STUDENTS' DIGITAL VOCABULARY LEARNING: EXPERIENCES, BARRIERS, AND ADAPTIVE STRATEGIES EXPLORATION

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Abstract: This study aims to explore the experiences of students as they navigate individualized obstacles in the learning of digital vocabulary. The research employs a research methodology of a qualitative research, specifically employing a design centered around narrative inquiry, with the purpose of examining the subject matter. Specifically, the research examines the barriers faced by students in their pursuit of proficient acquisition of vocabulary through digital means, with a focus on the barriers that hinder optimal comprehension and retention. The findings of the research illuminate that students encounter both internal and external obstacles when learning vocabulary through the use of digital tools, as revealed by research. In addition, the findings reveal that students strategically combine different resources in order to enhance their vocabulary acquisition experience. This research offers practical insights to refine and enhance methods of vocabulary instruction in the digital age. A more efficient, inclusive, and captivating digital vocabulary learning environment for students can be created by educators, curriculum designers, and technology makers with an understanding of these issues and adaptable solutions. It is crucial for educators and developers to prioritize the inclusion of interactive elements in their digital vocabulary tools to address the identified need for heightened engagement and cognitive involvement in the vocabulary acquisition process.
Keywords: *adaptive strategy; barriers; digital era; vocabulary.*

INTRODUCTION

A comprehensive and varied vocabulary serves as the foundation for effective communication, acting as a gateway to subtle expression and intellectual capability. The acquisition of a wide range of words goes beyond mere linguistic competence; it enables individuals to navigate the complex fabric of human interaction with skill and accuracy (Andriani & Sriwahyuningsih, 2019; Hyso & Tabaku, 2011). In the realm of academic accomplishment, a strong vocabulary is a formidable asset. According to Rachmawati (2018) which explained that a student equipped with a diverse array of words not only comprehends academic material more deeply, but also excels in expressing intricate thoughts and ideas. Furthermore, the ability to employ language with refinement not only enhances written assignments, but also oral discourse (Zacks & Ferstl, 2015), thereby establishing the groundwork for academic triumph. Furthermore, linguistic proficiency extends beyond academic domains, exerting influence on professional success and social

dynamics (Daar, 2020). It means, Individuals with a well-developed lexicon convey professionalism, eloquence, and intellectual aptitude. In the professional arena, effective communication frequently serves as the pivotal factor for success, and a rich vocabulary allows individuals to present ideas persuasively and partake in meaningful dialogue. Moreover, the journey of acquiring language encompasses more than mere memorization; it is a dynamic process of exploration and adjustment (Saville-Troike, 2012). Then, exposure to diverse literature, engaging in thought-provoking conversations, and a curiosity for linguistic subtleties all contribute to the ongoing expansion of one's vocabulary. As words become instruments for precise expression, individuals unlock the potential for deeper comprehension, nuanced communication, and overall linguistic mastery.

Furthermore, the transition towards digital tools in the process of acquiring vocabulary has not only changed the way students learn, but it has also created a dynamic and adaptable environment for

them (Anil, 2015; Legi et al., 2023). With the proliferation of language learning applications, interactive electronic books, and online courses, students now have access to a wide range of resources that are tailored to their specific needs and preferences (Ghanbari, 2021; Puspita & Syahria, 2023; Saxena & Baber, 2020), including visual and auditory aids, interactive exercises, and real-life contextual examples, provides a multi-sensory learning experience that caters to various learning styles (Suryaratri et al., 2019). On the other hand, gamification, an important feature of many digital platforms for language learning, introduces an element of enjoyment and competition into the process, making the acquisition of vocabulary engaging and motivating for students (Asih & Halisiana, 2022; Knight et al., 2020). Through interactive games, quizzes, and challenges, students can reinforce their understanding of words in a playful manner, fostering a positive attitude towards language learning. Moreover, the personalization aspect of digital tools enables students to progress at their own pace, focus on areas where they require more practice, and receive immediate feedback (Masterman & Shuyska, 2012). Adaptive algorithms can track individual patterns of learning, suggesting targeted exercises and adjusting the level of difficulty based on the student's proficiency. This customized approach not only enhances vocabulary acquisition but also encourages a sense of autonomy and self-directed learning.

