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Investigating Vocabulary Teaching: Memory Strategies for High School Students

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Abstract

The present study is an attempt to explore the use of memory strategies in vocabulary acquisition among high school students, with a focus on applying Dual Coding Theory and Gestalt Psychology Theory to have a detailed analysis and evidence-based recommendations. Through a questionnaire survey administered to high school students, this study shows the prevalence and effectiveness of various memory strategies. The findings reveal that contextual, phonetic and repetition strategy are the most popular strategies, while the keyword strategy is less frequently adopted. In light of these results, this study also offers practical suggestions for optimizing the implementation of memory strategies, strengthening teacher training and promoting student autonomy. What's more, this study highlights the importance of tailoring memory strategies to meet students' specific needs and underscores the trend for ongoing innovation of memory strategies to enhance students' overall language proficiency.

Keywords: High school students; Memory strategies; Vocabulary; Vocabulary teaching

1. Introduction

Vocabulary acquisition is a foundational part of cognitive development, cultural understanding and communication skills. As Hamer (1990) stated that "If the structure of a language is likened to its skeleton, then it is vocabulary that provides the vital organs and flesh." Wilkins (1972, p.111) claimed that "without vocabulary nothing can be conveyed"and Folse (2004, p.25) argued that "without vocabulary, no communication is possible." In high school English education, investing in vocabulary learning enables students to get great enhancement in listening, speaking, reading and writing. However, high school students still encounter some challenges in vocabulary retention. To begin with, students lack of regular review and suitable context, then the newly acquired vocabulary will gradually fade away. Schmitt (2008) noted that "most forgetting occurs after the learning sessions... so the first

recycling [is] important and need[s] to occur quickly."Furthermore, their attentions are always be distracted to other aspects of English learning such as grammar and listening. Some of them even lose interest in learning new words due to constant oblivion. Most importantly, the students solely rely on rote memorization and in want of effective learning strategies. Successful learning strategies can not only promote deeper understanding of language but also foster students' problem-solving and critical thinking abilities. According to Oxford (1990, p.1), "learning strategies are steps taken by students to enhance their own leaning, they are tools for active, self-directed involvement, which is essential for developing communicative competence". She also classified learning strategies into direct and indirect strategies. Among direct strategies, which include memory, cognitive and compensation strategies, memory strategy plays a significant role in English vocabulary teaching. For one thing, the memory strategy can help students encode and reorganize information. For another thing, it also consolidates vocabulary retention and and reduces students' cognitive load.

However, the current teaching practices and research on vocabulary memory strategies exhibit several notable gaps. Current vocabulary instruction often relies on rote memorization and isolated word lists, overlooking multimodal methods that combine visual, auditory, and contextual elements. This approach hampers learner' ability to apply vocabulary in real-world situations due to insufficient emphasis on transferring these strategies to spontaneous language use. Additionally, teaching methods frequently adopt a uniform approach, failing to accommodate individual differences in learning preferences, cognitive styles, and cultural backgrounds. In addition, technological tools are underutilized, with a predominant reliance on repetitive exercises rather than leveraging advanced technologies like AI-driven feedback or gamified applications. Addressing these gaps requires a more holistic, inclusive, and technologically integrated approach to vocabulary instruction and research.

Based on the vocabulary teaching phenomenon, the present study aims to provide more practical and beneficial vocabulary learning and teaching suggestions based on Gestalt Psychology and Dual Coding Theory, applying memory strategies into vocabulary retention so that the high school students will be more autonomous. There are some scholars also study memory strategies in vocabulary teaching, but most of them focus on college students or junior high school students and short of enough theoretical foundations. While this paper stands in the shoes of high school students, concentrates on the realistic vocabulary instruction by employing two reliable theories, and offers valuable and supportive experience for both educators and students. Specifically, for educators, they are able to gain more useful teaching strategies, to design more concrete and specific lesson plan as well as enriching their teaching procedure. For high school students, they are supposed to be more active and self-disciplined in lessons, then they can get a more holistic and effective progress in English learning.

By identifying commonly employed strategies and exploring methods for their optimization, the research seeks to improve vocabulary acquisition among high school students. Thus, the following research questions are formulated:

What's the memory strategies that high school students commonly use?

How these strategies can be optimized in vocabulary teaching?

