

Enhancing English Vocabulary Retention for High School Students Via Knowt Platform



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ABSTRACT: The Knowt platform has developed in recent years and is regarded as one of the vibrant and engaging language learning platforms which works based on the rules of the spaced repetition technique and personal learning plan. This study investigated the impact of the Knowt platform on enhancing high school students' vocabulary memorization ability. In this study, 30 high school students participated in the pilot study using the Knowt platform. Questionnaires and tests were used as the main tools to collect data for 8 weeks. After the study period, the results showed that the Knowt platform had an impact on enhancing students' English vocabulary memorization ability. Specifically, students found that the platform made their vocabulary learning process more interesting. These findings are also utilized as references for teachers and educators, devoting to the development of teaching and learning English in the 4.0 era within the new context in Vietnam.

KEYWORDS: Vocabulary retention, Knowt, Language learning platform, Personalize method, Spaced Repetition.

I. INTRODUCTION

According to Wikipedia statistics (2022), there were 67 countries and 27 regions that used English as an official language. Besides, there were many countries in Southeast Asia, such as Singapore, Vietnam, and so on, and countries in the Commonwealth that used English as a second/foreign language (ESL/EFL). However, the amount of vocabulary was too large and difficult to remember. In the English-Vietnamese Dictionary (Culture-Information Publishing House, 2010), it is estimated that English has more than 340,000 words. In the process of learning foreign language vocabulary, all foreign language learners encountered a common problem, which was the inability to memorize such a huge amount of vocabulary. Rahimy and Shams (2012) claimed that foreign language students always complained that they frequently forget previous vocabulary. Moreover, Ahmadi et al. (2012) revealed that limited vocabulary and lack of understanding of vocabulary led to misunderstanding in communication. As a result, changing the method of learning vocabulary was the most important task in the English learning process. Linse (2006) pointed out that when there was a suitable learning method, vocabulary would increase, from which other skills such as listening, speaking, reading, and writing would also develop.

In order to apply effective learning methods, learners need to learn and use the transfer methods. In this research project, the researchers employed the Knowt platform for the experiment, which would meet all the needs of learners, from applying any learning method that learners want, or providing a source of knowledge for the learners, or using Kai - an AI of the platform - as an intelligent assistant. In addition, the vocabulary in this platform was displayed in the form of flashcards. The reason why the researchers carried out this study was because the researchers would want to find the best way to solve the problems for foreign language learners. During the experiment at Chu Van An high school, the researchers witnessed many difficulties in the foreign language learning process of students. With a passion for teaching English and a desire to help students, the researchers conducted this study and solved difficult problems for high school students. Therefore, to achieve these purposes, the following questions were addressed: 1.) *What is the vocabulary retention of high school students at Chu Van An High School?* 2.) *How does the use of the Knowt platform affect the vocabulary retention of high school students at Chu Van An High School?*

II. LITERATURE REVIEW

According to the statistics from the survey by Ethnologue (2018), English was the most widely used language, with 1.121 million people. In addition, they stated that the number would continue to increase in the following years due to the need for it to be used in work and daily life. It could be seen that English played an extremely important role in human life. Because of its convenience and usefulness, as well as the preference of users for that language, mastering English brought many benefits to users, such as getting a high-paying job or using smart devices that were installed in English. Besides, learners could expand their relationships with foreign friends and benefit from that relationship just by mastering English. Therefore, learning English was extremely

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important; it was like a universal key that helped learners access everything modern in the world and brought many new development opportunities for learners. To be able to communicate and use English fluently, students needed to understand and accumulate a large amount of vocabulary. Nation (1990) believed that: "it was not grammar that learners needed to focus on first, but rather vocabulary."

There were numerous concepts of retention that defined human memory in different ways. Tulving (1985) acclaimed that "memory was the ability that allowed organisms to benefit from their past experiences." Information entered the brain when sensory organs received input from the environment (De Bruyckere, Kirschner & Hulshof, 2015). Additionally, Goldstein (2008) argued that the process of remembering involved the encoding, storage, retrieval, and utilization of information related to images, events, ideas, and skills, even after parts of the initial information had been lost. Furthermore, he emphasized that memory not only preserved past experiences but also facilitated the ability to anticipate future events, such as remembering a deadline for a task. Therefore, retention enabled individuals to engage in multiple cognitive functions. Human memory comprised three fundamental processes: sensory memory, short-term memory, and long-term memory.