In the swiftly evolving landscape of the digital era, characterized by a surplus of information that is readily accessible, the enduring challenges encountered by students in acquiring vocabulary emphasize the necessity for an in-depth exploration of their experiences (Alhatmi, 2023; Saengpakdeejit, 2014). Despite the proliferation of digital resources, the complexities involved in learning language continue to pose a significant obstacle for many individuals. The purpose of this research is to delve into the various perspectives and voices of students, unraveling the intricately woven fabric of their encounters and hindrances in the journey of vocabulary acquisition. The digital domain, with its diverse range of tools and platforms, presents both advantages and disadvantages within the educational realm (Afzal, 2019; Khanh & Huong, 2018; OECD, 2016; Tiwari, 2021). By closely examining the standpoint of the student, this research aims to shed light on the efficacy of digital instruments in facilitating the acquisition of vocabulary. Gaining

a comprehensive understanding of the nuanced perceptions of students becomes a crucial linchpin for teachers and researchers alike, providing a valuable guide for navigating the ever-evolving landscape of language instruction. By unpacking these perspectives, the study not only contributes to the existing corpus of knowledge, but also serves as a guiding principle for teachers and developers of curricula (Deng, 2021). identifying specific areas of difficulty and assessing the impact of digital resources, this research offers practical insights to refine and enhance methods of vocabulary instruction in the digital age.

Furthermore, previous researches have delved into the potential role of digital tools in facilitating the acquisition of vocabulary (Fithriani 2021; Nurchintyawati, 2022; Pahamzah 2022; Sukmawati et al., 2023; Yudha and Mandasari 2021). For instance, Yudha and Mandasari (2021)which examined the implementation of gaming to augment the proficiency of senior high school students in vocabulary. The findings demonstrated that gaming served as an efficacious medium for the majority of participants to enhance their competence in English lexical terms. Moreover, Sukmawati et al. (2023) provided corroborating evidence, as their research identified mobile technologies, particularly the TikTok platform, as optimal means for instructing learners in vocabulary proficiency. Moreover, Nurchintyawati (2022) also explored the application of gamification for the lexical development of young language learners and determined that games adequately supported mastery at this level. Collectively, these investigations indicate that interactive digital formats may effectively motivate and engage students throughout the process of vocabulary acquisition. Yudha and Mandasari (2021) and Sukmawati et al. (2023) specifically observed positive effects on students at the secondary level, while Nurchintyawati (2022) made comparable observations among younger students. By embracing approaches that incorporate mobile and multimedia elements, teachers may successfully optimize the experiences and outcomes of contemporary learners in terms of lexical enrichment, as suggested by these preliminary studies. Further research systematically examining such applications across diverse learner profiles is warranted.

While previous investigations have shown promising results in terms of the use of digital tools for vocabulary acquisition, there are still certain gaps that need to be addressed in this study.

Specifically, previous research has not fully explored the impact of individual learner characteristics on the effectiveness of these tools. This study aims to fill this gap by focusing on the personal experiences of students as they navigate individualized obstacles and employ adaptive tactics. By doing so, it provides a more detailed understanding that was not captured in previous studies that primarily focused on overall outcomes. The study aims to highlight an essential dimension that has been overlooked in earlier works. Through a nuanced examination of the personal factors that students face, it offers deeper insights into their experiences. Instead of solely reporting collective findings, this study takes a learner-centered approach to understand each student's unique perspective. By qualitatively exploring the challenges that students encounter within the digital learning space, both internally and externally, this study goes beyond initial quantitative assessments. Specifically, it seeks to answer two research questions: 1) What barriers do students perceive in terms of digital vocabulary learning, whether they are inherent or external? 2) What strategies do students employ when they encounter difficulties in the context of online lexical enrichment?

METHOD
This research utilizes a research methodology of a qualitative research, specifically employing a design centered around narrative inquiry, with the purpose of examining the subject matter (Ahmadi, 2014; Clandinin, 2006). Employment of narrative inquiry as a method allows for the exploration of personal perspectives and experiences pertaining to the research topic, thereby augmenting the depth of information obtained from the individuals providing the information (Wang & Geale, 2015). This methodology is selected due to its effectiveness in capturing detailed and extensive narratives that surpass limitations imposed by time and space, enabling a comprehensive comprehension of the subject. By utilizing a design centered around narrative inquiry, the researchers aim to establish a nuanced exploration of the chosen theme by delving into the distinctive narratives and insights provided by the individuals participating in the study. This approach ensures a comprehensive and contextually rich investigation, promoting a thorough analysis of the research topic.

