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The Effectiveness of Using Metacognitive Strategy in Eighth Graders' Vocabulary Learning and its Retention

Abstract

The study sought to investigate the effectiveness of metacognitive strategy on vocabulary learning among eighth graders and its retention. To achieve the aim of the study, the two researchers chose the experimental approach with two groups. The experimental group(41) learners, studied through the metacognitive strategy for vocabulary learning while the control group (40) received usual teaching practice for vocabulary. An achievement (pre,post and delayed) test was applied to get data. The data was analyzed and demonstrated a positive effect of the metacognitive strategy instructions on learner's learning of vocabulary in the experimental group and its retention. The two researchers attributed these differences to the use of the metacognitive strategy in vocabulary learning. In the light of these findings, the study recommended the necessity of implementing the metacognitive strategy in teaching English language to make better outcomes in students' vocabulary learning and retention in English as a foreign language.

Keywords: metacognition, metacognitive strategy, effectiveness, vocabulary.

فاعلية توظيف استراتيجية فوق المعرفة في تعلم طلبة الصف الثامن للمفردات واحتفاظهم بها

الملخص

هدفت الدراسة إلى تحديد فعالية استخدام استراتيجية فوق المعرفة في تطوير مفردات اللغة الإنجليزية لطلبة الصف الثامن و احتفاظهم بها. ولتحقيق هدف الدراسة استخدمت الباحثتان المنهج التجريبي. تضمنت المجموعة التجريبية ((41 طالبة ودرست المفردات باستخدام استراتيجية فوق المعرفة، في حين تضمنت المجموعة الضابطة (40) طالبة وقد درست المفردات بطريقة التدريس والتدريب العادية. ولجمع البيانات استخدمت الباحثتان اختبار المفردات (قبلي، بعدي، تتبعي). وقد تم تحليل البيانات وأظهرت النتائج وجود أثر ايجابي لصالح استراتيجية فوق المعرفة على مفردات اللغة الانجليزية واحتفاظهم بها. وقد عزت الباحثتان هذه الاختلافات لاستخدام استراتيجية فوق المعرفة في تعلم المفردات.

وفي ضوء تلك النتائج، أوصت الباحثتان بضرورة تنفيذ استراتيجية فوق المعرفة في تدريس اللغة الإنجليزية لتحقيق نتائج أفضل في تعلم مفردات اللغة الإنجليزية كلغة أجنبية لدى الطلبة والاحتفاظ بها أيضا.

كلمات مفتاحية: المعرفة، استراتيجية فوق المعرفة، اثر، المفردات.

The Statement of the Problem

The researchers state the problem of the study in the following major question:

What is the Effectiveness of Using Metacognitive Strategy in the Eighth Graders' Vocabulary learning and its Retention?

Minor Questions:

The following minor questions can be derived to clarify the problem:

1. Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean scores in vocabulary achievement between the Metacognitive strategy (experimental group 1)and the traditional method (control group) in the post test?

2. Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean scores in vocabulary achievement between post application and delayed application among the metacognitive group (experimental group 1)?

This study addresses the following hypotheses

Based on the research questions, the researcher states the following hypotheses:

1. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the Metacognitive strategy (experimental group) and the traditional method (control group) in the posttest.

2. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between post application and delayed application among the metacognitive group (experimental group 1).

Significance of the Study

This study may:

1. Improving English teacher's performance by using interactive strategies specifically metacognitive strategies in teaching.

2. Providing English supervisors with useful guidelines of incorporating metacognitive strategy in teaching when preparing for workshops and training courses.

3. Benefit the designers of English language courses in developing curriculum content by taking into consideration the appropriate processes of the acquisition of English vocabulary.

4. Enhancing conducting more studies to investigate the effectiveness of using metacognitive strategy in developing other main skills as speaking, reading, and writing.

The Objectives of Study

The study aims at achieving the following objectives:

1. Identifying the central vocabulary included in the content of the English language book for the eighth grade.

2. Determining the effectiveness of using metacognitive Strategy in the acquisition and retention of English vocabulary of the eighth graders.

3. Persuading teachers to integrate interactive methods and strategies, especially the metacognitive strategy in English language classroom.

Introduction

Vocabulary is considered as one of the main factors that improves learning English. According to **Al-Lahham** (2016), vocabulary develops communication inside and outside the school.The effect of vocabulary goes further to include the continuous development of language. Marzona (2004) emphasize the critical role of developing vocabulary in different areas related to the learners such as his success at school, tests, skills, academic life and moreover his public life. Vocabulary takes its effectiveness from its ability to embody the information of any topic and improving learner's competence to utilize the language smoothly and effectively in life situations (**Alabsi**, 2016). The expansion of acquiring vocabulary affects highly the development of all zones of language. This is stated by Nation (2001) when he states that the purposes of vocabulary go further more than acquiring to more critical skills such as reading, writing, listening and speaking.