According to Atkinson and Shiffrin's Memory Model (NCERT, 2016, p.133), information was acquired through learning and encoding before being stored and later retrieved when needed. Consequently, understanding these processes was essential for improving memory retention. Anderson (2015) further elaborated that the ability to retain information was primarily dependent on changes in neural connections, a phenomenon he termed "neural plasticity." Goddard (2012) described sensory memory (SM) as the brain's initial storage system, which held unprocessed information. Cowan (2015) highlighted that although sensory memory possessed a large storage capacity, it retained information only briefly. Moreover, numerous researchers, including Bernstein and Nash (2008), posited that information in sensory memory rapidly faded unless attention was directed toward it. If a learner focused on the information, it was subsequently transferred to short-term memory. Short-term memory (STM) functioned as a temporary storage system that retained information for approximately 18 seconds (Bernstein & Nash, 2008). Kandarakis and Poulos (2008) noted that STM had a longer retention span than sensory memory. However, when information was rehearsed multiple times, it transitioned into long-term memory (LTM), where it could persist for minutes to hours before being forgotten if not reviewed. This period represented the "golden time" for vocabulary acquisition techniques such as spaced repetition or personalized learning plans.

In this study, the Knowt platform employed techniques like spaced repetition and personalized learning to facilitate the retrieval of previously learned knowledge. By reinforcing information that the brain initially deemed nonessential, these techniques enabled learners to encode it as significant knowledge, transferring it into long-term memory. This platform used powerful algorithms and artificial intelligence, and the app quickly and automatically converted notes from students and teachers into quizzes and flashcards. Knowt was a free online foreign language learning platform that simulated vocabulary through flashcards to help learners focus and enjoy learning vocabulary more. Flashcards on the Knowt platform integrated audio, images, target language, and native language to help learners recognize standard pronunciation, thereby bringing high efficiency and saving time for foreign language learners.

Knowt founders continuously discovered a new way of learning and upgraded a new version of the Knowt platform in 2019. According to statistics collected from the Knowt company, this was a comprehensive learning application trusted by more than 2 million students and teachers. The Knowt platform had both a website and an application to create convenience and meet all user needs, helping learners to use it anytime, anywhere. In addition, the Knowt application on the phone could support learners to use offline mode (without internet). The Knowt platform not only helped students review and practice effectively, but also supported educators in creating engaging and easy-to-use learning materials. By using the Knowt platform, users could easily retain information through repeated practice of learned knowledge.

III. METHODOLOGY

The study was conducted within 8 weeks with the help of questionnaires and tests. The experimental study was conducted to demonstrate and illustrate the effectiveness of the Knowt foreign language learning platform on vocabulary memorization in high school students at Chu Van An high school. As a result, 30 students of grade 10 at Chu Van An high school voluntarily participated in the pre-questionnaires, and attended the experiment.

The test was built on the knowledge range from A2 to B1 to ensure the assessment process was accurate. The language that the participants used every day was Vietnamese-the official language of Vietnam. In this study, the researchers questionnaires and tests as the major tools for gathering the data. These two tools helped the researchers to determine the impact of Knowt platform on students' vocabulary memorization ability with the variety of techniques available in the platform.

IV. FINDINGS AND DISCUSSION

Findings

Figure 1 below also shows students' frequent use of vocabulary. The results of the experiment proved the above hypothesis. Specifically, 63% of students reviewed less than 1 hour per day. Besides, 20% of students reviewed 1 hour per day and only 13% did not review. Compared with the total positive feedback for vocabulary lessons at school (at 67%), the total positive feedback on

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vocabulary review was 83%, meaning that students still had interest and responsibility in reviewing vocabulary. However, the negative feedback (not reviewing) was 13%. Besides, there had been one student who accounted for 4% of the total who reviewed vocabulary every day.

