, 2) simulation games, 3) role-playing games, 4) motion-sensing game, 5) gamified digital book, 6) 3D virtual game, 7) adventure game, 8) card game, 9) board game and 10) serious game.

In general, using digital games has proven to be effective in improving language skills and knowledge (Kongprab, 2019) since learners put both aspects in a central place as they work with the game system and improves knowledge absorption and retention (Saleh & Ahmed Althaqafi, 2022). Utilizing digital games has been shown to increase pupils' vocabulary (e.g. Akçelik & Eyüp, 2021; Alhebshi & Gamlo, 2022; Chen et al., 2019; Hazar, 2020) where they facilitate, retain, and alleviate the cognitive load. It is in line with Marzano's learning vocabulary strategy (Marzano, 2020) that suggested the process of learning words, using the words, and playing with the words could help learners to acquire the vocabulary. According to Spearman's rank correlation data, Chen et al. (2019) clarify that the use of gamified services and dependence on them were favorably connected with vocabulary acquisition performance while Hazar (2020) describes children who utilized digital games demonstrated significant cognitive growth and surpassed those who received traditional instruction. Additionally,

game-based learning could enhance vocabulary retention without causing an overload during the learning process (Alhebshi & Gamlo, 2022). Moreover, the implementation of games in learning vocabulary promotes the element of 21st-century learning in the classroom as fun learning is integrated into the lesson (Shamsudin, Hashim, & Yunus, 2019).

Without any burden on the cognitive processes, learning becomes enjoyable and acceptable. It is agreeable that using the game-based approach in vocabulary learning improves learning motivation (Hazar, 2020; Li, 2021; Saleh & Ahmed Althaqafi, 2022). The learners are actually interested in the novelty of digital games and that experience made them explore their learning more on their own (Krishnan & Yunus, 2019). In a more detailed situation, the reward provided for every successful attempt in the games as well as competitiveness among learners are the elements that provoke their motivation (Kongprab, 2019). Indeed, studies on the use of educational videos demonstrate that students' perspectives on English classes and games based on their lives were positive despite the high-performance test results, demonstrating that game techniques also proved effective in fostering positive attitudes among the learners. Additionally, a study by Waluyo and Bucol (2021) identified the use of a gamified learning technique changed vocabulary learning into a more playful environment, and improved learners' learning motivation and engagement throughout the process of aiding vocabulary acquisition.

Game-based learning has evolved into instruments for effective language teaching that makes learning vocabulary and reading comprehension in English more engaging and dynamic than ever (Al Shra'ah, 2021). Elements such as competition and rewards in the form of marks achieved are incorporated into this site to develop students' motivation to learn the vocabulary. Achievement in the EFL class is influenced by a gamified learning strategy mixed with language learners' involvement and drive (Matsubara & Yoshida, 2018). Therefore, it makes game-based learning a suitable platform where learning takes place as students are able to succeed in playing the games.

3. Research Methodology

3.1. Research Method

This study employed a Design and Development Research (DDR) method through ADDIE Models in developing the vocabulary learning website, which is called Minnie Sites. The ADDIE model comprises five phases which are analysis, design, development, implementation, and evaluation. The ADDIE model is ideal to be practiced in developing the vocabulary-learning website as it imparts easy-to-follow steps for the researcher to follow while developing the learning site. The phases underlined by this model also ensure that crucial details throughout the process are not neglected and left out. Furthermore, a study by Jais et al., (2022) emphasized that the ADDIE model has the advantage of being simply practical to apply, easy to adapt to any curriculum that teaches knowledge, skills,

or attitudes, and able to assist researchers in developing learning resources in any systematic manner. Other than that, due to its flexibility, the model can be modified to suit the needs of the learning site planned throughout the development process.

