Picture-vocabulary Mnemonics: An Approach to Teach Vocabularies to Second Language Learners

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Abstract. Previous studies in the field of second language acquisition have emphasized that visual tools play a crucial role in improving vocabulary acquisition for second language learners. This article aims to summarize the positive effects and limitations of pictures as one of the visual tools for second language learners. The article also explores how teachers can use pictures properly in their second language teaching practices. By summarizing established experiments and theories, vocabulary learning has the superiority of deepening memory and improving students' learning ability. However, at the same time, its limited applicability (both to vocabulary and to students) increases its difficulties to extend the vocabulary learning method. Furthermore, for language teachers, it is important that they intervene in the vocabulary learning process and provide the right guidance to their students.

1. Introduction

Research has increasingly focused on the effectiveness of picture vocabulary mnemonics [1-3]. It is defined as a vocabulary memory aid that enhances vocabulary memory with the help of a visual tool in the form of pictures. The need for more effective ways of vocabulary learning by second language learners, an important group in English vocabulary learning, has also raised interest in picture mnemonics [4]. However, there is a growing interest in this role in studies of vocabulary learning for second language learners, but a summary of the impact of this learning method has not been conducted to a great extent. The purpose of this article is to explore the pros and cons of the vocabulary picture mnemonic method and to investigate ways in which language teachers can enable second language learners to learn English vocabulary more effectively.

This article first discusses the advantages of picture vocabulary mnemonics and presents a summary of the established experiments, supported by three experiments with second language learners [1][5][6]. In the following section, the limitations of the picture vocabulary mnemonic method will be discussed, along with the aspects that second language learners need to be aware of when utilizing picture-vocabulary mnemonics here. Besides, the article will use established theories and experiments to guide teachers in the application of the vocabulary picture mnemonics in the classroom.

2. The Importance of Using Pictures in Vocabulary Teaching

The picture learning mnemonics can bring beneficial results in certain aspects, such as learning efficiency, learning interest, and vocabulary teaching. Pictures, as popularly used visual materials, set up connections between vocabularies and the meanings they represent. In the vocabulary learning process, which is a course involving two parties, picture-vocabulary mnemonics show its superiority towards both language teachers and learners.

2.1. Accelerating Vocabulary Short-Term Memory

Pictures help with associative memory, which is the most basic role of picture mnemonics. Language learners let visual associations with vocabulary and thus enable impressions of the meaning of words with the help of specific images. For a given period of time, picture memorization tends to show better results than verbal memorization, and language learners can remember more vocabulary [1]. Researchers divided 124 participants into two groups, namely the verbal learning group and the picture-vocabulary learning group. They are asked to finish vocabulary tests according to given time intervals. The result shows that in the first ten minutes and the first hour, the picture group and the verbal group showed their greatest difference in correctness, respectively 75% and 57%. This means that it is appropriate for students to use

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this method to memorize words at the beginning stage when they are exposed to new words.

Researchers’ studies of the human brain have also demonstrated the advantages of picture memory. The picture memory approach changes the vocabulary memory from words alone to a text plus picture format. Paivio proposed a “dual-code” theory, which states that picture mnemonics use both verbal code and image code [7]. This method is more effective than traditional vocabulary mnemonics, which means only verbal code. Twelve participants took part in a pilot trial and were asked to memorize pictures or words [5]. In the process, researchers conduct behavioral analysis on them. By analyzing their standard magnetic resonance images, the human brain is more active in processing picture information than text information alone. As a result, when pictures are used to memorize words, they often present a more desirable effect. This also proves the advantages of picture mnemonics for vocabulary memorization.

2.2 Stimulating Students’ Curiosity Concerning Vocabulary Learning

Students are the subject and the most vital part of vocabulary learning. Their attitude towards vocabulary learning determines the effect of their learning process. Calhoun stated the advantages of the vocabulary mnemonic approach to student engagement in the classroom: the use of teaching aids increases the interactivity of the classroom and makes students feel more connected to the classroom, which makes them more willing to participate in the classroom [8]. The classroom serves as a place to connect students to teachers and students to students, and having such connections established in depth in the classroom helps to keep students more actively engaged in learning and achieve satisfactory results. This laterally promotes vocabulary learning and makes it more efficient.

