

Students' perception of learning vocabulary by using words of wonders applications

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Abstract: Words of Wonders is a game-based crossword application that is believed to assist students in improving their vocabulary mastery. This research seeks to explore students' perceptions regarding the use of the Words of Wonders application in vocabulary learning. The study employs a mixed-method approach, utilizing observation, questionnaires, and interviews as data collection instruments. This study involved 30 students from a senior high school in Medan as questionnaire respondents and 10 students who participated in interviews. The result showed the students have positive perceptions, namely: Words of Wonders is adjustable, vocabulary expansion, interactive learning, and enhances critical thinking skills by connecting random letters into cohesive words. The findings highlight the alignment between questionnaire and interview results, reflecting favorable student perceptions. Consequently, Words of Wonders is recommended as an effective vocabulary learning tool. Nevertheless, further studies involving a larger number of participants are necessary to gain more comprehensive insights into students' perceptions and to evaluate the strengths and weaknesses of the Words of Wonders application in vocabulary learning..

Keywords: Students' perception, vocabulary learning, Words of Wonders application

Abstrak: *Words of Wonders* adalah aplikasi teka-teki silang berbasis permainan yang diyakini dapat membantu siswa dalam meningkatkan penguasaan kosakata mereka. Penelitian ini bertujuan untuk mengeksplorasi persepsi siswa mengenai penggunaan aplikasi *Words of Wonders* dalam pembelajaran kosakata. Studi ini menggunakan pendekatan metode campuran, dengan observasi, kuesioner, dan wawancara sebagai instrumen pengumpulan data. Penelitian ini melibatkan 30 siswa dari sebuah sekolah menengah atas di Medan sebagai responden kuesioner dan 10 siswa yang berpartisipasi dalam wawancara. Hasil penelitian menunjukkan bahwa siswa memiliki persepsi positif, yaitu: *Words of Wonders* bersifat fleksibel, mendukung pengembangan kosakata, mendorong pembelajaran interaktif, serta meningkatkan kemampuan berpikir kritis dengan menghubungkan huruf-huruf acak menjadi kata yang bermakna. Temuan ini menunjukkan keselarasan antara hasil kuesioner dan wawancara, yang mencerminkan persepsi positif dari siswa. Oleh karena itu, *Words of Wonders* direkomendasikan sebagai alat pembelajaran kosakata yang efektif. Namun demikian, penelitian lebih lanjut dengan melibatkan jumlah peserta yang lebih besar diperlukan untuk memperoleh wawasan yang lebih komprehensif mengenai persepsi siswa serta untuk mengevaluasi kelebihan dan kelemahan dari aplikasi *Words of Wonders* dalam pembelajaran kosakata.

Kata kunci: Persepsi siswa, pembelajaran kosakata, aplikasi Words of Wonders

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INTRODUCTION

The ability to master vocabulary constitutes one of the fundamental aspects of language learning, whether as a first language or a foreign language. According to Badroeni et al. (2022), mastering vocabulary is a crucial aspect of language learning. Vocabulary serves as the fundamental basis of communication, significantly influencing its use and daily needs. The language utilized by humans heavily relies on the vocabulary they have acquired. Vocabulary forms the foundation for the development of other language skills, such as

speaking, reading, writing, and listening. Ismatullayeva (2020) posits that vocabulary is the primary medium through which individuals communicate thoughts, statements, and expressions, thereby continuously contributing to students' general knowledge. In the context of learning a foreign language, vocabulary acquisition becomes an essential factor. Vocabulary plays a critical role for natural language learners. Without an adequate vocabulary, effective communication and the expression of ideas cannot be achieved (Ismail et al., 2025; Sari & Aminatun, 2021). Therefore, without sufficient mastery of vocabulary, learners will lose motivation to use the language (Schmitt, 2019), because vocabulary encompasses all words that students must know, which includes not only recognizing word forms but also comprehending their meanings.