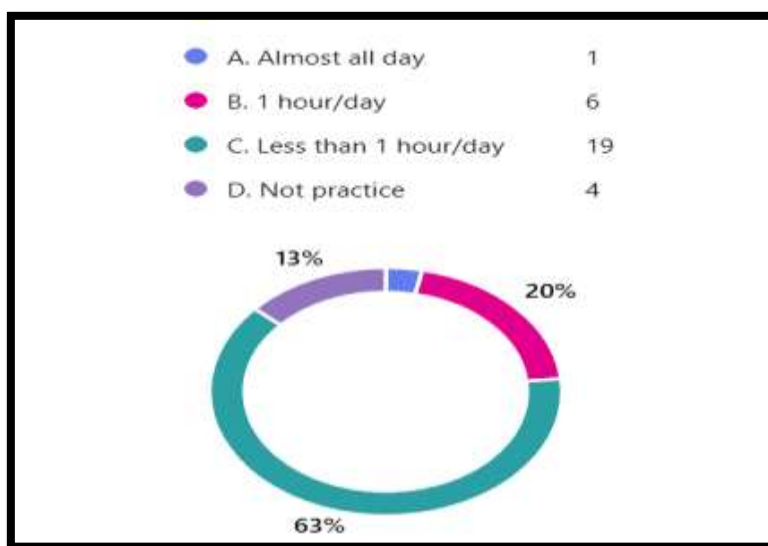


Figure 1. Students' frequent use of vocabulary

As you can see from Figure 2 below, one of the most striking features was the case of the option *"I often forget the meanings of the new words that I have learned,"* which accounted for nearly 20 percent. This was followed by the figure for the option *"It is too hard to understand the meaning of English words in different contexts,"* with 17% of learners choosing this group. It could be said that these two difficulties were closely related; maybe the second difficulty was the cause of the first. Not understanding thoroughly or deeply led to not having a deep impression of the vocabulary learned and thus made it difficult to remember the vocabulary learned. In addition, 15% of users voted for the opinions *"I often forget words when I'm under pressure during a test or presentation"* and *"Sometimes I get confused about the meaning of words that have homophones."* It could be said that environmental factors such as stress or psychological factors such as confusion also had a huge impact on the recall of knowledge for learners. Finally, 14% of learners chose *"I find it difficult to remember new vocabulary"* and *"Learning a vast amount of vocabulary in English might be daunting."* These figures showed that students were afraid to approach new things and were not handling the learning load effectively.

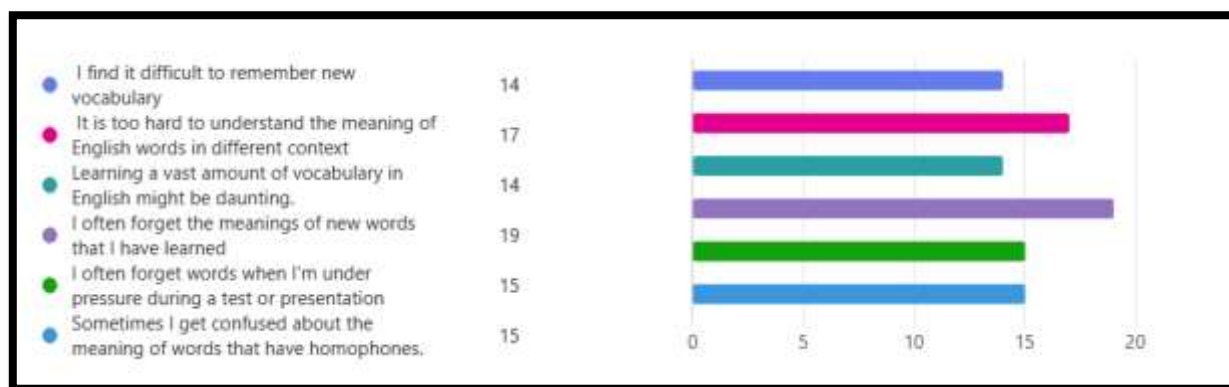


Figure 2. Students' difficulties in learning vocabulary

Figure 3 below presents students' pre-test results. As can be seen from the figure, there were 19 students who achieved more than 20 questions. In addition, there were 9 students who achieved the number of correct questions ranging from 15 to 20. However, there was only one student S23 who achieved 11 correct questions and student S30 achieved 4 correct questions out of a total of 25 questions.

