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January 31, 2025**Vocabulary Learning Strategies in Dota 2: A Case Study of
Players' Viewpoints****Strategi Belajar Kosakata di Dota 2: Studi Kasus dari
Pandangan Para Pemain****Wanda Hijriani Herwanto¹, Slamet Setiawan¹ & Ahmad Munir¹****¹Universitas Negeri Surabaya**Email: wanda.22001@mhs.unesa.ac.id**Abstract**

The popularity of video games among language learners makes games a potential medium for learning languages. Previous research shows that playing video games, one of which is DOTA 2, can have a positive effect on students' vocabulary acquisition, but it still does not explain what specific vocabulary learning strategies are used. This study explores DOTA 2 players' experiences in acquiring new knowledge and identifies effective strategies for acquiring knowledge in the context of the game. The research method used is a case study research design, as well as semi-structured interviews and observation. The results showed that DOTA 2 players learned new vocabulary through exposure while playing the game, and social interaction was the most emphasized comprehension learning strategy used by the participants. This study provides insight into the effectiveness of DOTA 2 as a language learning tool, especially regarding knowledge acquisition.

Keywords: *DOTA 2; Vocabulary acquisition; English language learners; Social interaction; Language learning strategies*

Abstrak

Popularitas permainan video game terhadap pelajar bahasa membuat permainan sebagai media belajar bahasa mungkin. Penelitian sebelumnya menunjukkan bahwa bermain permainan video game, salah satunya DOTA 2, dapat memiliki efek positif terhadap pengakuan kata bahasa siswa, tetapi masih belum menjelaskan strategi belajar kata bahasa yang spesifik yang digunakan. Studi ini meneliti pengalaman pelajar DOTA 2 dalam memperoleh pengetahuan baru dan mengidentifikasi strategi belajar yang efektif dalam konteks permainan. Metode penelitian yang digunakan adalah desain penelitian kasus, serta rancangan beraturan semiprasiing dan observasi. Hasil penelitian menunjukkan bahwa pelajar DOTA 2 mempelajari kata bahasa baru melalui pengalaman saat bermain permainan, dan strategi pengertian

belajar yang paling diakcentuasi oleh peserta adalah interaksi sosial. Studi ini memberikan insight tentang efektivitas DOTA 2 sebagai alat belajar bahasa, khususnya tentang pengetahuan.

Kata kunci: DOTA 2; Pengakuan Kata Bahasa; Pelajar Bahasa Inggris; Interaksi Sosial; Strategi Belajar Bahasa

Introduction

Language learning is a complex process that demands several skills and knowledge. Vocabulary acquisition is an important component of language learning for effective communication. Learners who know more words and phrases tend to speak more accurately (Uchihara&Clenton, 2020). Additionally, productive vocabulary knowledge is significantly related to Second Language (L2) spoken ability, particularly fluency (Uchihara& Saito, 2019). Vocabulary is an essential indicator of the learner's language skills.

Knowing vocabulary learning strategies is necessary for language learners because it can help them acquire new vocabulary more effectively. Gu, (2019), Guand Johnson, (1996) mentioned vocabulary learning strategies are cognitive, metacognitive, and social strategies, that can help in vocabulary mastery. When students use cognitive strategies like summarizing, highlighting, and note-taking, they can better organize information, make connections between what they already know and new information, and remember important details. Metacognitive strategies, such as setting goals, self-assessment, reflection, and self-questioning, help students become more aware of their own learning processes, identify areas where they can improve, and take steps to achieve better outcomes. Social strategies, like peer tutoring, group discussions, and collaborative learning activities, allow students to develop communication skills, learn from others' perspectives, and benefit from the collective knowledge of their peers.

Furthermore, various studies have been conducted to identify vocabulary learning and acquisition strategies. Hsu et al., (2023) investigated the use of artificial intelligence image recognition and self-regulation learning strategies for vocabulary acquisition, which includes setting goals, self-monitoring, and self-evaluation. Al-Khresheh& Al-Ruwaili, (2020) conducted an exploratory study into vocabulary learning strategies used by Saudi EFL learners, which includes strategies such as memorization, guessing, and using dictionaries. By incorporating these strategies into their learning process, learners can improve their vocabulary acquisition and ultimately their overall language proficiency. In addition, by knowing these strategies, educators can help students identify which strategies work best for them and allow them to adjust their learning to their individual needs and learning styles. Gu& Johnson, (1996) found a relationship between vocabulary learning strategies and language learning outcomes, highlighting the effectiveness of different strategies for different learners and contexts. Therefore, understanding vocabulary learning strategies is

crucial for language learners who want to improve their vocabulary acquisition and overall language proficiency.

