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THE ROLE OF DIGITAL GAMES IN SLA VOCABULARY DEVELOPMENT OF A JUNIOR HIGH SCHOOL STUDENT

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ABSTRACT

This study looks at how digital games help students learn English. It focuses on how students think and feel when they learn English as a second language. The research uses an explanatory case study design. It goes beyond just measuring effectiveness. It explores how and why vocabulary learning occurs through gameplay. The study used a variety of research methods to gather information. These methods included testing the students' vocabulary before and after the study, asking the students questions, and watching them play the game. The participant was a ninth-grade male student in Indonesia who regularly played the English-language mobile game Mobile Legends: Bang Bang. The vocabulary test results showed that the participants' vocabulary knowledge increased by 26.67%, which indicates that they learned a lot. The results showed that vocabulary learning was influenced by thinking strategies like guessing based on context, noticing, repetition, and rehearsing out loud. It was also influenced by feelings like enjoyment, low anxiety, and a desire to learn for its own sake. Players learned new words by using them in the game. The findings can't be applied to the general population because the study only looked at one case. However, the study does provide valuable insights into how people learn vocabulary and shows how digital games can be a useful tool to help students learn English outside of the classroom.

A. INTRODUCTION

Knowing vocabulary is very important for learning a second language. It helps learners understand what they hear and say in different forms of communication. If learners don't have enough vocabulary, they may have a hard time talking with others, even if they know the grammar rules. In English as a Foreign Language (EFL) classes, learning new words is often seen as one of the hardest parts, especially for teenage learners who only learn English in the classroom (Nation, 2013).

In Indonesia, English is taught as a foreign language, and students have limited time for instruction. At the junior high school level, vocabulary instruction often uses activities based on textbooks, memorization, or word lists that are not in context. These methods may help you remember words for a short time, but they often don't provide the context, repetition, and learner engagement needed to help your brain permanently remember words. As a result, many students show little improvement in their vocabulary and lose interest in learning English.

At the same time, technology has greatly changed the language that adolescents use every day. Students use digital games, and other digital media, to learn English outside of the classroom.

These games often have a lot of English in the menus, instructions, feedback systems, and stories. In the past, people thought of digital games as just for fun. But recent studies have shown that they can also be useful for learning languages (Gee, 2003).

In theory, digital games are very similar to the most important ideas of Second Language Acquisition (SLA). Krashen's Input Hypothesis suggests that language acquisition occurs when learners are exposed to comprehensible input in low-anxiety environments (Krashen, 1982). Digital games naturally provide such conditions by presenting language alongside visual cues, actions, and immediate feedback, which help learners infer meaning without explicit instruction. Games are interactive and focused on achieving goals, which makes it easier for learners to pick up new words. This is because they're more focused on having fun and enjoying the game than on trying to learn.

Digital games also help with learning new words. Players who come across the same words in different gaming sessions remember them better. Games with different modes, like text, images, and audio, help players guess the meaning of words and notice new ones. Vocabulary items encountered in games are often important for success, encouraging learners to pay attention to the meaning and form of words. These features make digital games particularly useful for helping adolescents learn new words.

Studies have shown that using digital games to learn vocabulary can be helpful. Research shows that digital games can help people remember more words and be more motivated to learn (Wu et al., 2020; Sandi et al., 2023). However, most of the existing literature focuses on learning outcomes, like improving test scores, rather than looking at the learning processes. As a result, digital games are often used as effective tools without enough explanation of how vocabulary is learned during gameplay or why some learners benefit more than others.

This limitation shows that there is important research that has not been done. There aren't many studies that look at how people learn words in digital games, especially in English as a second language. Big studies often miss details about how people learn and what makes them successful. As a result, we still don't know much about how people notice things, make inferences, repeat, and get motivated.

To address this gap, the present study uses an explanatory case study approach. It focuses on a single junior high school student in Indonesia. This student regularly plays the English-language mobile game *Mobile Legends: Bang Bang*. This study looks at how people learn vocabulary from digital games. It also looks at why digital games help people learn vocabulary in this way. This research uses a variety of methods to understand learning outcomes and processes. These methods include vocabulary tests, interviews, questionnaires, and gameplay observation.

This study tries to answer these questions:

1. What role do digital games play in helping students learn new words in English?
2. What strategies does the student use to learn new words during gameplay?
3. How do students think about using digital games to learn English words?

This study helps us understand more about how people learn words in digital games. It does this by looking at how people think and feel. While the study's findings can't be applied to all situations because it was based on a single case, it does offer valuable insights into how digital

games can effectively support English learning outside of traditional classroom settings, especially for young learners.

B. METHODOLOGY

1. Research Design

This study used a design that explains the research question. It used a variety of methods to investigate the role of digital games in learning new words. A case study was selected because it allows for an in-depth exploration of learning processes within a real-life context, particularly when it's not clear where the phenomenon ends and the context begins (Yin, 2018). Instead of trying to cover everything, this design looks closely at how and why vocabulary learning happens during gameplay.