This research was carried out at non-formal institution in Pasuruan, East Java. Currently, the institution caters to a total of 100 students,

encompassing pupils from the 5th-grade level of elementary school, the 6th-grade level of elementary school, the 7th to 8th-grade levels of junior high school, and the 10th to 12th-grade levels of senior high school. More specifically, the researcher selected four participants from the senior high school level. The selection of participants was in line with the objective of the study, which sought to investigate the challenges that students face in learning vocabulary in the digital age.

Deliberately, the researcher opted for four senior high school students with diverse educational backgrounds and varying levels of proficiency in the English language. Prior to commencing this study, the researcher conducted observations, which involved closely examining the students' abilities in learning the English language during the instructional processes at the educational guidance establishment. From this concise observational phase, the researcher effectively collected extensive information about the chosen participants.

Table 1. *Participants' demography*

Participants (Code)	Gender	Grades	English Level
IN1	Male	10th Grade	Pre-Intermediate
IN2	Male	11th Grade	Intermediate
IN3	Female	12th Grade	Intermediate
IN4	Female	10th Grade	Beginner

This investigation utilizes semi-structured interviews as the principal approach for gathering data, with the intention of thoroughly examining the individual encounters of each participant (Flick et al., 2004) Consequently, research interviews are carried out periodically through the Google Meet application, which facilitates participant involvement while eliminating limitations associated with geographical location, time constraints, and personal busyness. In addition, the researcher carried out the interviews by employing the Indonesian language in order to alleviate any potential misinterpretations and challenges encountered by the participants (Sudarwati et al., 2022) Furthermore, each participant consumed 30 until 60 minutes to interview. And the period for data collection extends from November to December 2023. Furthermore, during the process of collecting data, the researchers adhere to a methodical approach. Initially, the researcher

ensures that each informant is adequately prepared for the interview, thereby minimizing potential disruptions to their activities. Subsequently, a predetermined set of questions serves as a point of reference during the research interview, with the researcher posing additional inquiries when encountering responses that are deemed intriguing, ambiguous, or necessitating further exploration.
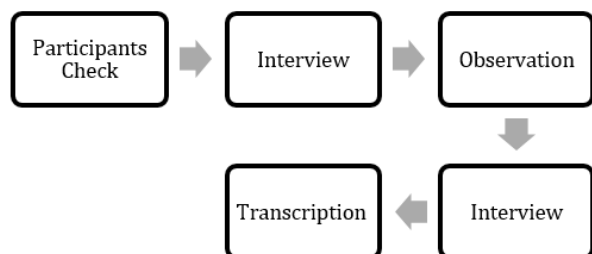

Figure 1. *Example of data analysis*

Subsequent to the interviews, the researcher undertakes classroom observations to evaluate the alignment between the informant's statements and their observed behavior. Several weeks later, the researcher reconnects with the participants to revisit and clarify the information previously provided. This phase aims to identify the consistency in the responses provided by the participants. The researcher formulated questions to elicit in-depth information from the informants. These questions were systematically developed to facilitate a comprehensive exploration of the participants' insights. The interrogative framework encompasses: (1) What is your approach to the acquisition of vocabulary, both in formal learning environments and outside of them? (2) When assessing your current level of vocabulary proficiency, are you satisfied with your current level or do you identify specific areas that need improvement? (3) What are the main resources or tools that you use for vocabulary study? This can include textbooks, mobile applications, online dictionaries, flashcard platforms, or any other materials. What factors influence your preference for certain resources? (4) How does encountering new vocabulary in context, such as through reading or listening, affect your learning process? Do you actively search for words in different contexts? (5) How much do you believe that technology and digital tools have either facilitated or hindered your vocabulary development? If there are noticeable effects, what are they?