Video games have become increasingly popular in recent years, and many language learners use video games to improve their language skills. The use of video games for language learning and vocabulary acquisition can be an effective strategy for students indicated by several previous studies. Game-enhanced second language vocabulary acquisition strategies were found to increase vocabulary retention and motivation to learn languages (Yudintseva, 2015). Video games were also found to have a positive influence on English as a foreign language vocabulary acquisition (Camacho Vásquez&Ovalle, 2019; Kazu&Kuvvetli, 2023; Luan Ng et al., 2022) and learners have a positive perception of using video game for vocabulary mastery (Gazam et al., 2022). Furthermore, video-game-based teaching has been indicated to be more effective than traditional instruction for vocabulary acquisition with English learners (Thompson & von Gillern, 2020). Those previous studies show that video games can be useful tools for language learning, but it but it's still lacking to explore the effectiveness of its use, so more research is needed to investigate specific vocabulary learning strategies used in video games, as well as more detailed information on other specific video games used to better understand their impact on vocabulary acquisition. It is important to consider the characteristics of the video games used, as different levels of difficulty and engagement may impact the effect.

DOTA 2 (Defense of the Ancients 2) is a popular video game that can help people learn languages due to its unique features. This game involves teamwork consisting of five people per team, requires strategy, and communication between players in order to achieve the goal of destroying the enemy's base (Akhmedov& Phan, 2021). The game has been played by millions of people worldwide and has potential as a tool for language learning as it allows players to interact with people from different countries and cultures. DOTA 2 has features such as the in-game chat system for communication and coordination between players. In addition, the overall language used in this game is English. Players can learn new vocabulary and improve their language skills while playing and communicating with teammates. Some studies have shown that DOTA 2 is popular and can be analyzed in different ways (Akhmedov& Phan, 2021; Demediuk et al., 2019). Additionally, in Indonesia, the DOTA 2 game has become popular, especially among young people (Khomeiny&Wibawa, 2020). Overall, DOTA 2's popularity and unique features make it a potential tool for language learning and analysis.

Previous research has shown that playing DOTA 2 can have a positive effect on students' vocabulary acquisition, but it still does not explain any specific vocabulary learning strategies used by the participants (Yudha&Utami, 2022). In a study conducted in Malang, Indonesia, it was found that playing DOTA 2 had a significant effect on the academic achievement of students (Ismail,

2016). However, there is still a lack in exploring the potential of DOTA 2 for learning vocabulary, especially in the Indonesian setting. Future research is needed on investigating the potential of DOTA 2 as a tool for vocabulary acquisition among English language learners and the vocabulary learning strategies used. Therefore, the purpose of this study is to investigate the experiences of DOTA 2 players in acquiring new vocabulary words while playing the game and to identify the strategies that they use to enhance their learning. This study builds upon previous research that has highlighted the potential of gaming to promote language learning and the importance of identifying effective strategies for vocabulary acquisition in gaming contexts.

In addition, this study has research questions:

1. How do players experience the acquisition of vocabulary while playing DOTA 2?
2. What strategies does DOTA 2 player use for learning new vocabulary words while playing the game?

Methods

This study utilizes a case study research design to explore the experiences of players in playing DOTA 2 and the strategies they use in acquiring new vocabulary. Case study research design is chosen for its ability to provide an in-depth analysis of a particular phenomenon within its real-life context. It is particularly useful for exploring complex and multifaceted issues, allowing researchers to gain a comprehensive understanding of the topic being studied (Ary et al., 2014). By examining the experiences of players in their natural settings, researchers can gain valuable insights into the strategies they use in acquiring new vocabulary while playing DOTA 2. This approach allows for a detailed examination of the phenomenon, providing a rich and nuanced understanding of the topic.

The participants of this study are two players who are experienced in playing DOTA 2 and have good command of English. The procedure includes giving questions related to game-specific terminology, asking participants to explain and use certain terms according to context, and observing them to find out whether they have experienced vocabulary acquisition from playing DOTA 2. In addition, semi-structured interviews were also conducted with questions focused on participants' experience of discovering new vocabulary while playing the game, strategies for learning new words, and overall experience of using DOTA 2 for language learning.