2. Literature Review

2.1 Theoretical Framework

Dual Coding Theory(DCT) was proposed by Allan Paivio in the 1970s, and the main principle is that information is processed in two cognitive systems: verbal and nonverbal. The two systems are separate but intertwined with each other and it's better to encode information by employing the two systems at the same time. For example, when one people has stored the information of "cat" as the word "cat" and the image(smell, sound, appearance) of a cat. He or she can retrieve the word and the image of "cat" both individually and simultaneously. According to Paivio (1991, p.149), "Dual coding theory (DCT) explains human behavior and experience in terms of dynamic associative processes that operate on a rich network of modality-specific verbal and nonverbal (or imagery) representations. Applying DCT into memory strategy offers students methods to maintain long-term memory and lessen cognitive overload. Additionally, teachers are expected to leverage the verbal and nonverbal materials(such as flashcards, pictures, videos, flow charts and so on) to ameliorate students' class engagement and reinforce their vocabulary learning.

Gestalt Psychology Theory was founded in the 20th century and started from Germany. Max Wertheimer, Wolfgang Kohler and Kurt Koffka are the main members and the core of this theory is that "the whole is greater than the sum of its parts." They stick to principles such as similarity, figure, emergency, proximity, continuity, closure, symmetry and so on. Gestalt Psychology holds the view that perception and memory has strong connection, and our mind processes information as a whole rather than single parts. For instance, when we learn unfamiliar vocabulary, comprehending words in context is more useful than rote memorization. Kurt Koffka (2013) claimed that "Every Gestalt has order and meaning, of however low or high a degree, and that for a Gestalt quantity and quality are the same." In other words, learning not only depends on the factors gained but also on how to integrate them into meaningful integrity, and even the simplest perception can form an comprehensible structure.

2.2 A Brief Review of Studies on Vocabulary Teaching

Teaching vocabulary is essential for language learning, as it significantly affects reading comprehension and academic achievement (Foorman et al., 2016; Nation, 2013). Researchers have suggested a range of strategies to improve vocabulary acquisition. Graves et al. (2018) proposed a comprehensive approach that incorporates extensive reading, explicit instruction, word-learning strategies, and word awareness. Direct instruction, in particular, helps learners recall and understand words more effectively (Marulis & Neuman, 2010). Academic vocabulary, including general-purpose and technical terms, plays a vital role in fostering comprehension and building semantic networks (Beck et al., 2013). For younger learners, techniques like questioning and emphasizing polysemous words promote vocabulary growth and reduce errors (Chouinard et al., 2007). Gamified tools, such as Quizlet, enhance motivation and improve learning outcomes, particularly for low-proficiency students (Waluyo & Bucol, 2021; Sadeghi et al., 2022). Similarly, AR-based platforms like VocabulARy improve retention by using visual aids and interactive features (Weerasinghe et al., 2022). Multisensory strategies, such as gestures and pictures, have proven effective in aiding

vocabulary retention in children, with effects lasting up to six months (Andrä et al., 2020). However, many educators rely on basic methods like dictionary use and translation, underscoring the need for evidence-based practices in teacher training (Endah Fauziningrum et al., 2023). From traditional techniques to advanced technological tools, these approaches emphasize the importance of adapting vocabulary instruction to meet the diverse needs of learners.

2.3 A Brief Review of Studies on Memory Strategy

Memory strategy are used to remember, store and retrieve information. It also serves as effective learning strategy toward vocabulary learning. Oxford (1990) proved that "The mind can store up to trillion bits of information, but only part of that potential can be used unless memory strategies come to the aid of the learner." Pérez and Alvira (2017) explored the success of three memory strategies (word cards, association with a picture, and association with a topic or story) in a group of Colombia students with poor English vocabulary by using action research. They pointed out that these strategies are helpful for enhancing vocabulary acquisition and the cognitive and affective elements among those strategies will influence students' information processing. Atay and Ozbulgan (2007) reported that instruction on memory strategies enables students to be aware of their own learning dilemmas and experiment with various strategies. What's more, students' language competence and autonomy are improved accordingly. Chen Jie (2010) proposed seven practical memory strategies based on Ebbinghaus forgetting curve, Gestalt theory and Connectionist cognitive psychology. She believed that meaningful memory strategies (such as word analysis, context integration, chunking, familiar word imagery bridging) will help learners avoid aimless studying and achieve better results with less effort. Ghorbani and Riabi (2011) employed empirical research to demonstrate that the instruction of memory strategies facilitates the long-term retention of English vocabulary and validates The Depth of Processing Hypothesis.