The employed data analysis in this narrative inquiry incorporates a dual-dimensional methodology that is rooted in holistic and categorical components. This methodology comprehensively covers content and form analysis

(Lieblich et al., 1998). The holistic aspect of the study endeavors to comprehend the narrative in its entirety through the repeated examination of the full text. This method allows for the understanding of meanings, patterns, structures, and nuances that arise from the text when considered as a whole. The categorical component, on the other hand, focuses on the identification and coding of meaningful units based on emerging themes. These themes were discovered through an inductive process of repeated readings, which aimed to identify patterns and significant concepts across the narratives of the participants.
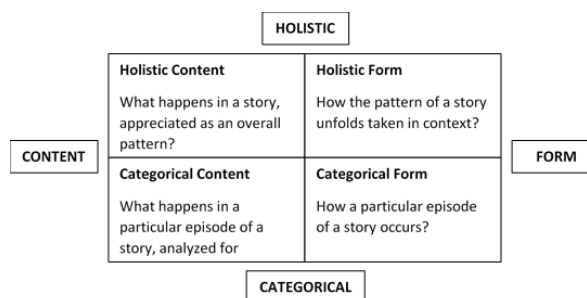

Figure 2. *Data analysis*

The analysis proceeded in multiple phases, employing a dual-dimensional approach. Initially, the full narratives were holistically analyzed to obtain a comprehensive understanding of each respondent's experiences, perspectives, and overall constructed meaning (Maschi, 2016). Subsequently, a categorical analysis was conducted to systematically assign codes to meaningful quotes, phrases, and ideas, organizing them into initial themes. These themes were then refined through a re-examination of the coded data and consolidated into overarching categories.

The relationships between the themes were mapped to comprehend their interconnections. Ultimately, a holistic re-reading ensured that the categorical analyses did not detract from the gestalt meanings derived from the narratives when considered as a whole. This dual methodology allowed for a thorough and rigorous interpretation of the abundant, qualitative data acquired. Moreover, to augment the trustworthiness of generated data, the researcher executed iterative interviews until attaining answers that showcased steadiness and uniformity. The information procured through this protracted interviewing procedure is considered as ultimate saturation data, indicating a thorough and trustworthy dataset.

RESULTS AND DISCUSSION

In the process of conducting interviews for the purpose of data collection, the researcher was able

to identify two primary thematic dimensions in this study: the obstacles faced by students in their pursuit of proficient acquisition of digital vocabulary, and the tactics utilized by students for adjustment and supplementation in this particular context. This investigation aims to delve into and scrutinize the difficulties encountered by students when it comes to effectively engaging with the learning of digital vocabulary, with a focus on the barriers that hinder optimal comprehension and retention. Furthermore, the study intends to examine the adaptive measures and supplementary strategies employed by students in order to overcome these barriers. The identification of these two overarching themes emphasizes the comprehensive nature of the research, encompassing both the challenges to effective digital vocabulary learning and the adaptive strategies implemented by students. By conducting a nuanced examination of these themes, the research strives to provide valuable insights to the ongoing discussion on enhancing pedagogical approaches in the instruction of digital vocabulary.

Students' barriers to effective digital vocabulary learning

A significant revelation arising from the research highlights that there are certain students who experience a lack of involvement when using digital resources to learn vocabulary. These individuals expressed a feeling of being demotivated and struggling to maintain focus during online vocabulary study sessions, like IN1 statement:

> "During the process of enhancing my vocabulary, I frequently employ a digital tool to verify the meanings of words, facilitating the conversion from English language to Indonesian. Nevertheless, there are instances when I experience sporadic difficulties in retaining the newly learned terms, as some of them may not seem directly relevant to my scholarly endeavors…" (IN1)

The observed decrease in participation has resulted in a significant reduction in the effectiveness of students' learning efforts. This phenomenon is consistent with Tsai, (2020) claim that a decline in student motivation in acquiring vocabulary is a frequently occurring event. It is crucial for educators and developers of digital learning tools to actively address these obstacles by incorporating increased interactivity and engaging activities. This approach is essential for enhancing students' overall satisfaction and motivation in the

domain of vocabulary acquisition (Alamer, 2022; Chen et al., 2021; Kainta & Rombot, 2020). The substantial disengagement experienced can be attributed to various factors, such as the lack of dynamic features and a scarcity of stimulating content (Sukmawati et al., 2023). Addressing this issue comprehensively requires a multifaceted approach that combines pedagogical insights with technological innovations. Teachers must understand the specific preferences of different learners and adapt digital resources accordingly.

Moreover, it is crucial for developers to integrate principles derived from cognitive science and utilize strategies of gamification to augment engagement within vocabulary learning environments. The continuation of enthusiasm requires the effortless integration of interactive components, such as gamified quizzes, adaptive learning modules, and real-time progress tracking mechanisms. This is consistent with the findings of research, as stated in the subsequent quotation.