Hardiana and Lubis (2024) emphasize that vocabulary constitutes a fundamental component of language proficiency. A comprehensive command of vocabulary is imperative for clear and effective verbal communication. A limited vocabulary can impede clarity and precision in communication. Therefore, vocabulary development becomes a primary aspect of English language teaching. A robust lexical repertoire enables learners to utilize the language proficiently and with confidence, facilitating articulate expression of ideas and engagement in communication through a diverse array of English terminology (Wahyudin et al., 2021). Vocabulary mastery is one of the greatest challenges faced by every learner in learning a foreign language. Additionally, with the advancement of technology and media science, it has become a vital provision for mastering English as a communication necessity. However, it cannot be ignored that there are still students who excel in learning English but have inadequate vocabulary proficiency. The low mastery of English vocabulary is generally influenced by several factors, including: limited vocabulary knowledge, students' lack of understanding due to using the same learning media, and not applying appropriate learning models (Hamer & Lely, 2019).

According to the Regulation of the Minister of National Education in Indonesia, vocabulary development is identified as a fundamental aspect of survival English, forming part of the standard competencies expected of senior high school graduates. Moreover, the competency-based curriculum stipulates that students are required to acquire a vocabulary range of 1,000 to 1,500 words per academic year. Consequently, by the end of their three years of senior high school education, students should have mastered a minimum of 4,000 words, ensuring comprehensive language proficiency aligned with curricular objectives (Munthe, 2020). As a matter of fact, observations during practical teaching showed that several students struggle to express their thought due to the lack of vocabulary mastery, several of them also confused and do not understand when researcher explain the material with English. During the observation, the students stated that they are feel bored whenever the teacher ask them to remember the new vocabulary and it makes them do not enjoy the learning process. Based on that problem identified above can be most effectively addressed through the strategic utilization of advancements in technology.

The advancement of technology and the modifications made to the curriculum, educators are being challenged to employ a wider variety of new and more diverse instructional strategies (Astuti et al., 2025; Setyantoko et al., 2023). Effective teaching approaches must not only improve students' language mastery but also be capable of fostering their enthusiasm for learning (Faudi et al., 2023; Ota et al., 2023). The advancement of information and communication technology has had a tremendous impact

on many areas of life, including education. One technological advancement that has sparked interest is the use of digital games in the learning process. Digital games provide a dynamic, engaging, and pleasurable approach that can boost student learning motivation (Robin & Aziz, 2022). In the context of language learning, particularly vocabulary acquisition, digital games hold great potential for helping students build their vocabulary in a more effective and enjoyable manner. Through the use of digital games, students can learn vocabulary through various interactive and challenging activities, thereby improving their interest and motivation in learning. Research by Chowdhury et al. (2024) shows that digital game-based language learning (DGBLL) significantly boosts students' intrinsic motivation, DGBLL also helps students learn language in context using different vocabularies in multimodal game narratives.

In today's digital era, an array of applications and platforms has been developed to facilitate students' vocabulary acquisition through interactive and engaging methods. Technological advancements address the constraints of conventional approaches by integrating contextual and dynamic components that enhance vocabulary retention and practical application. Mahdi (2018) underscores that a significant number of students employ mobile-assisted language learning (MALL) applications to acquire English as a foreign language. These digital tools contribute to students' proficiency across the four core language skills: reading, listening, speaking, and writing. Additionally, specialized educational applications, such as Words of Wonders, provide an engaging medium for language learning.

Words of Wonders is a game developed by Fugo Games, a Turkey-based company. The game takes the form of a crossword puzzle, challenging players to connect available letters to form hidden words. Upon successfully identifying the hidden words, players advance to the next level with increased difficulty. The game's complexity progressively increases, marked by the introduction of longer words and a greater number of letters. Prior research by Septiani et al (2024) found that the Word of Wonders game helped students understand new word definitions. Putra et al. (2022) concluded that crossword puzzles are more effective for vocabulary acquisition and that group learning is better than individual learning due to idea sharing and collaboration. Moreover Manullang et al. (2020) showed that crossword puzzles improved students' vocabulary and interest in English. Tambaritji and Atmawidjaja (2020) highlighted that crossword puzzles enhance student engagement and prevent boredom, helping them retain vocabulary and improve pronunciation.