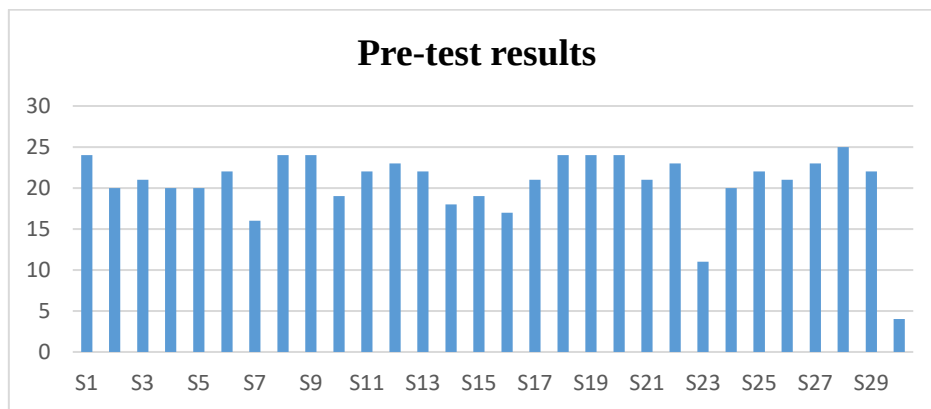


Figure 3. Students' Pre-test results

Figure 4 below depicts the difference in knowledge retention among the students who participated in the experiment. As can be seen from the figure, the participant with the worst memory ability was S30, who only achieved 16% of vocabulary retention, and the participant with the best memory ability was S25. In addition, there were 5 students who retained 96% of the knowledge they had learned. In addition, 13 students who retained at a level above 80% were S2, S3, S4, S5, S6, S11, S13, S17, S21, S24, S25, S26, and S29. In short, two-thirds of the participants in the experiment had good memory, with only 7 people having poor and average memory abilities.

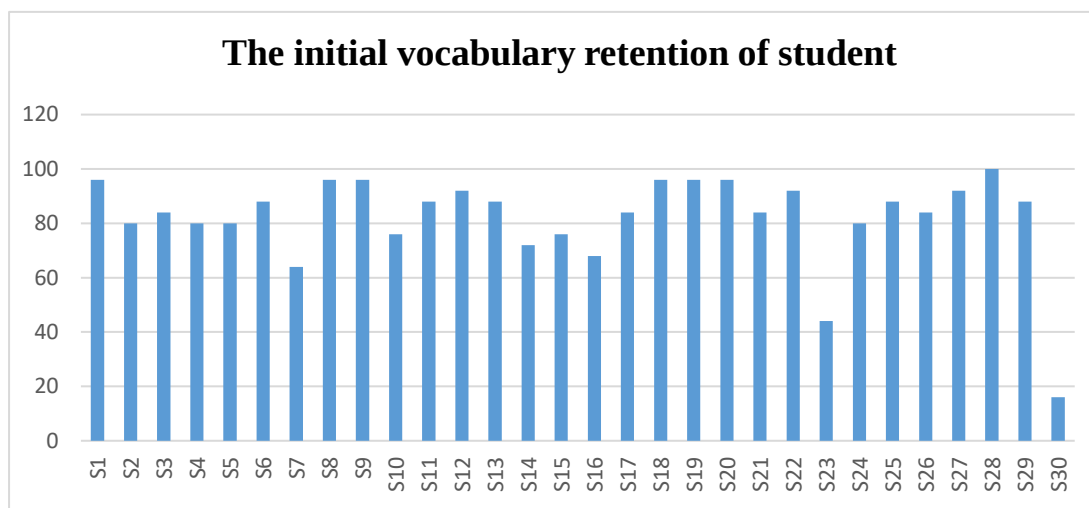


Figure 4. Students' initial vocabulary retention

Figure 5 depicts the comparison between the vocabulary retention of students after 3 weeks and that of students after 6 weeks. From figure below, it could be seen that the student's ability to remember had generally decreased slightly by 4%, even for the student with the worst ability to remember, S30. However, S28 had witnessed a constant trend throughout the 6 weeks of continuous experimentation (at 100%). From this, it could be seen that the number of lessons to review and the difficulty of the lessons had increased, which had led to a slight decrease in the student's ability to remember because the brain had to process and store a lot of information. Thanks to the Knowt platform and suitable learning modes, the student's ability to remember did not decrease significantly. Specifically, student S30, who had the worst ability to remember, had only decreased by 4% compared to the student's ability to remember 3 weeks earlier (44%).