> "I possess an inherent inclination to participate in the acquisition of vocabulary through the medium of gaming, as I assert that interactive gameplay functions as an effective catalyst for a deep and nuanced understanding of the English lexicon. The dynamic and immersive qualities of games not only facilitate an engaging educational experience, but also enhance my cognitive processes, enabling the smooth incorporation of diverse elements of language. Additionally, the interactive and repetitive nature of gameplay fosters an increased ability to retain information, thereby promoting a more enduring grasp of vocabulary within my cognitive repertoire. This multifaceted approach not only enhances my language skills, but also develops a contextualized comprehension of words, thereby enriching my linguistic proficiency with a nuanced and subtle lexical aptitude." (IN2)

These enhancements not only cater to various learning preferences but also foster a sense of achievement and advancement in students. Furthermore, incorporating multimedia elements, such as visually appealing graphics and interactive exercises, can enhance cognitive engagement and strengthen vocabulary retention (Toha et al., 2023).

Students have identified a noticeable hindrance associated with specific digital vocabulary tools, namely the limited interactivity they offer. Students have expressed a need for increased interactive functionalities, such as elements of gamification or quizzes, to enhance their experience in acquiring vocabulary.

"I find great pleasure in instructional methodologies that integrate online games or quizzes, such as those facilitated through applications like Quizzes or Wordwall. Participating in these interactive activities not only introduces new vocabulary into my cognitive repertoire but also infuses the learning process with a sense of youthful enthusiasm. On the other hand, conventional didactic instruction, lacking such interactive elements, tends to elicit sentiments of monotony." (IN3)

Students generally agree that the inclusion of interactive features would not only make the learning process more engaging, but also lead to better retention of the vocabulary they have learned. It is crucial for developers to carefully consider incorporating interactive components into digital vocabulary tools in order to increase student engagement and facilitate effective learning (Susiati & Kartikasari, 2020)

Additionally, students have emphasized the importance of these interactive elements in strengthening the educational impact of digital tools. The integration of gamified features, quizzes, and other interactive methods is seen as essential in creating a dynamic learning environment that promotes sustained interest and cognitive assimilation. Based on IN4 stated that these enhancements would establish a mutually beneficial relationship between enjoyment and educational effectiveness. Based on these insights, it is recommended that developers prioritize the inclusion of interactive elements in their digital vocabulary tools to address the identified need for heightened engagement and cognitive involvement in the vocabulary acquisition process. This recommendation aligns with current educational paradigms that recognize the importance of interactive approaches in optimizing learning outcomes (Zaki et al., 2023). Consequently, a thoughtful integration of these features is believed to significantly contribute to the improvement of digital vocabulary tools and, consequently, the effectiveness of vocabulary acquisition methods in educational settings (Zou et al., 2021).

The overwhelming abundance of digital resources that are available for the purpose of acquiring vocabulary has been perceived as a challenge by certain students. These students face difficulties in selecting the most appropriate tools and also have uncertainties about the effectiveness of these tools in relation to their own learning styles and preferences. As a result, it is crucial for teachers to provide guidance and support to help students navigate through the numerous options available to them. Teachers play a crucial role in offering well-informed recommendations to students, suggesting specific digital resources that align seamlessly with their learning objectives and preferences (Paksi et al., 2023). The effectiveness of digital vocabulary learning is hindered by technical obstacles. Students often encounter problems such as slow internet connections, software malfunctions, and compatibility issues with their devices, which subsequently impede their learning experiences and overall progress (Pradini & Adnyayanti, 2022). It is essential for teachers and institutions to ensure that students have access to reliable internet connections and suitable devices in order to mitigate these technical challenges and establish an optimal learning environment.

A significant barrier to effective digital vocabulary acquisition is the lack of personalization. IN1 also expressed a need for more customized learning experiences with digital tools, arguing that currently available resources do not adequately cater to their specific needs and learning objectives, resulting in suboptimal learning outcomes. Teachers should consider integrating features that allow for customization and personalization, empowering students to tailor their vocabulary learning experiences according to their unique preferences and requirements (Toha et al., 2023). In order to address these challenges, it is important for educational stakeholders to collaborate and enhance the landscape of digital vocabulary learning (Alhatmi, 2023). This can be achieved by providing targeted guidance, ensuring adequate technological infrastructure, and incorporating elements of personalization to create a more effective and individualized learning experience (Rasti-Behbahani, 2021).