Although previous studies have demonstrated the effectiveness of the Words of Wonders game in enhancing vocabulary acquisition, no research has specifically examined students' perceptions of this application. This study aims to investigate students' perspectives on the usefulness of Words of Wonders. Unlike previous studies that employed a quantitative approach, this research adopts a qualitative methodology, focusing on understanding students' subjective experiences in using Words of Wonders as a vocabulary learning tool. The data obtained from this qualitative study are descriptive and interpretative, allowing for an in-depth analysis of how students comprehend, adapt to, and respond to the application's use in their learning process. Moreover, this study contributes to the development of theories related to technology-based learning strategies, which are integral to discussions in qualitative educational research. By examining how students

experience learning through Words of Wonders, this study provides insights into how technology can shape learning experiences in a more interactive and effective manner

In addition to increasing students' vocabulary mastery through the use of Words of Wonders, students' perceptions of this digital game are analyzed as a core data in this study to understand their opinions and experiences when using Words of Wonders during English language learning in the classroom. These perceptions include students' responses, motivation, and attitudes throughout the learning process. According to Rofiqoh and Chakim (2020), perception is generally described as an individual's experience, opinion, and personal judgment about something, reflecting how they interpret it. By analyzing students' perceptions, this approach can serve as an alternative for teachers to evaluate the methods and techniques employed in the teaching and learning process. Given that students hold diverse perceptions, this evaluation is crucial, as these varying perceptions may be negative, positive, strongly positive, or strongly negative. This qualitative research aimed at describing students' perceptions on the use of Words of Wonders application in vocabulary learning. Previous studies have not explored the use of the Words of Wonders application as a tool for vocabulary learning from the students' perspective. Therefore, this study examines students' perceptions of using the Words of Wonders application in vocabulary learning.

METHOD

This study utilizes a mixed-method approach to examine students' perceptions of the Words of Wonders application as a vocabulary learning tool. The mixed-method design integrates both qualitative and quantitative techniques, allowing for a more comprehensive investigation. By employing both approaches, data collection and analysis become more thorough across all phases of the research process (Creswell & Plano Clark, 2011). The research population consists of all twelfth-grade students from a senior high school in Medan, with a sample of 30 participants, selected through a purposive sampling technique. This study uses an explanatory research design, conducted in two sequential stages: first, quantitative data collection and analysis, leading to the formulation of findings. This is then followed by qualitative data collection and analysis, where the qualitative results serve to further explain and elaborate on the quantitative data findings.

Data collection techniques use observation, questionnaires, and interviews. This research began with observations, where students downloaded and engaged with Words of Wonders application, allowing the researcher to assess comprehension and application. Following the observation stage, the researcher proceeded with the distribution of questionnaires to gathered insights into students' experiences while using the Words of Wonders application. Additionally, interviews were conducted with 10 students to obtain more detailed insights. These interviews aimed to explore students' experiences and opinions regarding the application. The validity test conducted on the questionnaire, which consists of eleven items to be distributed to students, confirms its validity, as the calculated r-value exceeds the r-table based on a 0.05 significance level, indicating that the items are appropriate for use. Additionally, the instrument's reliability was assessed through trials using SPSS, yielding an Alpha value greater is > 0.992 , signifying a high level of reliability, meaning that all the questionnaire items are considered dependable for the study.

The data analysis technique used for the questionnaire, which was distributed to 30 students, applies percentage-based descriptive statistics to systematically organize and interpret the data, ensuring a structured, concise, and clear representation of a particular phenomenon, event, or condition. Meanwhile, the qualitative data was obtained through interviews with 10 selected students, chosen based on their proficiency in using and mastering the Words of Wonders application. The interview findings were analyzed descriptively to provide more in-depth and precise insights, offering additional information that could not be captured through the questionnaire.

RESULTS AND DISCUSSION

The research data were collected through an analysis of students' responses to questionnaires and interviews. The results provide insights into students' perspectives on the Words of Wonders application as a vocabulary learning tool. Table 1 presents the data obtained by calculating the total percentage of student responses. The data are classified into five categories based on the responses provided and are grouped according to the assigned values. These response categories include: strongly disagree (SD), disagree (D), neutral (N), agree (A), and strongly agree (SA).