Researchers have also conducted surveys on students’ learning process, and the majority of students agreed that picture mnemonics made them more interested in vocabulary learning. For instance, from the questionnaire made by Islamiah and Aprizani, the vast majority of the 129 participants agreed that the picture-learning method enhanced their interest in learning and made them more willing to learn vocabulary [6]. In addition, in another survey, 85 out of 100 students agreed with the idea that “the picture learning method attracts them to learn more vocabulary” (including 45 who strongly agreed and 40 who agreed) [2]. These questionnaires all point to the same conclusion that picture mnemonics are helpful in engaging students’ interest in learning.

2.3 Improving Students’ Independent Learning Skills

The promotion of the use of picture learning is not only to optimize the efficiency and effectiveness of students’ memorization of words but also to enable them to master the way of learning words in this way and to be able to memorize words independently on their own. Calhoun pointed out that students can find a pattern in the teacher’s vocabulary teaching process, which comes from their generalization about the connection between pictures and vocabulary [8]. The picture learning method is not just an input of knowledge that allows students to learn the vocabulary itself, but also a way to teach them to learn for themselves. This is important for students’ future long-term learning, allowing them to be more efficient in their independent learning and even influencing their learning in other subjects.

3. Limitations of Using Visual Tools

The picture mnemonic method has a limited degree of memorization. Especially for adults, after one week of training, the gesture-assisted vocabulary memorization method showed better results than the picture memorization method, which indicates the possibility of faster forgetting through picture memorization [9]. In Gehring’s experiment, as time grows, the gap between memorizing vocabulary with words and memorizing vocabulary with pictures becomes smaller and smaller [1]. In the long run, this method does not maintain the advantage for a long time, but only for a short period of time to achieve results more quickly. Therefore, language learners cannot rely entirely on picture mnemonics, which is only a shortcut for short-term memory.

Additionally, the kinds of vocabulary that can be memorized using picture mnemonics are limited. Nation argues that not all vocabularies are able to be illustrated clearly by pictures [10]. Those abstract words, for instance, can only be explained through words, but do not have suitable symbols or images to represent them. Their unpicturability fundamentally leads to the fact that they have no possibility to be learned in the form of pictures. However, these words are also widely used in English, such as “however”, “limitation”, “rhetoric” etc. Even when one tries to visualize these words, there is a gap between the pictures and the intended meaning of the words. It is also difficult for students to memorize these words and correspond them to the pictures through weak associations. In a Japanese university, 49 native Japanese speakers were asked to memorize concrete vocabulary and abstract vocabulary by means of pictures [11]. Regardless of the English level of the students and the format in which they learn (e.g., group or individual learning), concrete vocabularies are more likely to be correct than abstract vocabulary. This implies that pictures can only help a part of the vocabulary to achieve a better memory effect. Hence, picture mnemonics cannot be a universal way to memorize vocabulary in this aspect.

Besides, the picture learning method requires that students themselves have the ability to interpret pictures. In Hartatic’s discussion of the shortcomings of the picture learning method, he mentions that not every student understands what the pictures mean and that some students do not know how to explore the pictures in depth [12]. If the word is not in the student’s cognitive range, they are unlikely to get the vocabulary by association. It
also relates to the scope of their knowledge and the environment in which they live. For example, Chinese English learners may not have a knowledge base of vocabulary about western religions, such as bishop, priest, etc. Similarly, young English language learners have difficulty associating vocabulary with specialized areas such as chemistry through the picture learning method. Therefore, second language learners, are required to first acquire the vocabulary-related background in their native language before they can acquire the corresponding English vocabulary through picture mnemonics.

4. Methods and Implications to English Language Teaching

As the picture vocabulary memorization method has advantages over the traditional vocabulary memorization method, many researchers have proposed different methods to refine and improve the vocabulary picture mnemonics [2][4][13]. In the process of teaching vocabulary, teachers cannot just use the picture as an illustration and leave it as an optional or even superfluous part. Instead, teachers should focus on the selection of teaching materials, choosing the most effective pictures, and providing useful guidance to students in their vocabulary learning process.