The study was carried out in a rural school situated in Bandar Penawar, Kota Tinggi. Bandar Penawar is a small town located 43 kilometers away from Kota Tinggi City in Johor, which is in the southern region of Malaysia. As it is located quite far from the town of Kota Tinggi, all schools in the area of Bandar Penawar are gazetted as rural schools. As this school in Bandar Penawar is easily accessible to the researcher, it was then chosen as the research location. A total of 33 out of 96 learners in the upper primary school level of Year 5 from a rural school of Bandar Penawar, Kota Tinggi participated in this study as shown in **Table 2**.

In ensuring that this learning website is effective at enhancing learners' vocabulary acquisition mainly among intermediate levels, a purposive sampling method was applied in choosing the participants for the study. The purposive sampling method is an intentional selection of informants based on their ability to elucidate a specific theme, phenomenon, or concept based on the research aims (Glaser & Strauss, 1967). As a purposive sampling method is implemented in this study, selection of participants was done to a certain extent of criteria. Firstly, the participants were chosen from year 5 learners of upper primary school. Next, the participants were selected from intermediate-learners who achieved Band 3 and 4 for their English Language Classroom-Based Assessment (CBA). Thus, since this study focuses on enhancing the vocabulary of the upper primary learners who are in the intermediate level, 33 learners who achieved Band 3 and 4 in their English Language Classroom-Based Assessment (CBA) were chosen as the participants of the study.

The pre-test consisted of 10 questions related to vocabulary given to the participants. Meanwhile, a post-test consisting of 10 questions using the same sentence structures from the pre-test was carried out after the "Minnie Sites" was implemented four times. To gain the learners' perception of the use of "Minnie Sites", a simple survey consisting of a Yes/No format was conducted on the 33 learners. There were 6 items on the questionnaire, which were adapted from Sahrir et al. (2020).

As all the above points have demonstrated, the study was then carried out based on the process discussed in this particular section. To summarize, this study executed a DDR method through the ADDIE model, and the learning website produced was tested among 33 participants.

Table 2. Size of participants.

Male	16 (48%)
Female	17 (52%)
Total	33

3.2. Analysis Phase

In the first phase of the model, the target participants' understanding, abilities, or attitude to achieve what needs to be taught in acquiring the knowledge was gathered through a need analysis (Ghani et al., 2022). Thus, the learning demands and issues of the participants were analysed in this phase. To develop a vocabulary learning website, the list of words used is significant to ensure that their vocabulary acquisition can be enhanced. Therefore, vocabulary from the upper primary CEFR-based syllabus (in the year 4, year 5, and year 6 English Textbook) was identified and categorized into three major themes, covering all the interrelated topics in the upper primary CEFR syllabus. After shortlisting the words, the learners needed to choose the words that they were unable to comprehend and were unfamiliar with.

After the chosen words were identified, these words were categorized into the three themes as shown in Table 3. The words were then employed for the designing and developing of a vocabulary-learning website. Besides that, a simple survey was developed and also carried out to identify participants' learning demands mainly in acquiring vocabulary. Most agreed that they preferred gamification elements to be integrated into their vocabulary learning session. Elements inculcated in game-based learning increased their motivation to acquire knowledge more, which is aligned with Castillo-Cuesta (2022) who indicated that new learning environments that are more appealing, motivating, and facilitated by technology, make learning more manageable.

3.3. Design Phase

In this respective phase, the data obtained from the need analysis were then used to design the learning vocabulary website. First and foremost, the slideshows of vocabulary learning presentations and enrichment exercises through digital games were finalised. The outcome of each vocabulary learning presentation and enrichment exercises through digital games were then standardised based on their respective themes which are Healthy Lifestyle, Getting Active, and All Around Us.

Table 3. Words that are categorized into three major themes based on participants' responses.

Themes	Words
Theme 1: Healthy Lifestyle	lemonade, cereal, crisp, peaches, kiwis, nuts, bowl, plate, log, fridge, germs, microscope, sunburn, sunscreen, cast, plaster, cut, fever, socket, matches,
Theme 2: Getting Active	javelin, ice-skate, cricket, kneepad, sticks, bat, court, player, skates, bookcase, hurt, tourist, sleeping bag, sore throat, rubbish, park, jacket, torch, recycle
Theme 3: All Around Us	shovel, autumn, snow, winter, nightingale, emperor, parade, scout, costume, entrance, stay up, decorate, independence, fasten seatbelt, pavement, zebra crossing, handlebars, leave at, arrive at, tuk-tuk, gondolas.