Table 1. Students' perception of vocabulary learning with Words of Wonders

No	Statements	SD	D	N	A	SA
1	Words of Wonders is a user-friendly Application	0%	0%	15.4%	38.4%	46.2%
2	Words of Wonders allows me to study independently, anytime and anywhere	0%	0%	0%	50%	50%
3	Words of Wonders creates an enjoyable learning environment	0%	0%	11.5%	42.3%	46.2%
4	Words of Wonders supports intuitive and engaging learning	0%	0%	7.7%	46.1%	46.2%
5	Words of Wonders helps me expand my vocabulary	0%	0%	15.4%	34.6%	50%
6	Words of Wonders helps me to recognize unfamiliar words	0%	0%	3.8%	42.3%	53.9%
7	Words of Wonders helps me to memorize new words	0%	3.8%	19.2%	30.8%	46.2%
8	Words of Wonders helps me to understand the word variation	0%	3.8%	15.4%	34.6%	46.2%
9	Words of Wonders improves my vocabulary mastery	0%	3.8%	11.5%	34.7%	50%
10	Words of Wonders boosts my critical thinking by arranging random words into sentences.	0%	3.8%	19.2%	23.1%	53.9%

The findings from this questionnaire indicate that the majority of students possess very positive and positive perceptions regarding the use of Words of Wonders in their vocabulary learning. Based on the table above, there are four primary student perceptions

regarding the use of the Words of Wonders application in vocabulary learning namely, words of wonders are adjustable, vocabulary expansion, interactive learning, and enhance critical thinking skills.

Words of Wonders is adjustable

The term "Words of Wonders is adjustable" was coined in research based on questionnaire data numbers 1 and 2. Consequently, these three questionnaires served as a guide for researchers and classified this questionnaire. The first statement, with the keyword "user-friendly", indicates that 46.2% of respondents strongly agreed that Words of Wonders is easy to use, 38.4% agreed, and 15.4% remained neutral in their perception. The second statement, with the keyword "study anytime and anywhere", reveals that 50% of respondents strongly agreed and 50% agreed, highlighting the application's flexibility in allowing students to learn at their convenience. The results from the questionnaire are further reinforced by findings from student interviews, as detailed below:

"Words of Wonders is easy to use because, all its features are available free of charge, and the application can be accessed without an internet connection. **(DDS)**".

"Some educational apps have excessive ads or unnecessary features that make studying frustrating. WOW, on the other hand, keeps things simple. **(MPK)**".

"I like Words of Wonders because I can practice whenever I want, whether I'm on a break, commuting, or just relaxing at home, I can open the app and continue learning at my own pace. **(RA)**".

"In my opinion, Words of Wonders is highly suitable for vocabulary learning, because I have noticed significant improvement in my vocabulary after using this application. **(SA)**".

Words of Wonders is a crossword puzzle game that can be played offline, allowing learners to access vocabulary-building activities anytime and anywhere without internet restrictions. This feature enhances learning effectiveness by enabling consistent practice, fostering independent study, and maintaining engagement in a distraction-free environment. These findings align with the results of Anggraini et al. (2022), which highlight that the implementation of the Words of Wonders application in English vocabulary learning has a positive impact on students. This is due to the increased awareness among students that vocabulary acquisition is not limited to classroom activities during English lessons but can take place anytime and anywhere. Additionally, students feel more at ease as the vocabulary learning process becomes easier and more flexible. This aligns with the findings of Fachrozi et al. (2021), which assert that the use of crossword puzzles facilitates students' learning process, making it more accessible and efficient. Furthermore, Nasution et al. (2024) claim that using the Cake App as a vocabulary learning tool motivates students to interact with the program. This is due to its user-friendly layout, engaging features, and fun learning environment, which make vocabulary acquisition more accessible and enticing.

Interactive learning

Based on the questionnaire data, Statements 3 and 4 serve as the foundation for categorizing the concept of interactive learning. The first statement, with the keyword “enjoyable”, indicates that 46.2% of respondents strongly agreed, 42.3% agreed, and 11.5% remained neutral regarding the application's ability to create an enjoyable learning experience. Meanwhile, the next statement, with the keyword “intuitive and engaging”, reveals that 46.2% of respondents strongly agreed, 46.1% agreed, and 7.7% remained neutral, suggesting that the application fosters an intuitive and engaging learning environment. Based on these two statements, no respondents expressed disagreement about the application's effectiveness in supporting learning. The findings from the questionnaire are reinforced by the interview data, as outlined below:

“The application supports me by offering a fun and interactive way to learn, which keeps me motivated while playing. Unlike traditional vocabulary exercises that feel monotonous. Words of Wonders turns learning into a game, making the process enjoyable. **(MM)**”.