The Definition of Vocabulary

Vocabulary can be defined according to its effectiveness as words which learners have to know to communicate effectively. Neuman and Dwyer (2009,p.75) also asserts the critical role of vocabulary in real life situations by defining it as "vocabulary knowledge is knowledge; the knowledge of a word not only implies a definition but also implies how that word fits into the word". Other researchers such as **Bakheet** (2016) focuses on his definition on the understanding of lexis. To conclude, the researchers assert the previous definitions and state vocabulary as the collection of words that can be used effectively to communicate with others in different real life situations.

The Importance of Vocabulary

Vocabulary is considered the decisive factor toward acquiring a foreign language .The performance of both teachers and learners is greatly affected by the extension of vocabulary. Schmitt (2002) asserts the importance of vocabulary in widening the competence communicating in the second language. In addition, Toyoda (2007) emphasizes the information of vocabulary in developing language's instruction in general and communication in particular. On the contrary, the restriction in vocabulary prevents the learner from performing active communication .Likewise, other researchers such as Nation (2001) and Mukoroli (2012) who focused on the role of vocabulary in enhancing the developing the second language in general and in improving the effective use and production of both written and spoken skills. To conclude, the researcher asserts that vocabulary influences different aspects such as understanding the language, expressing ideas, practicing in the academic life, handling knowledge of comprehension and mastering the language.

Teaching Vocabulary

Teaching vocabulary is considered one of the problematic issues in learning a second language. The problem is created by those hesitant teachers who lack the intelligence to select the appropriate strategy to teach vocabulary. Moreover, Waters (2004) asserts the leading role of teachers as they decide when, how and where to start teaching vocabulary. The same importance of teachers was also emphasized by Nation (2002) who appreciated the role of presenting vocabulary in a good way by teachers that enhances and facilitates acquiring the knowledge.

On the other hand, Renatha (2009) goes further to demonstrate the decisive role of selecting the appropriate strategy. Renatha noticed that using strategies and differentiating techniques promotes the learners ability to master vocabulary. On their part, Scott, Nagy and Flinsparch (2008) emphasized highly the clever way of teaching vocabulary through choosing effective techniques

such as workbook, material, word lists, negotiation and visuals. The concept of "noticing" was declared by Nation (2002) as a significant strategy for acquiring vocabulary. The strategy focuses on acquiring the cognitive skills by observing and recognizing it. This strategy focuses on the role of students in acquiring vocabulary by developing self-regulation through marking vocabulary lessons clearly, focusing on the use of vocabulary and practicing vocabulary in new contexts. To summarize, the researcher appreciated the decisive role of both teachers in choosing the suitable techniques, methods and strategies to acquire vocabulary. Using different strategies can improve creating functional activities that influence the progress of vocabulary and stimulate the acquisition of the language.

Vocabulary Learning Strategy

Language researchers pay certain attention to the role of strategies in overcoming the difficulties that both teachers and learners face in acquiring vocabulary. Salavati and Salehi (2016) noticed that using dictionaries and repeating words is new of the famous and preferred strategies to memorize and learn new. Whereas, Nilsen (2003) attempts to investigate the best strategy for learning vocabulary and emphasizes the role of mechanical strategies. According to Davoudi and Yousefi (2016) the definitions of vocabulary are highly related to language learning strategies. Abdel Rahman (2016) stated that vocabulary learning strategies are actions made by learners in order to help them to understand the meaning of a word, learn them and to remember them later. According to O'Malley and Chamot (1990) vocabulary learning strategies are related to those special procedures, behaviors and thoughts that used by learners in order to organize their learning through comprehending learning and retaining new vocabulary. Schmitt (2002) reflects a broad view of vocabulary-learning strategies when he defines it as abroad process of different procedures such as obtaining, storing and reviewing the words. Cameron (2001) describes vocabulary-learning strategies as actions used purposefully by learner to understand and remember words. To summarize, the researcher defines vocabulary learning strategies are collection of mechanisms such as processes, procedures steps and actions organized in a way that enhancing comprehending the meaning of the obvious, retaining, recalling and using them effectively.