The mixed-methods approach combined quantitative and qualitative data to provide a comprehensive understanding of vocabulary development. We used the results of vocabulary tests to identify measurable learning gains. We also used interviews, questionnaires, and observations to explain the thinking processes and emotions that led to those gains.

2. Participant and Research Context

The participant was a student at a junior high school in Indonesia. They played the mobile game Mobile Legends: Bang Bang (MLBB). The participant was chosen using a specific method of selecting people based on three things: (1) playing English-language digital games often, (2) having beginner-to-intermediate English skills, and (3) being willing to take part in interviews and observation sessions.

MLBB was chosen as the research context because it provides a high-frequency English lexical environment through menus, commands, system messages, and gameplay feedback. These features make the game a good way to learn new words in a relaxed setting.

3. Research Instruments

To ensure data triangulation and analytical rigor, four research instruments were employed: a vocabulary test, observation checklist, interview guide, and questionnaire.

a) Vocabulary Test

The vocabulary test consisted of a pre-test and post-test designed to measure vocabulary gains related to words frequently encountered in the game environment. The test focused on English-to-Indonesian word matching to minimize the influence of productive language skills and ensure that the test measured receptive vocabulary knowledge. Vocabulary items were selected based on their frequency and functional relevance in the game.

b) Observation

Non-participant observation was conducted during gameplay sessions to document the participant's learning behaviors, such as pausing at unfamiliar words, verbal repetition, guessing meaning from context, and attention to in-game text. Observation notes provided direct evidence of cognitive strategies that could not be fully captured through test scores alone.

c) Interview

A semi-structured interview was conducted after the gameplay sessions to explore the participant's vocabulary learning strategies and perceptions of learning through digital games. Open-ended questions allowed the participant to explain how they understood new words, what strategies they used, and how they felt about learning English through games.

d) Questionnaire

A short questionnaire was administered to support the interview data by capturing the participant's attitudes, motivation, frequency of game use, and perceived challenges. The questionnaire served as a supplementary tool to strengthen the reliability of affective data.

4. Instrument Validation

To make sure that the research was correct, all research tools were checked by experts before data collection. An English education lecturer with expertise in SLA and research methodology reviewed the vocabulary test, observation checklist, interview guide, and questionnaire. Feedback focused on how clear it was, how relevant it was to the research questions, and how appropriate it was for a junior high school. Changes were made based on the expert's suggestions, especially to make the wording simpler and make sure that the instruments and research objectives match each other.

5. Data Collection Procedures

We collected data in three stages. First, the participant took a vocabulary test to see what they already knew. Second, we watched and wrote down how people played the game. During this phase, we recorded observations without disturbing the participants. Third, the students took a test, an interview, and a questionnaire. These were given to see if the students had learned more vocabulary, what their learning strategies were, and what they thought about the course.

6. Data Analysis Techniques

- a) Quantitative data from the pre-test and post-test were analyzed using descriptive statistics to calculate vocabulary gain scores. The gain was obtained by subtracting the pre-test score from the post-test score, providing a numerical indicator of vocabulary development.
- b) Qualitative data from observation notes, interview transcripts, and questionnaire responses were analyzed thematically. The analysis involved data reduction, coding, and categorization based on the research questions. Key themes included vocabulary exposure and noticing, learning strategies, and motivation and perception. The findings from qualitative analysis were then used to explain and contextualize the quantitative results.

7. Trustworthiness of the Study

To make sure the qualitative findings were reliable, we used several strategies. First, we compared data from different sources, like tests, observations, interviews, and questionnaires. Second, we made sure we understood what the participants meant by confirming the main interpretations with them. Third, we kept a record of the research procedures, instrument revisions, and data analysis steps. These strategies made the study more believable and reliable.

8. Ethical Considerations

The research process was done in a way that followed strong moral principles. The participant and their guardian both agreed to take part in the study. The person's name was not included, and all data were used only for academic purposes.

C. RESULT AND DISCUSSION

This section presents and discusses the findings of the study based on the triangulation of quantitative and qualitative data obtained from the vocabulary test, questionnaire, interview, and observation. The discussion goes beyond demonstrating effectiveness and focuses on explaining how and why incidental vocabulary learning occurs through digital games, particularly in relation to cognitive strategies and affective engagement.

1. Vocabulary Test Results and Vocabulary Gain

The data from the vocabulary tests show that the participants' English vocabulary knowledge improved after they played digital games. The test had 15 high-frequency vocabulary items commonly encountered in Mobile Legends: Bang Bang.

Table 1. Pre-test and Post-test Vocabulary Results

Test Type	Total Items	Correct Answers	Percentage
Pre-test	15	8	53.33%
Post-test	15	12	80.00%
Gain	–	+4	+26.67%

As shown in Table 1, the participant learned four new words, which is a 26.67% increase. This suggests that playing video games while learning English vocabulary helps players learn more vocabulary. However, this result doesn't just show how well it worked. This study sees the gain as a way to understand the learning processes that happened during gameplay.