Next, this study proceeded to designing the vocabulary learning website that comprises vocabulary learning presentations (displays of words and sentence examples) and enrichment exercises through digital games. Before designing the vocabulary learning website, a draft design of the website was prepared in order to select the suitable digital applications to be integrated with. Since the vocabulary learning website adopted digital-game-based learning that highlighted the elements of goal, challenge, feedback, and sensory stimuli (Barzilai & Blau, 2020), the digital application needed to adhere to these elements. After taking all things into consideration, the online-based application, “SlidesMania” was chosen for vocabulary learning presentations and the digital game “EduCandy” was used to construct the enrichment exercises. Meanwhile, “Google Sites” is used to design the vocabulary learning website that would later comprise the vocabulary learning presentations and the digital games according to the themes respectively.

3.4. Development Phase

The development phase started with constructing the components to be included in the “Minnie Sites”. These components are the vocabulary learning presentations and game-based enrichment exercises. The first component which is vocabulary learning presentations was applied for learners to acquire the vocabulary through pictures and a sample of sentences. Meanwhile, the second component which is game-based enrichment exercises was applied for learners to test their understanding of the vocabulary learnt from the first component. Firstly, three vocabulary learning presentations based on the respective themes are developed through the online application, “SlidesMania” as shown in **Figure 1**. Each vocabulary learning presentation consists of words, meanings, pictures, and sentence examples. This is aligned with a study conducted by Li (2021) that indicates the interconnection between image-word presentations will decrease the cognitive load on the working memory of young learners thus resulting in



Figure 1. Example of learning vocabulary presentation from respective theme.

the improvement of learning outcomes.

The next step is developing the enrichment exercises through “EduCandy”. In every three respective themes, three levels of games are provided. The first level consists of “easy” and “medium” games while the second level consists of “hard” games. Chiang & Liu (2011) believed that education-based games should provide learners with different levels of opportunities, e.g. easy, medium and hard levels to measure their understanding in a different structure of games. In the first level, it consists of different forms of games such as crosswords, naught and cross, match-up, memory, spell it, and anagrams as shown in Figure 2.

Meanwhile, the medium level focuses more on filling in the blanks with multiple-choice answers being provided as shown in Figure 3. There are 15 games provided in general for the Minnie Sites. Elements of time and rewards in the

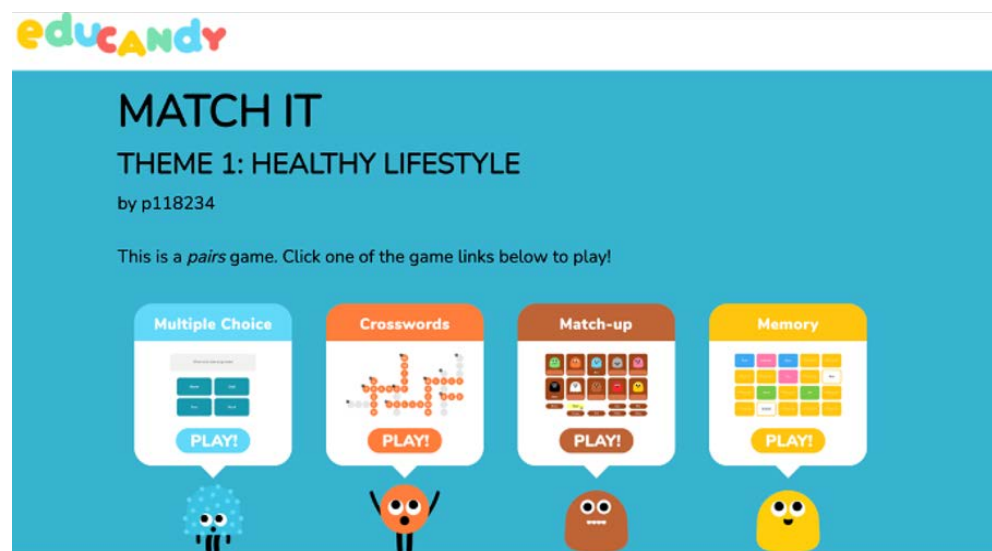


Figure 2. The digital game for the first level of Theme 1, Healthy Lifestyle.