4.1 Picture Designing and Selecting

Foremost, when designing images, it is important to improve the recognition of the images. If images are eye-catching and exaggerated enough, learners are more likely to remember the pictures, thus making a deeper connection between the pictures and the vocabulary. In the experiment of Mahdi and Gubeily, sixty English learners were selected to look up three materials, which refer to pure text, text with normal pictures, and text with exaggerated pictures [2]. During that study, participants were asked to translate the given words after memorizing them through three different methods. By comparing the accuracy and related statistics, it is verified that image memory is recommended for vocabulary memorization, and exaggerated or even strange pictures are the optimal solution. Therefore, the pictures used by the teacher can be characterized by strange cartoon images live or extreme scenes, etc., so that students remember the meaning of each word. In this way, students will be able to make associations and respond quickly to the meaning when they encounter the word in reading or listening.

Moreover, Li proposed that teachers can design vocabulary instructions with associative memory [13]. The Picture Word Inductive Model (PWIM) is a concept raised by Joyce and Callhoun which aims at enhancing vocabulary reading, and speaking skills by using pictures to show common actions and objects in life [14]. The fact that the picture materials are close to students’ everyday lives implies that students can more easily make connections between the picture content and language use. Thus, they will be able to transform short-term vocabulary memory into long-term language use. Furthermore, a single image can reflect multiple words. In other words, the teacher’s choice of pictures should also focus on its extensibility, (i.e., whether it can derive more words through the students’ imagination). For example, if a teacher wants to teach museum-related vocabulary, he or she can choose a picture of an artwork to start. For this reason, pictures can be used as a starting point to introduce the vocabulary that the teacher wants to teach.

4.2 Teacher Guidance in Vocabulary Learning

In addition to classroom preparation, the teacher should also take a leading role in the classroom to help students learn vocabulary using picture mnemonics. Li suggests that there is a sequence when applying picture-vocabulary mnemonics [13]. The student, as the subject of the vocabulary memorization process, has to first name the native vocabulary of the pictures by observing the pictures selected by their teachers. Then the teacher gives the corresponding vocabulary in English, and finally, the students form their own way of classifying the vocabulary. Since one of the main features of picture-vocabulary mnemonics is asking students to explore the vocabulary from pictures, teachers should give the initiative of learning the words the students. During the vocabulary class, teachers are suggested to guide students to find familiar vocabulary from the picture, which helps to build the connection between this picture and new vocabulary. Then, teachers should stimulate students’ association from the known vocabulary to the target vocabulary [4].

Based on the abovementioned framework of this system, teachers should not only focus on the adoption of this model but also explore how it affects students [13]. With these picture-vocabulary mnemonics, vocabulary learning is free from the form of one-sided output by the teacher. In the traditional teaching model, the feedback the teacher needs from the students is whether the students have remembered the vocabulary. Besides, the measurement is also result-oriented, relying mainly on the student’s final test scores. However, picture-vocabulary teaching places higher demands on teachers compared with traditional vocabulary teaching [13]. They have to observe the learning dynamics of students in the process of teaching, (i.e., whether students master the rules of vocabulary learning in the process of independent thinking and exploration, and whether they can independently explore new vocabulary in the pictures).

5. Conclusion

In a nutshell, one of the goals of this article is to summarize the multiple effects of picture vocabulary mnemonics on second language learners and the implications of this for teachers to apply in the classroom. In the literature review, many experiments point to the positive effects of the picture vocabulary learning method. This method of vocabulary memorization has advantages for shortening vocabulary memorization time and can improve the learning efficiency of language learners.
Meanwhile, the presence of pictures can effectively increase their interest in learning and also allow them to explore ways to learn vocabulary. However, language learners should also be aware that there are restrictions to the picture mnemonic method. One is that its advantage of long-term memory is limited, and the other is that it is applicable to a limited group of students and types of vocabulary and cannot be promoted to everyone.

As the instructor of vocabulary teaching, the teacher should screen the teaching pictures. He/she can choose more exaggerated pictures and let students associate vocabulary with memorable pictures. Pictures that are close to life are also suggested to make students associate and remember more vocabulary. On this basis, language learners are able to maximize the advantages of the picture vocabulary mnemonics through this approach.

References

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