“Words of Wonders makes vocabulary learning more enjoyable, keeping me interested in expanding my vocabulary. **(LA)**”.

“I find Words of Wonders incredibly fun, and I don’t feel bored like I do when studying vocabulary from a textbook. **(JMS)**”.

“Words of Wonders provides me an engaging way to learn new words, making studying less boring compared to memorizing word lists. **(MFU)**”.

Format and interactive elements of the Words of Wonders application play a significant role in supporting learning in an intuitive way. Its design encourages active participation and critical thinking by engaging students in solving puzzles, which involve forming and connecting words. This interactive approach enhances students' comprehension and retention of vocabulary, making the learning process both effective and enjoyable. By combining gamified elements with an educational purpose, the application creates an immersive environment that facilitates intuitive and meaningful learning experiences. These findings are consistent with previous research conducted by Madaniyah et al. (2024) that state incorporating digital crossword games into language learning enhances vocabulary acquisition while simultaneously fostering a dynamic, interactive, and stimulating educational environment.

Stated by Panjaitan and Amaniarsih (2021), the use of crossword puzzles significantly contributes to enhancing students' vocabulary skills. The crossword puzzles possess an inherent appeal that makes them enjoyable for students, creating a learning environment that does not feel forced. Consequently, the learning process becomes more interactive and engaging for the students. Another study conducted by Mahendra et al. (2023) examined students' perspectives on the use of the Mondly application. They found Mondly to be both challenging and motivating, as it encouraged them to unconsciously learn more vocabulary each day compared to when they did not utilize it for daily lessons. This scenario formed the basis of students' opinions that they should complete their lessons even in the absence of assignments from teachers. Furthermore, students continued to use the application to acquire new words even after completing their lessons

Vocabulary expansion

These findings were obtained based on statements numbered 5, 6, 7 and 9 in the questionnaire. These four statements served as a reference for the researcher in categorizing them into vocabulary expansion. The first statement, with the keyword “expand”, indicates that 50% of respondents strongly agreed that the Words of Wonders application enhances their vocabulary skills, 34.6% agreed, and 15.4% remained neutral. In the second statement, with the keyword “recognize unfamiliar words”, 53.9% of respondents strongly agreed, 42.3% agreed, and 3.8% remained neutral. The third statement, with the keyword “memorize new words”, shows that 46.2% of respondents strongly agreed, 30.8% agreed, 19.2% remained neutral, and 3.8% disagreed. The last statement, with the keyword “vocabulary mastery”, 50% of respondents strongly agreed, 34.7% agreed, 11.5% remained neutral, and 3.8% disagreed. No respondents stated strongly disagree. The results from the questionnaire were validated through arguments derived from student interviews, as explained below:

“The Words of Wonders app has significantly helped me improve my vocabulary because it continuously introduces me to new words that I haven’t encountered in class **(RA)**”.

“One of the biggest advantages of the app is that it helps me explore unfamiliar words in an engaging way. Before using Words of Wonders, I often struggled to learn new words because the process felt tedious. But now, with the game’s interactive format, I am constantly challenged to identify and understand words I wouldn’t normally come across **(MZL)**”.

“The app plays a crucial role in helping me remember words better. Instead of passively memorizing vocabulary lists, I engage with the words dynamically, which strengthens my memory. The more I play, the more I reinforce my understanding of words, making them easier to recall later in conversations or writing exercises **(SA)**”.

“It helps me practice recognizing words quickly and efficiently **(TKM)**”.

“Words of Wonders has greatly supported my vocabulary learning, I have noticed significant improvements in my word recall and usage since I started using the app **(LA)**”.