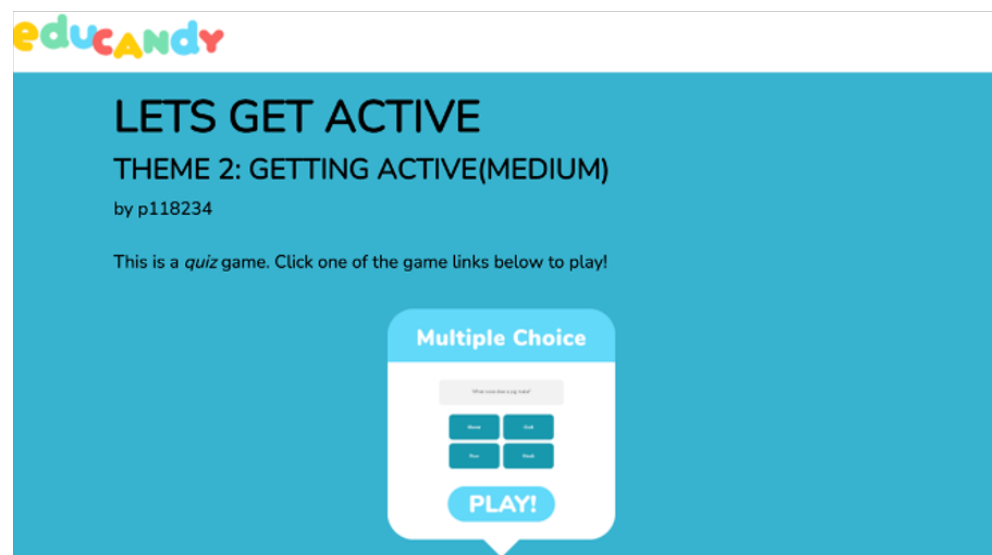


Figure 3. The digital game for the second level of Theme 2, Getting Active.

form of marks are included to boost learners' motivation to complete the task.

Finally, these two components were included in creating the vocabulary learning website which is "Minnie Sites" as shown in **Figure 4**. Minnie Sites consisted of 1) Minnie Sites Homepage, 2) Theme 1: Healthy Lifestyle, 3) Theme 2: Let's Get Active, and 3) Theme 3: All Around Us. Learners would be able to access all the vocabulary learning presentations and digital games through this website. Furthermore, learners are also able to choose which themes they would like to start first, based on their own preferences. This would ease the process of revising and learning vocabulary for upper primary levels.

After the process of developing "Minnie Sites" was completed, experts' validation was conducted so the materials could be implemented on the targeted learners. The selection criterion is based on expertise in relation to the production of a vocabulary learning site. The first validator, who is an English Language Officer, validated the content of "Minnie Sites" in terms of how helpful the site is in improving learners' vocabulary acquisition. Meanwhile, the second validator, who is a Technology and Media Officer, validated the production of "Minnie Sites" in terms of how practical the site is in embedding a technology and game-based learning elements in the vocabulary learning site. Thus, 10 items of instruments were given as the assessment of the produced materials. Each item is worth 10 points; **Table 4** provides the results. Besides, the experts' constructive remarks and some appropriate amendments are listed in **Table 4** below.

All in all, the learning website and their components are developed in this particular phase. The steps are all portrayed in the discussion above. It is one of the crucial stages as the ideas and issues raised during the analysis and design phases are executed in this development phase. The completed version of this learning website, "Minnie Sites" was then ready to be employed by the participants in the implementation phase.