In addition, students with a memorization ability of 70% to 80%, such as S7, S14, S16, and S15, had a very slight decline of only about 3% compared to the beginning. Specifically, S7 and S14 decreased from approximately 70% to 68%. Besides, S14 decreased from approximately 75% to approximately 71%. Finally, S15 decreased from 80% to 76%. Next, students in the group with memory ability between 80% and 90% also had a slight decrease of only about 2%. Specifically, S2, S3, and S4 decreased from 82% to 80% (which meant only a decrease of 2%). Similarly, other students S17, S21, S24, and S26 also decreased to approximately 82%, 82%, 80%, and 82%, respectively.

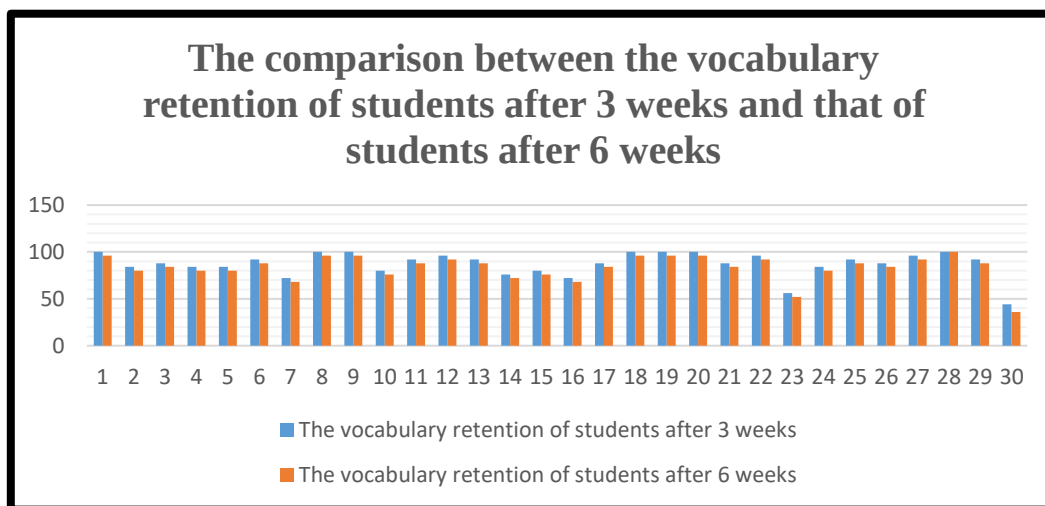


Figure 5. Students' vocabulary retention after 3 weeks and that of students after 6 weeks

In conclusion, the Knowt platform provided suitable learning plans so that students could maintain the ability to remember all the knowledge learned for a long time. The decrease had been caused by many factors, such as the large amount of knowledge to review, busy personal schedules, and so on, but from the best students to the weakest students, the decrease had only been between 4% and 5%, which meant that their ability to memorize had increased.

Figure 6 below presents students' vocabulary retention before and after 6 weeks (Pre-test & Post-test). Overall, all 30 students had shown positive changes in their vocabulary retention. In addition, student S30, who had had the lowest memory capacity, had also shown a significant increase after the scientists had conducted the experiment for 8 weeks. Looking more specifically, on average, students had increased their memory capacity from 4% to 16% after the study period. Specifically, student S28 had maintained his memory capacity without any significant decrease after the 8 weeks of the experiment (at 100%). This had been followed by the figures for students who had retained over 90% of the knowledge, who had witnessed a strong increase of 12% to 16% in their memory capacity. For example, students S2, S4, S5, S14, S15, S16, and S24 had increased to 96%, 96%, 92%, 92%, 92%, 92%, and 92%, respectively.