Memory strategies are essential for vocabulary learning, and their application varies according to learners' academic level, proficiency, and age. Ghalebi et al. (2020, 2021) revealed that undergraduate students often prefer basic determination and memory techniques, while graduate students rely on more sophisticated metacognitive and social approaches. Similarly, high-proficiency learners utilize deep processing strategies, such as guessing word meanings and consulting dictionaries, whereas low-proficiency learners depend on simpler methods. Murphy et al. (2020) observed that older adults, despite facing memory challenges, prioritize important vocabulary and mitigate deficits through task experience and self-regulated study. Additionally, Andrä et al. (2020) demonstrated that multisensory techniques, including gestures and images, significantly improve vocabulary retention in 8-year-old learners for both concrete and abstract words, with benefits lasting up to six months. Then, Alwadei and Mohsen (2023) showed that infographics effectively enhance vocabulary acquisition among Arab EFL learners, providing both short-term and long-term benefits. Collectively, these studies indicate that memory strategy preferences are influenced by individual characteristics, while tools like infographics and multisensory methods offer effective learning solutions across diverse learner groups.

Although most of scholars provide different memory strategies and prove the value of these strategies, there are still some limits on it. On the one hand, they doesn't study how

various memory strategies can be combined with one another so that students can get a more comprehensible vocabulary acquisition. On the other hand, with the advent of technology, it will be better if we are able to adapt and enhance traditional memory strategies by using digital tools such as apps and online games.

3. Methodology

3.1 Investigation objectives

(1) To understand the overall trend of vocabulary memory strategies used by Chinese high school students.

(2) To explore better strategies to help students improve vocabulary retention.

3.2 Investigation subjects

This investigation selected high school students from grades 10 to 12 in 16 provinces of China as the research subjects, including 44 boys and 56 girls. Their average age is 16 years old.

3.3 Investigation instrument

The investigation instrument is a questionnaire on the use of vocabulary memory strategies by high school students. The questionnaire design is adapted based on Craik and Lockhart's (1972) Levels of Processing Theory, Lü Wenpeng's (2007) classification of vocabulary memory strategies, and Gu Yongqi's vocabulary strategy questionnaire (Wen Qiufang, 2004). For the purpose of assuring the reliability and validity of this questionnaire, the writer conducted the study on a small scale before the comprehensive data collection. There are 20 items in total, which are divided into active utilization strategy, contextual strategy, phonetic strategy, association strategy, keyword strategy, chunking strategy, repetition strategy, morphological strategy and word list strategy. These strategies cater to various cognitive processes and learning styles, offering a structured approach to understand how learners interact with and remember new vocabulary. The general rationale for choosing these strategies lies in their ability to address diverse cognitive processes, learning preferences, and linguistic needs.These strategies enhance vocabulary learning by utilizing various pathways for encoding, storing, and retrieving information. More specifically, the chunking strategy embodies the Gestalt principle of proximity by organizing related vocabulary into cohesive groups, which reduces cognitive effort and improves retention. The association strategy aligns with the principle of similarity, linking new words to familiar ideas to form meaningful connections. The contextual strategy follows the principle of closure by placing words in meaningful contexts, allowing learners to build complete and coherent mental representations. The morphological strategy incorporates the figure-ground principle, guiding learners to concentrate on key word elements, such as prefixes or roots, as distinct figures within the larger vocabulary framework. The keyword strategy integrates verbal components, such as word meanings, with mental images, utilizing dual coding to improve recall. The phonetic strategy engages auditory-verbal processing and works alongside visual or semantic cues to reinforce memory. To avoid misunderstandings, all questions are presented in Chinese. The questionnaire includes two parts, the basic information of the subjects and questions about memory strategy use. The answer method adapts one to five

Likert Scale. 1=Not in accord with my actual situation, 2=Basic does not tally with the actual situation, 3=In line with my actual situation, 4=Mostly apply to my actual situation, 5=Fully consistent with my actual situation.

In order to enhance the reliability and validity of the questionnaire, all items are randomly distributed during the design process. The classification of the strategies and their corresponding items are listed as the following chart.