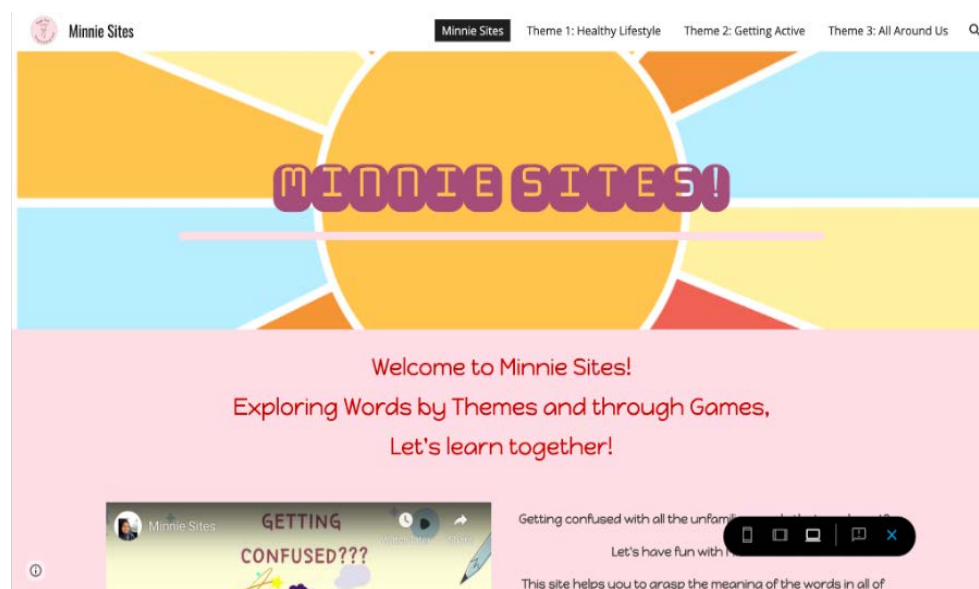


Figure 4. The main homepage of "Minnie Sites".

Table 4. Comments and marks from experts' validation process.

Validators	Comments	Marks
Validator 1 (An English Language Officer of Kota Tinggi District Education Office)	<ul style="list-style-type: none"> • Minnie Sites is helpful to improve students' vocabulary acquisition. • The games provided are interesting and suitable for students' levels. • The instructions are easily understood for primary school students. 	92%
Validator 2 (A Technology and Media Officer of Kota Tinggi District Education Office)	<ul style="list-style-type: none"> • The design of the website is simple and easy to understand. • The application used is suitable and fun for the primary school level. • The production of the website in terms of design can be improved 	85%

3.5. Implementation Phase

The implementation process was held in the school's computer labs with the use of computers and laptops. Before playing the game, the learners were guided to read before flipping through the vocabulary learning presentations. Those with gadgets at home like tablets, laptops, and phones were also given the QR code to allow trying the Minnie Sites at home with the instructions given as guidance. Self-directed learning among learners is significant as it can reflect the participants' comprehension at expanding their knowledge if mobile-assisted learning is combined with self-guided assignments after a particular course (Curum & Khedo, 2021). The implementation was carried out periodically four times within the two months period.

3.6. Evaluation Phase

In the evaluation phase, the participants were assessed through a post-test after using the Minnie Sites. A post-test was given to them and the results were compared to the pre-test. Questions with different sentence structures from the Pre-Test were applied to the Post-test answered by the participants. Based on the pre and post-test conducted, a significant increment of marks among the 33 learners was recorded after the implementation of Minnie Sites. Other than that, a set of simple questionnaires were given to the 33 learners in order to gain their perceptions on the use of Minnie Sites in enhancing their vocabulary learning acquisition. Positive perceptions have been garnered from the survey conducted. The findings of the pre-post-test and survey will be further discussed in the next section.