2. Types of Vocabulary Acquired

To understand more about how vocabulary grows, the test results were studied to see the difference between new words that were learned and words that were already known.

Table 2. Types of Vocabulary Acquisition Based on Test Results

Category	Vocabulary Items	Learning Characteristics
Newly Acquired	Defense, Minion, Jungle, Kill	Game-specific, context-dependent, repeated exposure
Previously Known	Attack, Start, Exit, Continue	High-frequency general English vocabulary

Table 2 shows that most of the new words learned were related to specific games and how they are played. These words were essential for understanding the actions and strategies in the game, making them practically necessary. This supports the idea that players learn words in digital games because they need to communicate and the words have a meaning in the game, not because they're being memorized.

This result supports the idea of incidental vocabulary acquisition, where learners pick up new words unintentionally while focusing on achieving other goals (Qasim, 2021). At the same time, the fact that not all vocabulary items were acquired suggests that exposure alone does not guarantee learning. This finding is consistent with studies reporting limited or uneven impacts of game-based learning when attention and engagement vary.

3. Vocabulary Learning Strategies Identified

The data from interviews and observations show that vocabulary learning was influenced by specific thinking strategies that the player used during gameplay.

Table 3. Vocabulary Learning Strategies Identified from Qualitative Data

Data Source	Strategy	Description
Interview	Contextual Guessing	Inferring word meaning based on visual and situational cues
Observation	Noticing	Pausing at unfamiliar words to attend to form and meaning
Observation	Repetition	Repeating words aloud during gameplay

The most common strategy was something called “contextual guessing.” The participant said that when he came across unfamiliar words, he tried to guess their meanings based on what he saw and the events in the game. Observational data confirmed this behavior, particularly when words appeared at the same time as actions (for example, the word “Kill” appeared when an enemy character was defeated). Also, the process of noticing played a crucial role. The person taking part in the study paused at unfamiliar words and tried to confirm their meanings. This supports the idea that noticing helps connect exposure and acquisition, turning input into intake. The repeated use of important words helped students learn and remember the information. These findings show that digital games help with vocabulary learning, but only when learners actively participate.

4. Learner Perception and Affective Engagement

Emotions had a big impact on the learning process, along with thinking strategies. The results of the interviews and the survey showed that the participants thought digital games were fun and easy to use for learning. The participant described learning through games as “more enjoyable and relaxed,” emphasizing the role of visual support and repetition. This positive emotional response increased engagement and sustained attention, both of which are important for learning. The gaming environment reduced the anxiety often associated with formal classroom learning, allowing the learner to interact with English more freely and independently.

However, the participant only used the words they learned in the gaming context. Most of the words that were remembered were common and useful. This suggests that while games can help people learn new words, they may need more teaching to learn to use language in different ways. This finding is similar to what other studies have reported.

These studies also found that game-based learning has a small impact when the learning is limited to a certain context.

5. Discussion in Relation to Previous Studies

This study's results partly support earlier research that found digital games can help people learn new words. At the same time, they also support studies that warn against thinking that game-based learning is always effective. The vocabulary gains were small and only happened in certain situations. This shows that digital games are best used to help people learn in a relaxed way, not as a replacement for teaching.

Most importantly, this study adds to the existing research by explaining how people learn new words. Instead of just focusing on the final results, the findings highlight the connection between the specific input received, the strategies used by the learners, and their emotional engagement. This process-oriented perspective addresses an important research gap and provides a more nuanced understanding of how digital games support vocabulary development in a second language.

D. CONCLUSION

This study looked at how digital games can help students learn English as a second language. The research used a design that combined different types of data. It used tests of vocabulary before and after the study to collect quantitative data. It also used questionnaires, interviews, and observations made in the classroom to collect qualitative data. This study does more

than show how well digital games work. It helps us understand better how people's brains and feelings work together when they're learning words in a relaxed digital setting.

The findings show that digital games provide a meaningful and relevant environment that helps learners learn new words when they are focused on the game. The words a learner knew did not just happen randomly. Instead, it was mostly because of how much the learner used certain strategies. Some of these strategies were guessing about what is similar and what is different, noticing things, and repeating words and phrases. These strategies helped the learner to make lasting word knowledge. This shows that learning vocabulary in digital games is a mediated process. This means that how learners attend to and process linguistic input matters more than just exposure.

In addition, emotions were key to keeping people interested in English. The participant enjoyed digital games and felt relaxed, which made them want to keep playing and learning. However, the findings also show that players mainly learned new words while playing video games. This suggests that video games alone may not be enough to help players learn new words. Because of the single-case design, the results can't be applied to all EFL learners. Instead, this study offers a detailed explanation of how vocabulary learning happens in one person's gaming experience. Future research should include more participants and follow the same participants over time to better understand how learning strategies and long-term vocabulary retention vary among different types of learners.

This study shows that digital games are most useful as a learning tool to help students learn new words by playing games. Games are most effective when students play with other students, use their own strategies, and are interested in the game. Games should not be used as the only way to help students learn new words.

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