Table 3.1: Strategy Classification and Corresponding Items

Memory Strategy	Items
Active Utilization Strategy	13, 19
Association Strategy	14, 20
Phonetic Strategy	1, 6, 15
Contextual Strategy	5, 12
Keyword Strategy	2, 7, 16
Chunking Strategy	8, 17
Word List Strategy	4, 10
Repetition Strategy	3, 9
Morphological Strategy	11, 18

The data for the vocabulary memory strategy questionnaire is collected through an app called Wen juan xing and is analyzed by SPSS and SPSSAU.

4. Results and Discussion

4.1 Reliability Analysis

Reliability analysis is a statistical method that used to assess results' consistency and dependability. A Cronbach's Alpha coefficient between 0.6 to 0.7 shows acceptability, between 0.7 and 0.9 indicates suitability, and beyond 0.9 demonstrates a high level of suitability. As we can see from Table 4.1, the value of Cronbach's Alpha is 0.920, which is beyond 0.9. It proves that the questionnaire of memory strategies for vocabulary is highly reliable.

Table 4.1: The Questionnaire's Reliability Analysis

Reliability Statistics (Cronbach Alpha)			
Items	Corrected Item-Total Correlation(CITC)·	Cronbach Alpha if Item Deleted·	Cronbach α·
Keyword Strategy	0.698	0.912	0.920
Phonetic Strategy	0.804	0.905	
Association Strategy	0.718	0.910	
Wordlist Strategy	0.735	0.909	
Repetition Strategy	0.693	0.912	
Chunking Strategy	0.684	0.912	
Morphological Strategy	0.672	0.913	
Contextual Strategy	0.729	0.909	
Active Utilization Strategy	0.717	0.911	

Cronbach α (Standardized): 0.921

4.2 Validity Analysis

Validity analysis refers to the process of evaluating the extent to which the data gained from the questionnaire can accurately measures what is intended to be investigated. This investigation measured the KMO value and Bartlett's Test of Sphericity. If a KMO value is greater than 0.7, it indicates that the questionnaire is suitable for factor analysis. What's more, if a significance value in Bartlett's Test of Sphericity is less than 0.05, it means there are significant correlations among the variables. As shown in Table 4.2, the overall sample KMO value is 0.929, and the significance value is 0.00. Thus, the data obtained from the questionnaire can embody the high school students' usage of memory strategies.

Table 4.2 The Questionnaire's Validity Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.929
Bartlett's Test of Sphericity	Approx. Chi-Square	547.919
	df	36
	Sig.	.000

4.3 Descriptive Analysis

The descriptive analysis helps us have a clearer and concise understanding of the data. From Table 4.3.1 and Chart 4.3.2, we can see that the most frequently used vocabulary memory strategies by high school students, in descending order, are as follows: contextual strategy (mean=4.04), phonetic strategy (mean=4.00), repetition strategy (mean=3.96), chunking strategy (mean=3.94), active utilization strategy (mean=3.89), association strategy (mean=3.89), morphological strategy (mean=3.88), word list strategy (mean=3.88), keyword strategy(mean=3.79).

The conclusion indicates that high school students adopt various English vocabulary

memory strategies. Fortunately, the repetition strategy's mean is not the highest. It means that our teaching methods and approaches are increasingly advanced and do not solely concentrate on rote memorization. But repetition strategy still remains a popular strategy.

Contextual strategy has the largest proportion on the strategy use. Contextual strategy provides students the situation to guess unfamiliar words. In addition, contextual strategy also align with the principles of Gestalt Psychology Theory, which suggests that the whole is greater than sections. Students are able to acquire meaningful information from both their previous experiences and existed knowledge and understand the vocabulary from the background of the whole passage. Furthermore, the students are more likely to memorize the relevant vocabulary since they learn words in natural situation and then their motivation and engagement will be enhanced greatly.

Phonetic strategy is associated with Dual Coding Theory since this strategy focuses on the pronunciation of the words, which is essential for learners to get valid communication. Sounds as part of verbal system, it is easier for learners to retrieve information. According to Multiple Intelligence Theory, individuals have different types of intelligence, and some of them own linguistic intelligence or logic-mathematical intelligence or musical intelligence and so on. Therefore, for linguistic learners, they are supposed to benefit from phonetic strategy and be more inclusive and more interactive.