Most notably, students who had increased their memorization ability by an average of 12% to 16% compared to the beginning had been S3, S6, S11, S13, S25, S26, and S29. This strong growth had been the result of a disciplined learning process and a reasonable study plan specifically built by Knowt for each student. In addition, most notably, student S30 had had the strongest growth among the 30 students participating in the experiment when his memorization ability had increased by 64% compared to the beginning. It could be said that this student had made commendable progress when his initial memorization ability had been only 16%, equivalent to a weak level. However, after the learning process, the learner had found new and effective ways to be able to remember 80% of the knowledge learned.

Besides, there had also been students who had significantly increased their memory capacity, such as student S7, who had increased 24% from 64% to 88%, or student S14, who had increased his memory capacity by 20%. In addition, there had been student S16, who had increased his memory capacity from 68% to 92%, meaning that this learner had increased by 24%. Finally, a special case no less than S30 had been S23, who had increased his memory capacity by 36% based on the Knowt platform that the amount of knowledge remembered had increased from 44% to 80%.

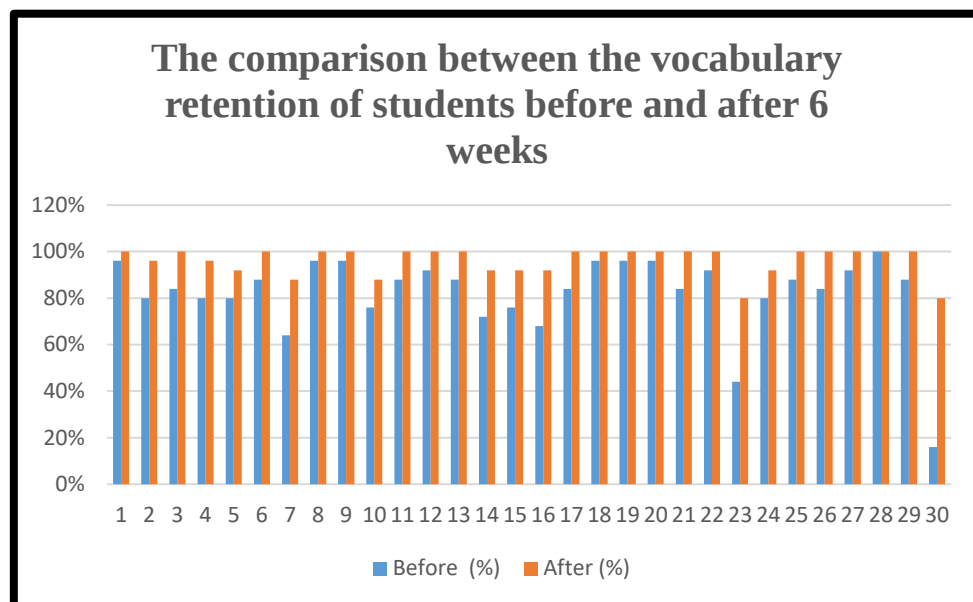


Figure 6. Students' vocabulary retention before and after 6 weeks (Pre-test & Post-test)

In conclusion, after 8 weeks of the experiment, 30 students made remarkable progress. The strong growth in their memory ability was the result of a disciplined learning process. It was also the result of applying the Knowt platform to improve vocabulary memory ability had increased from 44% to 80%.

DISCUSSION

The data analysis presented in this study demonstrated the effectiveness of using the Knowt platform in improving high school students' vocabulary memorization.

Before participating in the experiment, students had been surveyed so that the researchers could clearly understand the current situation of high school students' English vocabulary learning. According to the findings, 100% of students had found that vocabulary played an important role in learning a foreign language. In addition, only 10% of students participating in the experiment had felt extremely interested in learning vocabulary, and 57% of students had felt neutrally interested in learning vocabulary. Based on the data on students' use of tools to practice vocabulary outside the classroom and the frequency of students practicing English vocabulary outside the classroom, the researchers concluded that students had been interested in learning vocabulary but had not had an effective vocabulary learning method that suited their habits or needs. However, the method used on the Knowt platform had been less time-consuming but highly effective.