4. Findings & Discussion

4.1. The Use of Minnie Sites in Enhancing Upper Primary Learners Vocabulary Acquisition

To answer the first research question of whether the "Minnie Sites" helps in en-

hancing ESL Upper Primary learners' vocabulary, a pre- and post-test were carried out on 33 Year 5 participants from the rural primary school in Bandar Penawar, Kota Tinggi. The pre and post-test consisted of 10 vocabulary-related questions. In the pre and post-test questions, learners were required to fill in the blanks with the correct answers. Learners had to choose the correct vocabulary based on the sentences provided in the questions. The vocabulary tested in the questions was chosen from the "Minnie Sites". The vocabulary was chosen from each theme in the "Minnie Sites". **Table 5** describes the result of pre- and post-tests conducted in this study.

Based on **Table 5**, the result for the post-test is higher than the pre-test due to the use of "Minnie Sites" four times periodically in two months. There was an increase in the number of participants earning 9 - 10 since the number increased from 3 participants scoring in the pre-test to 5 participants scoring in the post-test. Similarly, there were 8 participants who got between 7 - 8 in the post-test, up from 5 in the pre-test. Both findings indicated that accessing Minnie sites helped the participants improve their scores. The increase in 7 - 8 and 9 - 10 marks indicated a substantial likelihood that some in 5 - 6 marks had made progress and the underachievers were able to earn 5 - 6 marks. The number of participants decreased from 9 in the pre-test to 7 in the post-test as compared to the 3 - 4 marks participants' outcomes. Results in the 1 - 2 marks range also demonstrated the same outcomes. The results indicated positive improvements in the participants' post-test marks compared to the pre-test conducted after the constant use of Minnie Sites within the two months period. All in all, it is believed that the use of Minnie Sites helps in enhancing vocabulary acquisition among upper primary ESL learners.

With the full integration of digital-based components in this project, the participants were able to learn CEFR upper primary English vocabulary with their definitions, related pictures, and a sample of sentences. Moreover, they were also able to self-test their vocabulary acquisition through the 15 games provided on the sites. This is in line with Marzano's learning vocabulary strategy (Marzano, 2020) that suggested the process of learning words using the words and playing with the words could help learners to acquire the intended vocabulary, thus indicating the use of intentional learning.

Table 5. Results before and after the implementation of Minnie Sites to the participants.

Range of marks	Number of participants	
	Pre-test	Post-test
9 - 10	3 (9%)	5 (15%)
7 - 8	5 (15%)	8 (24%)
5 - 6	6 (18%)	10 (30)
3 - 4	9 (27%)	7 (21%)
1 - 2	10 (30%)	3 (9%)

Besides that, the findings also verified that vocabulary learning through the games provided in the “Minnie Sites” had a positive impact on the participants’ vocabulary learning outcomes. Waluyo and Bucol (2021) explained that gamified learning strategy helped vocabulary acquisition by enhancing learners’ learning motivation and engagement throughout the process since it transformed vocabulary learning into a more playful context. Moreover, utilising digital games has been shown to increase pupils’ vocabulary, as indicated by past studies (e.g. Akçelik & Eyüp, 2021; Alhebshi & Gamlo, 2022; Chen et al, 2019; Gunel & Top 2022; Hazar, 2020) where these games facilitate, retain, and alleviate the cognitive load. Meanwhile, it is also believed that the gamified system improves knowledge absorption and retention (Saleh & Ahmed Althaqafi, 2022), thus children who use digital games have demonstrated significant cognitive growth (Hazar, 2020). In this study, the game-based learning elements included in Minnie Site cognitively help in enhancing the participants’ vocabulary acquisition. Thus, proving that it has improved the participants’ vocabulary acquisition as listed in the upper primary CEFR curriculum.

4.2. Participants’ Perceptions of Using Minnie Sites in Enhancing Vocabulary Acquisition

Table 5 shows a brief discussion on the findings from the survey on the participants’ perception pertaining to the use of “Minnie Sites” that acted as a pit stop in enhancing upper primary vocabulary learning and acquisition. The findings are tabulated in the form of percentages as shown in Table 6.