The research of (Gu, 2003; Oxford, 1990) prove the importance of vocabulary learning strategies.The outcomes of the research reflect the learnable and teachable effect of the vocabulary learning strategies through selecting effective , coordinates and timely actions. Moreover, using learning strategies are signs of learner's autonomy as they reflect the learners own responsibilities and his conscious control towards learning (Oxford, 2011). Milton (2009) also deserves special attention to the importance of vocabulary strategies in input-poor environments that enhance acquiring the vocabulary unconsciously by exposing to language in contexts outside the class. Moreover, Renatha (2009) joins between two kinds knowledge: the metacognitive knowledge and the metacognitive regulation, which are necessary to facilitating learning new vocabulary.

In conclusion, the researcher emphasizes the role of strategies in developing acquiring a large amount of vocabulary. Learning how to use learner's strategies needs a specific instruction with basic skills. As these strategies are not inherited or naturally employed. Learners have to take into consideration that a clear understanding of their awareness of strategies is prior to strategy instruction.

Definition of Metacognition

According to the LD Online Glossary (2014), metacognition is the process of "thinking about thinking." For example, good readers use metacognition before reading when they clarify their purpose for reading and preview the text.

So in other words, metacognition is the understanding and awareness of one's own mental or cognitive processes. During this process we are examining our brain's processing. Questioning, visualizing and synthesizing information are all ways that readers can examine their thinking process.

The goal of teaching metacognition is to equip students with the tools necessary to monitor their own learning. They can create goals for themselves, attempt to meet those goals, and revise their plan of action if something goes awry.

Some examples of Metacognition:

- A student learns about what things help him or her to remember facts, names, and events.
- A student learns about his or her own style of learning.
- A student learns about which strategies are most effective for solving problems.

The different components of metacognition

According to Schraw (1998) Metacognition is classified into three components:

1. Metacognitive knowledge (also called metacognitive awareness) is what individuals know about themselves and others as cognitive processors.
2. Metacognitive regulation is the regulation of cognition and learning experiences through a set of activities that help people control their learning.
3. Metacognitive experiences are those experiences that have something to do with the current, on-going cognitive endeavor.

The importance of metacognition

Metacognition enables students to be more active in their learning, i.e., to mobilize all of their resources in order to have successful learning experiences. In order to do this, they must know how they learn and be aware of the steps that are followed and the means that are used to acquire knowledge, solve problems, and perform tasks (Scheid, 1993)

In addition to that, Metcalfe and Shimamura (1994) refer that metacognition helps people to perform many cognitive tasks more effectively. Strategies for promoting metacognition include self-questioning, (e.g. "What do I already know about this topic? How have I solved problems like this before?"), thinking aloud while performing a task and making graphic representations (e.g. concept maps, flow charts, semantic webs) of one's thoughts and knowledge.

Moreover, and according to Halpern (1996) he stated that by metacognition students become increasingly autonomous in their learning as they become aware of their strengths and weaknesses and understand that being successful depends on the effort they make and the strategies they implement. Their ability to regulate their cognitive processes increases accordingly and their self-image improves. It can improve the application of knowledge, skills, and character qualities in realms beyond the immediate context in which they were learned.

Different Strategies of Metacognition

According to Van (1996) Metacognitive strategies refers to methods used to help students understand the way they learn; in other words, it means processes designed for students to 'think' about their 'thinking'. Teachers who use metacognitive strategies can positively impact students

who have learning disabilities by helping them to develop an appropriate plan for learning information, which can be memorized and eventually routine. As students become aware of how they learn, they will use these processes to efficiently acquire new information, and consequently, become more of an independent thinker.

The three main reasons to teach metacognitive strategies (Fogarty 1994):

1. To develop in students a deeper understanding of text

   Good readers know how to use cognitive and metacognitive strategies together to develop a deeper understanding of a book's theme or topic. They learn or "construct knowledge" (using cognitive strategies) through a variety of methods, and then recognize (using metacognitive strategies) when they lack understanding and, consequently, choose the right tools to correct the problem.

2. To take students' thinking to a higher level

   For many students, explaining their thought process is a daunting task. They may think, "How do I explain what I think? I do not know what to say. My teacher usually helps me out." These students need opportunities to take their thinking to a higher level and express themselves clearly. Small-group activities, especially those with a teacher's guidance, provide them with the right opportunities.

3. To steer students into adulthood

   Once metacognitive strategies are grasped, students will transfer use of these skills from their school lives to their personal lives and will continue to apply them as they mature.