Furthermore, the study also showed that high school students using techniques such as spaced repetition or personalized learning plans on the Knowt platform had helped them gain greater motivation and interest in learning. After analyzing the data, it could be seen that all students had initially had the same level of vocabulary understanding. Most of the students' understanding level had been at the fair and excellent level; however, there had been one student (S30) whose memorization ability and English proficiency had been lower than the rest of the group's. In addition, the student with the worst memorization ability, S30, had also shown strong growth when his memorization ability had increased from 16% to 80%. It could be said that students had remembered 80% of the knowledge learned in each lesson thanks to the Knowt platform. Initially, all students had had a memorization ability ranging from 100% to 16%, meaning that there had been people with good memorization ability and people with poor memorization ability. However, after applying the methods on the Knowt platform, all students had achieved good memorization ability (over 80% of the knowledge learned). The statistics for each test had also shown that the vocabulary memorization ability of high school students had improved significantly. Therefore, it could be seen that the Knowt platform had had a significant impact on the vocabulary memorization ability of high school students. Although there had been different improvements in each session, there had also been periods of slight decline and recovery and then strong growth in the final practice phase in all sessions.

Other studies had similarly demonstrated the effectiveness of the Knowt platform, which had integrated artificial intelligence and personalized learning plans. Tiago Forte (2022) had suggested that using a second brain had helped learners organize and retain information better. The second brain here had been artificial intelligence note-taking tools combined with a personalized mode that had helped learners a lot in selective and effective learning. In addition, Bloom, B. S. (1984) had also highly appreciated "the importance of personalizing the learning plan," stating that it had saved time and had helped learners control the amount of knowledge they had learned. Using a personalized learning plan or spaced repetition technique had both stimulated active recall and discipline in learners when the content of the questions in practice tests had required learners to review frequently in order to be able to answer. Moreover, as a platform with the most modern virtual assistant at that time, the Knowt platform had been highly

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appreciated by Means et al. (2014) in designing digital learning platforms. In addition, Knowt had also been a game-based learning platform. Deterding et al. (2011) had believed that applying game elements to non-game activities could have increased learners' motivation and engagement. The Knowt platform had integrated elements of gamification, such as scores, levels, and competition within a class, to encourage learners to maintain their habits.

It could be said that the success of improving memorization through the Knowt platform had depended on various factors, including the quality of learning materials and students' access to technology, the techniques students had applied, and students' learning attitudes.

V. CONCLUSION

In this study, the focus was on investigating the impact of the Knowt platform on enhancing English vocabulary retention for high school students. The study used a quantitative method with a total of 30 grade 10 students at Chu Van An High School. These 30 students were all in an experimental group. Data were collected before and after the study period through a pre-test and a post-test to be able to compare the students' test results. Furthermore, pre- and post-questionnaires were conducted to collect detailed feedback from students about their learning experience as well as assess their attitudes towards the effectiveness of the Knowt platform in enhancing students' vocabulary retention.

The target objective of the study was to determine whether the use of the Knowt platform resulted in significant changes in students' vocabulary retention. The researchers proposed the hypothesis that this method is likely to have a positive impact on improving students' vocabulary memorization.

By analyzing the data, the researchers showed that using the Knowt platform has a positive impact on improving students' vocabulary memorization through different learning modes on the platform. By comparing the pre-test and post-test scores, there was a noticeable increase, clearly demonstrating the effectiveness of this method on students' vocabulary memorization. Looking at the detailed parameters and statistical analysis provided further insight into the level of improvement and the significance of the results. The findings of the study demonstrated that the Knowt platform is significantly effective in students' vocabulary memorization. After the study period, the majority of students in the experimental group found that combining the Spaced Repetition technique or the Personalized learning method with the Knowt platform made learning vocabulary easier for them. In addition, it is clear that students have a positive attitude towards applying the techniques (learning modes) on the Knowt platform to improve their vocabulary memorization ability. The positive results of the experiment showed not only positive improvements in vocabulary memorization ability but also the expectation for the experimental course. Using the Knowt platform created an effective learning environment and improved students' vocabulary memorization ability.

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