Observation data of participants' answers and explanations as well as interview data in transcripts were then analyzed using content analysis to code themes related to participants' experiences in vocabulary acquisition and their strategies for learning new words, as well as their overall experiences using games for language learning.

Results and Discussion

The results of this study show the player's experience in acquiring vocabulary through DOTA 2 and what strategies they use for learning new vocabulary words while playing the game. The results of this study were analyzed based on the vocabulary learning strategies proposed by Gu, Y., & Johnson, R. K. (1996), which are cognitive, metacognitive, and social strategies.

Experiences of vocabulary acquisition while playing DOTA 2

Participants' usage of game-specific vocabulary was observed, and results revealed that they were able to answer 19-20 out of 20 questions on terms such as "creeps", "Roshan", "carry", "support", "farming", "jungle", "rotation", and more. Despite that, they were able to adequately explain the game's special terms. Following that, interviews were conducted and yielded the following results.

Encountering and Learning New Vocabulary

The interviews with DOTA 2 players revealed insights into how they encountered and learned new vocabulary while playing the game. The participants noted that they learned new vocabulary words, through exposure to them in the game. They stated that playing DOTA 2 improved their confidence in speaking English, and they also learned game-related terminology, abbreviations, and slang in English through communicating with other players. They said that motivation to learn new words makes them better at talking with their teammates, especially if their teammates speak English first.

"I learned new words such as ganking, roaming, and SS, which describe Special Skill, an alternative term for Ultimate Skill. I also encountered in-game terminologies, abbreviations, and slang in English, which I usually understand through communication." (Participant 1)

"I can use these words because of the time I spent playing. I understand and use new words because I am used to them and encounter them almost every day when playing. These words cannot be found in English lessons. And, also, my confidence in speaking English has increased" (Participant 1)

"I practice new words that I meet in games with my friends to communicate better." (Participant 2)

"Because of the interactions with the game and friends who use English, I am forced to use English, which indirectly improves my English language skills" (Participant 2)

Overcoming challenges

The participants then shared their experiences about the challenges they faced in learning new vocabulary and the way to overcome them. They share how they encounter difficult words and the external resources they rely on, such

as dictionaries and translation tools, to support their learning process. Participant 2, in particular, discussed the challenge of translating a sentence from Indonesian to English, only to realize the importance of context over literal translation. Interestingly, Participant 1 had no difficulty in learning new words while playing DOTA 2. The participants also revealed that they learned new words while playing DOTA 2 by seeking help from their friends, using Google Translate, and practicing with their colleagues. Both participants emphasized the significance of practicing with their teammates to improve their language skills. Overall, their experiences shed light on various obstacles and solutions in learning new vocabulary.

"The challenge is when we translate a sentence into Indonesian and then translate it again into English to convey it, it also needs to be adjusted to the context. So, the more we play, the more we get used to practicing conversational skills using English." (Participant 2)

"For beginners, we can look at and use tutorials, then to improve our vocabulary and language skills, we can just play and practice communicating with strangers." (Participant 2)

"I didn't encounter any big challenges, I only used Google search and Google Translate when I encountered an unfamiliar word." (Participant 1)

"My suggestion when playing DOTA 2 is to play with foreigners often and dare to use open mic and be communicative." (Participant 1)

Benefits of using DOTA 2 as a Language Learning Tool

The interviews with DOTA 2 players suggest that the game can be a useful tool for improving language skills, particularly in aspects related to communication. However, it is important to balance playing DOTA 2 with other methods of language learning, such as classroom instruction or language learning applications.

Improving Conversational English Skills and Building Connections

Participants in the study highlighted that playing DOTA 2 can be a useful and enjoyable way to improve conversational English skills and build connections with communities. They emphasized that the game provides an interactive platform for practicing English language skills, which can boost confidence in communication.

Participant 1 stated, *"When I play DOTA and talk to strangers, I tend to use less formal language compared to what I learn in school. I found DOTA to be a great way to build connections and increase my confidence in speaking English, improving my language skills as a bonus since my goal of playing is of course to have fun."*

Participant 2 also shared, *"DOTA 2 is a great way to practice English language skills because it is interactive and can boost confidence in communication. When I play DOTA 2, I do it for fun, not specifically to learn English."*

This aligns with previous studies that found DOTA 2 and other MOBA games to be effective in improving conversational English skills and vocabulary (Hapsari et al., 2018; Rachmad et al., 2023; Gazam et al., 2022).