Based on the data indicate that Words of Wonders effectively supports students in expanding their vocabulary by introducing them to new words that go beyond the limitations of their textbooks. This exposure to a broader range of vocabulary enriches their language proficiency and encourages independent learning. Words of Wonders is a crossword puzzle application with an extensive range of vocabulary. According to Wijaksono et al. (2022), the use of crossword puzzle games is an effective method for enhancing students' vocabulary mastery in vocabulary instruction. Their findings suggest that interactive and engaging learning tools, such as crossword puzzles, help students retain new words more effectively, improving their overall language proficiency. The application provides students with the opportunity to discover and learn new vocabulary that they might not have encountered before. Therefore, crossword puzzles are considered highly effective for teaching vocabulary.

Previous research conducted by Mustika et al. (2022) revealed the researchers attempted to enhance the students' vocabulary skills by utilizing crossword puzzles. The results demonstrated an improvement in the students' vocabulary mastery, and they successfully achieved their learning objectives. Another study conducted by Wefi et al. (2023) revealed that the implementation of crossword puzzle learning media is highly effective in supporting English vocabulary learning. This approach has been proven to enhance vocabulary mastery among seventh-grade students at SMP Annur Assalafy Pasuruan. Furthermore, the utilization of puzzle games significantly increases student engagement while also stimulating their interest in active learning

Enhance critical thinking skills

This section is revealed through the data of questionnaires number 8 and 10. The first statement, with the keyword “understand the word variation”, indicates that 46.2% of respondents strongly agreed, 30.8% agreed, 19.2% remained neutral, and 3.8% disagreed. The second statement with “arranging random words” keyword stated 53,9% strongly agree, 23,1% agree, 19,2% neutral, and 3,8% disagreed. Words of Wonders effectively fosters critical thinking among students by challenging them to connect random letters into cohesive. This process not only enhances their vocabulary but also strengthens their cognitive abilities and problem-solving skills as they navigate through complex word formations and combinations. These are further supported by the data obtained from the interviews, as outlined below:

“I find it beneficial since it forces me to think critically about different word combinations, rather than simply memorizing vocabulary passively, I have to actively engage with the words, analyze their structure, and determine how they fit within the given letters. **(MPK)**”.

“It forces me to think critically to find word connections, which improves my vocabulary skills. Words of wonders requires me to break down words, analyze their components, and strategically identify related terms. **(DDS)**”

“Unlike traditional learning methods that often focus on rote memorization, Words of Wonders makes vocabulary acquisition more interactive by allowing me to test various letter combinations and discover new words organically. **(JMS)**”.

These findings align with previous research conducted by Anggraini et al. (2022) which stated that the Words of Wonders (WoW) application encourages students to engage in critical thinking by systematically searching for, connecting, and combining letters into meaningful words. Upon completing each available word, students proceed to the next level, which presents new vocabulary challenges. This process not only provides intellectual stimulation but also motivates students to actively learn and enhances their creativity in understanding and mastering the required vocabulary. The previous study conducted by Mardhatillah and Anas (2023) revealed that the use of crossword puzzle learning media has a significant positive impact on students' critical thinking skills. This finding is based on the results of critical thinking tests conducted in the experimental class after implementing the learning media, which demonstrated an average post-test score of 84.50, in contrast to the control class that achieved an average post-test score of 72.50. This finding is consistent

with the study conducted by Darmayanti (2021), which demonstrates that the crossword game media developed is highly practical, effectively encourages students' learning motivation, enhances their critical thinking skills, and provides an accessible and user-friendly learning experience.

CONCLUSION

The findings of the research and the conducted analysis indicate that students have a highly positive perception of the vocabulary learning process in their class, with no negative perceptions. They believe that the Words of Wonders application provides significant benefits in improving vocabulary mastery, especially through the game mechanism that requires them to arrange letters into meaningful words. This process not only introduces students to new vocabulary that they may not be familiar with, but also trains their critical thinking skills. The reliability of the findings is influenced by the self-reported information from participants, which may be subject to inherent biases. As a recommendation, this study advocates for the integration of the Words of Wonders application as an instructional tool for vocabulary acquisition in classroom settings, emphasizing its applicability for both educators and students. The positive perception of students towards this application is one of the important considerations for implementing it in vocabulary learning. However, further research with a larger number of respondents is needed to gain a deeper understanding of students' perceptions, as well as to evaluate the strengths and limitations of the Words of Wonders application in the vocabulary learning process.

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