Repetition strategy is a traditional and popular method among high school students. Although it slightly lower than the first two strategies, it is still a key factor of vocabulary acquisition. We can get from the Ebbinghaus Forgetting Curve that repeated exposure and consistent practices are the main elements to long-term vocabulary retention. We all know that "practice makes perfect", repetition work helps us form study habits and build confidence. On the other hand, we are expected to realize that repetition is not a permanent learning strategy and very time-consuming, so we need adapt it or combine with other memory strategies so as to improve the efficiency of vocabulary memorization.

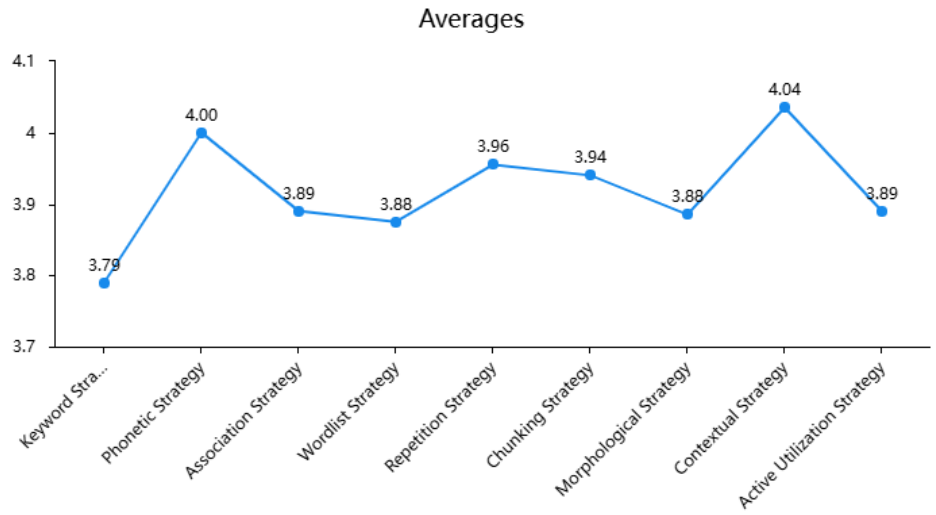
The keyword strategy, although might be useful and meaningful for students, ranks lowest among all strategies. For one thing, the keyword strategy needs visual images and a great deal of imagination activities that link the newly learned vocabulary to a familiar word and create relevant and vivid scenes in brain in a short time. It is probably demanding for them and they even maybe lose interest or motivation on it. Besides, the students will encounter more limits when they need comprehend more abstract terms or concepts.

Table 4.3.1: Descriptive Statistics of Vocabulary Memory Strategies

Descriptive Analysis

Items	N of samples	Min	Max	Mean	Std. Deviation	Median
Keyword Strategy	100	1.000	5.000	3.790	0.851	3.667
Phonetic Strategy	100	1.333	5.000	4.000	0.808	4.000
Association Strategy	100	1.500	5.000	3.890	0.934	4.000
Wordlist Strategy	100	1.000	5.000	3.875	0.877	4.000
Repetition Strategy	100	1.000	5.000	3.955	0.871	4.000
Chunking Strategy	100	1.500	5.000	3.940	0.811	4.000
Morphological Strategy	100	1.000	5.000	3.885	0.940	4.000
Contextual Strategy	100	1.000	5.000	4.035	0.868	4.000
Active Utilization Strategy	100	1.000	5.000	3.890	1.009	4.000

Chart 4.3.2: Visualization of Descriptive Analysis



4.4 Correlation Analysis

The correlation analysis shows that there is a significant high positive relationship between phonetic strategy, contextual strategy, keyword strategy and other strategies(Table 4.3.2). The phonetic strategy demonstrates strong relationships with the keyword Strategy(r=0.680,p<0.01） and wordlist strategy(r=0.665,p<0.01). This facilitates memory retention by connecting auditory and visual elements, enhancing students' abilities of recalling and application. Additionally, the contextual strategy have strong connections with wordlist strategy (r=0.649,p<0.01) and phonetic strategy (r=0.653,p<0.01). This indicates that placing words within meaningful contexts enhances learners' comprehension and benefits long-term retention. What's more. Keyword strategy's high correlation with the

phonetic strategy (r=0.680,p<0.01) indicates that mnemonic techniques, when paired with sound-based approaches, can significantly improve vocabulary recall.