Students' strategy in adaptation and supplementation
The findings of the research illuminate that students strategically combine different resources in order to enhance their acquisition of vocabulary. They skillfully blend traditional methods, such as textbooks and written exercises, with modern digital tools like flashcard platforms and online dictionaries. As IN3 excerpt:

"I habitually engage in the practice of jotting down concise notes whenever I encounter vocabulary that is unfamiliar or novel to me. This proactive approach serves as a mnemonic aid, particularly during my English lessons, facilitating the retention of new linguistic

constructs. Additionally, in the absence of a mobile device during class, I avow a penchant for consulting compact dictionaries to acquire pertinent information…" (IN3)

This comprehensive approach allows students to take advantage of the benefits of both traditional and digital resources, which in turn enriches their efforts to acquire vocabulary and promotes a more nuanced understanding of language subtleties. However, according to Laufer and Vaisman (2023) stated that, it is crucial to recognize the need for pedagogical refinement in order to optimize the impact of this integrated approach on vocabulary learning outcomes. By using empirical insights, targeted interventions can be identified and implemented to further enhance the synergy between traditional and digital resources. Furthermore, contextual learning has emerged as a prominent pedagogical strategy that has been embraced by students who actively seek out opportunities to engage with new vocabulary within various contexts, such as reading and listening. Like IN2 statement:

> "I typically engage in auditory learning by immersing myself in slow-paced musical compositions, conscientiously discerning and comprehending any encountered vocabulary to augment my linguistic proficiency…"(IN3)

The deliberate exposure to words in their natural usage is done with the aim of improving comprehension and developing a more proficient command of the language. This strategic approach highlights the importance of diverse contextual exposure in the processes of acquiring and retaining vocabulary. This shift towards contextual learning in education represents a conscious effort on the part of students to immerse themselves in authentic linguistic environments, recognizing the inherent value of encountering vocabulary organically (Yudasheva et al., 2021). Then, according to (Susanti et al., 2023) stated that, the active pursuit of such opportunities is evident through activities like extensive reading and focused listening, which promote a deeper understanding of linguistic nuances and semantic complexities. Furthermore, this strategic orientation aligns with contemporary cognitive theories that emphasize the vital role of context in language learning. It suggests that the integration of vocabulary within meaningful and authentic situations significantly contributes to the consolidation of lexical knowledge. The deliberate engagement with diverse linguistic contexts not only enhances lexical comprehension, but also strengthens the memory trace of the vocabulary, thereby facilitating long-term retention.

Moreover, this approach signifies a departure from traditional rote memorization techniques, placing greater emphasis on a dynamic and immersive learning experience. By placing vocabulary within real-life linguistic scenarios, students are able to transcend the limitations of isolated word lists, thereby fostering a comprehensive and interconnected understanding of language. This statement is related with the researcher findings.

> "I routinely incorporate terminology gleaned from gaming and musical compositions to bolster my linguistic repertoire in various daily endeavors. This practice extends to interactions with peers, where I deploy this acquired vocabulary both in conversations with friends and during moments of self-expression."(IN4)

This shift towards contextual learning reflects an evolving pedagogical paradigm that acknowledges the mutually beneficial relationship between language and its diverse contexts. Students displayed a propensity for initiating their own research when presented with unfamiliar words during the process of acquiring vocabulary. They skillfully utilized online resources such as dictionaries and websites to investigate the meanings, uses, and subtleties associated with new vocabulary. This independent and self-directed approach facilitated an expansion of their cognitive abilities beyond the boundaries of their formal education, thus fostering a heightened sense of independence in the complex process of vocabulary acquisition.

> "I routinely incorporate terminology gleaned from gaming and musical compositions to bolster my linguistic repertoire in various daily endeavors. This practice extends to interactions with peers, where I deploy this acquired vocabulary both in conversations with friends and during moments of self-expression." (IN1)

This self-driven style of learning resulted in a broadening of their knowledge of words, surpassing the content covered in their traditional academic environment. The use of online tools not only supplemented formal instruction but also empowered students to delve deeper into the intricacies of language usage, thereby cultivating a

nuanced comprehension of vocabulary. This multifaceted approach, combining formal instruction with independent exploration, highlighted the students' inner motivation and active involvement in their lexical development. The dynamic synergy between formal and self-directed learning channels significantly contributed to a comprehensive and enhanced vocabulary acquisition experience.