Learning by Doing and Hands-On Learning

The participants noted that learning through DOTA 2 is more efficient as it involves hands-on learning. They found that the interactive nature of the game allows for practical application of language skills, which can enhance the learning experience.

"Based on my experience, I find that learning through DOTA 2 is more efficient because it involves hands-on learning."(Participant 2)

This is consistent with previous research that emphasized the effectiveness of hands-on learning and interactive mediums, such as video games, in improving language skills and communication (Emre et al., 2022).

Understanding Real-Life Context and Applying Knowledge

The study participants emphasized the importance of understanding the context in which English words are used and applying them in real-life situations. They highlighted that playing DOTA 2 provides an opportunity to learn and apply language skills in a practical and authentic context, such as communicating with strangers during the game.

Participant 1 emphasized, *"Apart from that understanding the context in which English words are used is also important, which means I need to apply my knowledge in real-life situations, such as communicating with foreigners or learning about different cultures."*

Participant 2 also highlighted, *"For those who are just starting out, using tutorials can be helpful, and practicing communication with strangers can improve vocabulary and language skills."*

This is in line with previous research that emphasized the significance of real-life application and contextual understanding in language learning through video games (Thompson & von Gillern, 2020).

The findings from the study and the cited previous research suggest that playing DOTA 2 can indeed be a beneficial tool for improving language skills, particularly in aspects related to communication and vocabulary. The interactive and hands-on nature of the game provides a unique platform for language

practice and learning. However, it is important to note that while DOTA 2 can be a helpful supplement to language learning, it cannot fully replace formal education. The participants themselves acknowledged the need for a balance between formal learning and everyday life applications, such as playing DOTA 2.

Furthermore, the study's emphasis on the importance of supervision and restrictions from teachers and parents aligns with previous research that has highlighted the potential negative effects of excessive gaming on academic performance (Ismail, 2016). Therefore, while DOTA 2 and similar games can be valuable for language learning, it is essential to approach their use with a balanced and supervised perspective.

In conclusion, playing DOTA 2 can be an effective and enjoyable way to improve language skills, particularly in terms of conversational English and vocabulary. However, it should be integrated as a complementary tool within a well-rounded language learning approach that includes formal education and other methods of language practice.

Strategies used by DOTA 2 Players in learning new vocabularies

Based on the work of (Gu& Johnson, 1996), vocabulary learning strategies include cognitive, metacognitive, and social strategies. After the participants shared their experiences in acquiring new vocabulary through DOTA 2, the three strategies were identified as being used by the participants.

Cognitive Strategy

Cognitive strategies are mental processes learners apply to acquire new skills and understanding. Participants in this study showed cognitive strategies such as predicting the meaning of unfamiliar terms from context, seeking dictionaries, and repeating phrases that are unfamiliar. These strategies are linked to incidental vocabulary learning, which occurs when learners acquire vocabulary unconsciously or as a result of doing another activity, such as playing a video game or communicating (Huang &Eslami, 2013). The following are the cognitive strategies performed by participants in this study:

Contextual guessing: Participants used contextual guessing to understand new words based on the conditions they were in. They identified the meaning of new terms based on their past knowledge of the language and the context of their current situation.

"The way we translate a language is not word-for-word but based on context."
(Participant 1)

Using dictionaries: While playing DOTA 2, participants used external resources such as Google Translate to help them learn new terms. They also utilized dictionaries to corroborate their ideas and look up words in other resources.

"..I search on Google Translate if I encounter difficult words."
(Participant 2)

Repeating new words: Participants reported that while learning new terms, they had to use them frequently in order to become familiar with them. They learned about new terms with their friends in order to communicate more effectively, and they employed these words as a consequence of the time they spent playing.

"..I understand meaning of new words because I am used to them and encounter them almost every day when playing." (Participant 1)

These cognitive strategies can help learners identify word meanings and improve their vocabulary acquisition.

Metacognitive Strategy

The implementation of strategies that help learners become aware of their own learning processes and how to manage them is known as metacognitive vocabulary learning strategy (Diaz, 2015). Participants in the present research suggested that they worked with metacognitive strategies, yet they were not significant, such as practicing with friends.

"I also often played with my team" (Participant 1)

".., I practice with my friends to communicate better." (Participant 2)

Practicing with friends is a metacognitive acquisition of vocabulary strategy because it requires students to take advantage of their metacognitive potential to select and use various strategies in specific circumstances for a specified purpose (Trujillo Becerra et al., 2015). Learners may check their own learning, evaluate their understanding of the terms, and modify their learning strategies by practicing with friends, who can engage in activities like as discussing new words, using them in expressions, and offering feedback to each other. It allows learners to engage in continuous participation, socializing, and metacognitive strategy use, which may help in the acquisition of new vocabulary and the improvement of overall language competency.