Based on the findings above, it can be concluded that the participants generally display positive perceptions toward the use of Minnie Sites. In Item 1 (*Minnie Sites is interesting and fun*), the result clearly indicates a consensus among the participants, meanwhile 86% believed that Minnie Sites is accessible (Item 2: *Minnie Sites is easy to use and I can open it on my own*). One of the features of Minnie sites is its simplified version of the topics. Despite its concise nature, it draws on connections between vocabulary learned across the topics. Simple

Table 6. Participants’ Perception on Minnie Sites.

Items	YES (%)	NO (%)
1. Minnie Sites is interesting and fun	100	0
2. Minnie Sites is easy to use and I can open it on my own	86	14
3. Minnie Sites helps me to revise the vocabulary that I’ve learned in the classroom before	87	13
4. I feel excited playing the learning games in the Minnie Sites while answering the questions	98	2
5. I will keep using this site in the future to continue learning and revising the vocabulary.	86	14
6. Minnie Sites help me to understand the meaning of each word easily.	97	3

and succinct themes assist learners of all levels, especially the weak ones, who are likely to feel less anxious about participating in the activities. Minnie sites, thus encourage them to learn at their own pace. These were agreed upon among students as they saw Minnie Site as accessible and promoted student-centred learning. [Krishnan & Yunus \(2019\)](#) indicated that learners are interested in the novelty of digital games and that experience made them explore their learning more independently. Prior to this, using Minnie Sites indirectly promotes student-centred learning where the participants were able to access on their own without adults' assistance at school nor at home with gadgets like laptops, phones, and tablets. This also corresponds to Item 4 (*I feel excited playing the learning games in the Minnie Sites while answering the questions*) from the survey where 98% agreed that they were excited about using Minnie Sites. Other than that, the integration of game elements in the learning of vocabulary also demonstrated a positive outcome. It is acknowledged that incorporating games into vocabulary acquisition can increase learning motivation ([Hazar, 2020](#); [Li, 2021](#); [Saleh & Ahmed Althaqafi, 2022](#)).

Moreover, learners portrayed their excitement in using game-based-vocabulary learning. This reiterates [Gunel and Top \(2022\)](#) whose study demonstrated that game techniques also proved effective in fostering positive attitudes among learners. It is supported by students' perspective that Minnie Site is fun and interesting. Perhaps the reward provided in the games in the form of scores encourages motivation. This is in line with [Kongprab \(2019\)](#) who argued that the reward for every successful attempt in the games is one element that provokes their motivation. Furthermore, game-based learning has evolved into effective vocabulary learning in a more engaging and dynamic way than ever ([Al Shra'ah, 2021](#)) thus making achievements in English classrooms influenced by a gamified learning strategy ([Matsubara & Yoshida, 2018](#)). Meanwhile, 87% also agreed that Minnie Sites helps them to revise the vocabulary that they had learnt (Item 3: *Minnie Sites helps me to revise the vocabulary that I've learned in the classroom before*). In Item 6 (*Minnie Sites help me to understand the meaning of each word easily*), 97% also believed that the website helped them understand the meaning of each word easily. 86% of the learners responded that they will keep using the site in the future. Thus, it can be concluded that gamified learning can be the key to improving learners' positive perceptions of learning vocabulary.

5. Conclusion

The findings demonstrated that the use of Minnie Site helps in enhancing Malaysian Upper Primary ESL learners' vocabulary acquisition and giving positive impacts on learners in acquiring vocabulary. The advancement of technology allows learners to explore their own learning thus making them more engaged with the game-based learning elements integrated in the Minnie Sites. Therefore, teachers are encouraged to integrate the elements of game-based learning and also digital game-based learning in the teaching and learning process of ESL in

the classroom. It is significant for all teachers to inculcate these elements in ESL classrooms as learners portray positive attitudes towards technology and game-based learning elements. In the future, studies can look into different English language skills that can be integrated with the use of learning website and digital games. Generally, positive impacts on ESL learning will be garnered with the assistance of technology advancement and gamified learning.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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