Table 4.3.2: Correlation Statistics of Vocabulary Memory Strategies

Pearson相关-标准格式

	平均值	标准差	Keyword Strategy	Phonetic Strategy	Association Strategy	Wordlist Strategy	Repetition Strategy	Chunking Strategy	Morphological Strategy	Contextual Strategy	Active Utilization Strategy
Keyword Strategy	3.790	0.851	1								
Phonetic Strategy	4.000	0.808	0.680**	1							
Association Strategy	3.890	0.934	0.513**	0.571**	1						
Wordlist Strategy	3.875	0.877	0.542**	0.665**	0.634**	1					
Repetition Strategy	3.955	0.871	0.548**	0.660**	0.494**	0.541**	1				
Chunking Strategy	3.940	0.811	0.560**	0.601**	0.568**	0.412**	0.518**	1			
Morphological Strategy	3.885	0.940	0.489**	0.528**	0.665**	0.595**	0.494**	0.494**	1		
Contextual Strategy	4.035	0.868	0.536**	0.653**	0.575**	0.649**	0.537**	0.548**	0.497**	1	
Active Utilization Strategy	3.890	1.009	0.547**	0.648**	0.494**	0.563**	0.586**	0.615**	0.487**	0.587**	1

* p<0.05 ** p<0.0

5. Recommendations

5.1 Optimizing Memory strategies

Although there are multiple memory strategies in vocabulary teaching, how to combine these strategies to achieve better vocabulary acquisition is still an issue. This part will include the integration of different memory strategies and explore innovative strategy for creating more coherent learning atmosphere.

5.1.1 Integrating strategies

The strong correlations among strategies (e.g., contextual and phonetic strategies, r=0.653, p<0.01); phonetic and keyword strategies, r=0.680, p<0.01) highlight the benefits of combining approaches.Combining various memory strategies together can not only help students cultivate strategy awareness but also provide them pathways to engage and master vocabulary. First of all, teachers are supposed to integrate repetition strategy with association strategy. Specifically, they can apply digital flashcards like Anki to help students acquire vocabulary. Every flashcards include the meaning, picture, and examples of words and Anki owns repetition schedule so that the students are able to retrieve them at increasing intervals. For example, when students learn the word “swell”, we can note the definition and examples on digital flashcard and also the image about it. They can imagine that “s” means one snake and its body is also curving, and there is a big snake stay in a well. It is so big that the well begins to swell. Then teachers are expected to show the flashcard regularly.

Apart from that, mnemonic story is also beneficial for students’ vocabulary retention. For instance, when students learn high school syllabus vocabulary like *active, lonely, event, accompany*. Teachers can help students to conceive a scene like: In students’ city, there is a dog called Max and he is always **active** and love to run, but one day, his owner need attend an important **event.** After that, he feels unusually **lonely**. Fortunately, he met a friend named Sam offers him **accompany**. Through the application of mnemonic story, the students can

not only remember the vivid situation of the scene but also recall the key words. In this way, when the teacher mentioned Max or Sam, students are required to retrieve the whole story. Through continuous practice, learners are capable of acquiring these words.

On the other hand, teachers can also integrate chunking strategy with phonetic strategy. For example, when the students are learning new unit and the topic is about environment, and the teacher is supposed to make a thematic vocabulary list that includes words like *protection, ecosystem, sustainable, energy, desertification.* Then the teacher should design some phonetic games like hearing voices of words and recognize the meanings of words. This method will train students' pronunciation and intonation.

5.1.2 Innovating strategies

The nine strategies that the writer mentioned before play essential part in vocabulary teaching. According to the findings, contextual strategy (mean = 4.04) is the most frequently used and effective, but keyword strategy (mean = 3.79) ranks lowest due to its cognitive demands. Based on DCT, information can be better processed when it's encoded both verbally and non-verbally(Imagery). Incorporating cultural background into vocabulary learning is also an extremely effective memory strategy for high school students. Because cultural background provides students c context and space with rich visual imagery and contents with narratives. This strategy not only aids in reinforcing the understanding of new words but also enriching their language cognition and transfer ability. Mary Wood Cornog (2020) analyzed the root of "PEND", which is "come from the Latin verb *pendere,* meaning 'to hang' or 'to weigh'. In the Roman era, weighing something large often required hanging it from a hook on one side of the balance scales." Then we can easily understand the meaning of " pendant" and "suspend" other words that have the root of "PEND". What's more, teachers can introduce a whole word with its cultural background and not just the root. For example, the word "renaissance" is originated in Italy and it refers to a history in Europe. From 14th century to 17th century, the ancient Greece and Rome made advanced development in literature, art and science.