Social Interaction Strategy

Another strategy of vocabulary learning that learners might utilize to enhance their vocabulary acquisition is social strategies. Interactions with other users, such as friends or educators, are used in social strategies for acquiring the meaning of new words (Alahmadi& Foltz, 2020). Both participants in the present research use social strategies to acquire new terms. The following social strategies were discovered:

Asking friends for meaning: Participants could enhance their comprehension of new terms by asking their friends for the definitions.

"I ask my friends if I encounter difficult words." (Participant 2)

Communicating with with native speakers: Participants interact with native speakers to discover new words in context and learn how to use them properly.

"When playing this game, we can meet with stranger that speak English, we automatically try to speak in English to communicate with them." (Participant 2)

"I have a friend from a foreign country, and I can apply the words I learned from playing DOTA 2 when communicating with them." (Participant 1)

"When expressing strategies to play in the game, we need to communicate with the team, and we can learn new words based on context." (Participant 1)

In addition, the Participant also suggested staying active and conversational with teammates while playing to develop language abilities, confidence, and communication, which is consistent with Gu & Johnson, (1996) approach of employing social engagement to boost vocabulary learning.

"Do not be a passive player, as passive players only understand the meaning of new words without being able to use English actively. You must be active and collaborative with your teammates to improve your language skills, confidence, and communication." (Participant 1)

They learned new terms more easily through conversation and collaboration with their teammates, one of whom was a native speaker who participated in the game. This approach can be helpful in the acquisition of vocabulary because it allows learners to engage in social interaction and conversation, which can help them improve their social and communicative skills (Alahmadi & Foltz, 2020).

The present study discovered that while playing the game, individuals utilized cognitive, metacognitive, and social strategies to acquire new vocabulary. These findings align with O'Malley and Chamot, (1990) classification of learning strategies as various strategies or behaviors used by learners to interpret, learn, or maintain new knowledge. Furthermore, this present study confirms Alahmadi and Foltz, (2020) suggestion that interacting with others could enhance vocabulary acquisition. A previous study on the use of vocabulary strategies for learning additionally found a substantial connection between individual factors and the use of vocabulary learning strategies, emphasizing the importance of social strategies in vocabulary acquisition (Göçen, 2020). This illustrates how the implementation of ways to learn by one individual may differ from one person to another. All of these strategies have been employed by participants in the present study to acquire vocabulary in DOTA 2. As a result, DOTA 2 could be considered a great way of vocabulary acquisition.

In summary, the present study provides evidence for the effectiveness of DOTA 2 as a language learning tool, particularly for vocabulary acquisition. The findings are consistent with previous studies on vocabulary learning strategies, such as Gu (2019), Gu & Johnson (1996), Supian and Asraf (2019), Aravind and Rajasekaran (2018), and Ghalebi et al. (2021). These studies emphasize the importance of using effective vocabulary learning strategies for language learners to enhance their language proficiency. The present study's results contribute to the understanding of the potential of DOTA 2 as a language

learning tool and provide insights into the effectiveness of using video games for language education.

Conclusion

In conclusion, the present study suggests that DOTA 2 can be an effective medium for acquiring new vocabulary words through social, cognitive, and metacognitive strategies. The interviews conducted with language learners provide insights into the vocabulary learning strategies used during DOTA 2 gameplay, including the use of context clues, repetition, and social interaction. The immersive environment, motivation, and social support provided by DOTA 2 gameplay can also contribute to language learning outcomes.

The findings of this research have implications for the application of DOTA 2 or similar video games in the school environment for vocabulary learning. The implementation of DOTA 2 or similar video games in school can be integrated into existing language learning curricula. Suggestions for teachers are to create assignments or activities that require students to use games for vocabulary acquisition. This can be done by incorporating games into language classes, or by giving students access to them during study periods or after-school clubs.

In addition, suggestions for further research are the need to explore the potential of DOTA 2 or similar video games for language learning. This includes examining the impact of games on language proficiency, comparing their effectiveness with other language learning methods, and investigating the role of motivation and support in language learning through games. By conducting this research, educators can gain a better understanding of the potential of video games in language education and develop more effective strategies for vocabulary teaching in schools.

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