The utilization of consistent examination and repetition has been identified as pivotal strategies for optimizing the retention of vocabulary. Students recognize the significance of strengthening their acquisition of words through methodologies such as the creation of flashcards, the utilization of techniques that involve repeating information at intervals, and engaging in quizzes or exercises for self-assessment.

> "In addition to employing a mobile device, I derive satisfaction from the pedagogical approach of my instructor utilizing flashcards for vocabulary instruction. This method significantly enhances my retention of the taught vocabulary…" (IN3)

By integrating organized examination and repetition sessions into their routine for acquiring vocabulary, students aim to improve their long-term retention and consolidate their understanding of acquired words. Moreover, the embracing of these cognitive strategies aligns with the principles of cognitive psychology that highlight the importance of rehearsal and active recall in the consolidation of memory (Dindar et al., 2021). The cognitive advantages derived from these practices contribute to a more robust and long-lasting collection of vocabulary, ultimately promoting enhanced language proficiency (Alamer, 2022). This educational approach corresponds with contemporary paradigms in education that emphasize the effectiveness of deliberate practice and reinforcement in fostering enduring acquisition of knowledge.

Furthermore, in order to mitigate his challenges with vocabulary, Prince has disclosed that he consistently employs a translation application and endeavors to expose himself to English music as a means of familiarizing himself with words and comprehending the definitions of complex vocabulary. This perspective aligns with Saluky and Marine (2021) and Oktaviana et al. (2021). both of whom contend that the acquisition of proficiency in the English language can be facilitated through the utilization of technological tools, such as educational applications. In contrast, Yunanda et al. (2022) espouses a divergent stance, advocating that reading remains the most effective method for addressing student's challenges, particularly in the realm of comprehending vocabulary.

> "I derive pleasure from engaging with cinematic productions, as well as immersing myself in the auditory realms of music and podcasts, some of which incorporate English elements. While these podcasts may not exclusively employ English, they contribute to the expansion of my vocabulary, which I subsequently integrate into my linguistic repertoire." (IN2)

This adaptability highlights the importance of tailoring vocabulary learning approaches to individual inclinations, ultimately enhancing the overall effectiveness of the learning process. Furthermore, this flexibility not only showcases the diversity of learning styles among students but also emphasizes the necessity of personalized instructional strategies (Rasti-Behbahani, 2021). The identification of the most suitable methods for vocabulary acquisition, whether through visual, auditory, or kinesthetic means, demonstrates a nuanced understanding of individual learning preferences (Yan et al., 2021). This nuanced understanding can serve as a fundamental aspect in the development of educational curricula, enabling teachers to customize instructional materials to effectively accommodate diverse learning styles. Additionally, the observed adaptability highlights the potential for creating a more inclusive educational environment that caters to the varied needs of learners (Fan, 2015; Ghalebi et al., 2020; Permana, 2020). By recognizing and accommodating diverse learning styles, not only is the vocabulary learning process optimized, but it also contributes to a more comprehensive and fair educational experience. In a broader context, this adaptability emphasizes the importance of adopting a student-centered approach in educational practices, where pedagogical methods are responsive to the individualized needs and preferences of learners.

CONCLUSSION

In summary, students encounter both internal and external obstacles when learning vocabulary through digital means, as revealed by research. Students are naturally confronted with problems like low motivation, decreased involvement, and technical difficulties like sluggish internet

connections and buggy software. The dearth of individualized learning experiences is not being satisfied, and the sheer volume of digital resources makes it difficult to choose the right tools. By combining traditional and digital resources, participating in contextual learning, and conducting independent research on foreign words, students employ adaptive strategies to get past these obstacles. As key tactics for vocabulary retention, consistent review and practice that are in line with cognitive psychology principles emerge. The way that students adjust their teaching strategies to fit their unique learning preferences—using podcasts, videos, and different exercises—is particularly noteworthy. A more efficient, inclusive, and captivating digital vocabulary learning environment for students can be created by educators, curriculum designers, and technology makers with an understanding of these issues and adaptable solutions. The identified lack of motivation and engagement could be addressed in future research by examining the effects of increased interactivity and gamification in digital vocabulary tools. This would provide valuable insights into strategies that effectively maintain student interest. And looking into how personalized learning might be integrated.

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