5.1.3 Personalizing strategies

Variability in the use of strategies reflects diverse learning preferences among students. In order to meet students' practical learning needs, it is necessary for teachers to adapt different memory strategies. Firstly, teachers are expected to know students' competence and difficulties of vocabulary learning by designing exams and assessments. Secondly, teachers are supposed to utilize online educational apps to trace students' learning state in real time and also design interactive activities which are able to stimulate students' multiple senses.

Cooperative learning is also advocated. In this way, students' team work ability and innovative spirit can be sparked. When students exchange their ideas with classmates, they are expected to realize their own strengths and drawbacks. Then it's more convenient for teachers to recommend personalized memory strategy to students so that their learning motivation and ability can be accordingly enhanced.

5.2 Strengthening Teacher Training

The study highlights the significance of diverse strategies, including contextual, phonetic, and repetition strategies, which are both strongly correlated and commonly adopted by students. To apply these strategies effectively, teachers need to skillfully use a range of methods adapted to the specific needs and preferences of their learners. Teachers, as the main knowledge transmitter, burden heavy responsibility in passing effective and meaningful memory strategies to learners, should be adapt at employing diversified learning strategies. To begin with, teachers should be offered opportunities to attend relative seminar and professional development workshops. Thus, they are able to discuss the most advanced and latest research on vocabulary acquisition. In addition, teachers can share their teaching experiences and difficulties, and find innovative methods to memory strategy instruction. Furthermore, searching online resources and learning from other meaningful channels to improve teaching ability are also admirable. Lastly, teachers are supposed to consult valuable memory strategies with students. Only in this way, can students increase sense of engagement and build great relationship with teachers. By enriching the knowledge and skills, the teacher are able to cope with issues that students hard to figure out and also keep their authority in knowledge. Therefore, a supportive, coherent and open-minded learning environment can be created.

5.3 Improving Student Autonomy

The study highlights the significance of various memory strategies, including contextual (mean = 4.04), phonetic (mean = 4.00), and repetition strategies (mean = 3.96). Their strong correlations suggest that combining these strategies can enhance effectiveness. However, only rely on teachers' guidance and supervision is not enough, students should increase their autonomy for long-term vocabulary learning. At first, students need set specific goals or levels for vocabulary retention. When they get goals, they tend to formulate learning plan and it's more easy for them to track vocabulary acquisition timely. Secondly, assessing their own learning preferences and styles. Interest is the best teacher and this part enables students select the most suitable memory strategy for vocabulary learning and assist them in building confidence.

Last but not the least, cultivating students' good learning habits is necessary. Because it lays foundation for their future learning and lead to good results on their academic performances. It is also easier for them to achieve educational goals and develop their cognitive skills. Students with good learning habits are more likely to be self-disciplined and self-directed. To some extent, their study stress will also be relieved.

6. Conclusion

This investigation adopted a literature review to analyze high school students' vocabulary memory strategies both domestically and internationally as well as introducing the Dual Coding Theory and Gestalt Psychology to further support the use of memory strategy. Then, the study launched a questionnaire survey to better understand students' use of memory strategies. As a result, this research found that contextual strategy, phonetic strategy and repetition strategy are the most frequently used, while keyword strategy is not that much

popular. The writer also elucidates the phenomenon and analyzes the relevant reasons. Subsequently, the writer provides recommendations from students and teachers' viewpoint along with the angle of memory strategies.

Despite the contributions of this study, it is paramount to recognize its limitations. First of all, this research lacks of enough sample size and it might not represent the whole population of high school students. Consequently, the findings might represent the unique traits of the sampled group instead of capturing the broader patterns of memory strategy use among high school students as a whole. Additionally, this study solely rely on questionnaires, which may restrict the depth and width of the use of memory strategy. This limitation may result in a less comprehensive understanding of how memory strategies are applied in practice, which could subtly influence the accuracy of the findings. Apart from that, the short duration of this study probably have limited the long-term trends and final outcomes. As a result, the conclusions may not adequately capture the long-term impact or progression of these strategies over time.

In conclusion, in vocabulary teaching, effective memory strategies will offer a pathway for further vocabulary retention. Exploring the methods that combine various memory strategies, enhancing teachers' expertise and helping students achieve learning autonomy will create a win-win learning environment and holistically cultivate students' language awareness.

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