The Three Metacognitive Strategies (Livingston, 1996)

Many metacognitive strategies are appropriate for use in the classroom including**:**

Think Aloud

Great for reading comprehension and problem solving. Think-aloud helps students to consciously monitor and reflect upon what they are learning. This strategy works well when teachers read a story or problem aloud and periodically stop to verbalize their thoughts. This allows students to follow the teacher's thinking process, which gives them the foundation they need for creating their own strategies and processes that can be useful for understanding what they are trying to comprehend.

Organizational Tools (Checklist, Rubrics and Organizers)

Great for solving word problems. These organizational tools support students in the decision-making process because they serve as an aid for planning and self-evaluation. Typically, they ask what students know and need to know to arrive at an answer, and emphasize the need to reread the problem and self-check responses.

Explicit Teacher Modeling

Great for math instruction. Explicit teacher modeling helps students understand what is expected of them through a clear example/model of a skill or concept.

Metacognition with Vocabulary

When students are learning new words, they often resort to memorization. It is easy, but it's not effective. Even when we ask students to interact with their words meaningfully on a daily basis, we should also be teaching them *why* the strategies we are suggesting are effective.

Teachers should engage students in a reflection activity that focuses on metacognition. After completing the activity, they can make a meaningful discussion with the class regarding how

students' brains learn new information. Teachers can discuss the process of associations and kinesthetic learning. They can talk about learning styles. Then, they can reflect on the tasks that students completed. Teachers can ask students how the differentiated vocabulary practice brought them to a deeper level of retention than surface-level memorization (Roberts and Erdos, 1993).

Method

The pilot study:

A random sample of (35) pupils from Filter Basic Elementary School for Girls was chosen to apply the test. The results were recorded and statistically analyzed to measure the reliability. The items of the test were modified in the light of the statistical results.

Participant

The sample of the study was a purposive one from Rodelf Filter Basic Elementary School for Girls. There were three eighth grade classrooms, including (121) students. Two classes from the three were chosen randomly to be the sample of the present study where one of them was set randomly to be the experimental group and the second to be the control group. Table (1.1) shows the distribution of the sample.

Table (1.1): The distribution of the study sample according to the groups

Group	No
Control	40
Experimental 1	41
All	**81**

Instruments

A. Vocabulary test

In order to determine the effectiveness of using the metacognitive strategy in learning vocabulary and its retention, the researcher designed one test. The same test was applied three times on the two groups. The items (pre, post and delayed) test will be used to refer to the time of applying the test. The test comprised of seven questions with 50 items. The pretest was conducted on the two groups to check that there were no differences between the groups. The same vocabulary are tough to both the experimental group and the controlled one for six weeks, then the post test was applied. After two weeks, the delayed test was applied to examine retaining words. The words of the test was chosen according to the content analysis card of three units of the Palestinian Eighth graders Textbook and based on Palestinian Ministry of Education documents and teachers' guide. The test consisted of (50) items distributed into seven major questions as follows:

Question (1): Finish the following sentences with one of the words in the list.   (7 items).

Question (2): Finish the following sentences. The first letter is given to you (7 items).

Question (3): Circle the odd one out. (7 items).

Question (4): Re write the letters to form correct words (6 items).

Question (5): Write the opposites of the following words (8 items).

Question (6): Match the word with its definition (6 items)

Question (7): Reorder the following letters to make words

Therefore, the total mark of the vocabulary achievement test equal (50) marks.

The validity of the vocabulary achievement test was checked according to the trial applications. Some modifications were made on the vocabulary achievement test according to

referee panel of specialists in English language and methodology in Gaza universities and colleges, supervisors, and experienced teachers (see Appendix 1).

Internal consistency validity: The researcher used Pearson correlation coefficient to compute the internal consistency of the vocabulary achievement test items. To measure such validity, Pearson Correlation computed the correlation of the following: the items with their domains, the items with the total test, and the domains with the test as a whole.

Table (1.2) describes the internal consistency of the vocabulary achievement test questions.

Table (1.2): Correlation coefficients between questions and all degree

Vocabulary questions	Correlation coefficients	Sign value
Question (1)	**0.417	Sign at (0.01)
Question (2)	*0.359	Sign at (0.01)
Question (3)	**0.704	Sign at (0.01)
Question (4)	**0.744	Sign at (0.01)
Question (5)	**0.587	Sign at (0.01)
Question (6)	**0.774	Sign at (0.01)
Question (7)	**0.853	Sign at (0.01)

** r table at (df.= 38), sign level (0.01) = (0.463)

* r table at (df.= 38), sign level (0.05) = (0.361)

Table (3.4) showed that correlation coefficients were significant at (0.05), so vocabulary achievement test questions were suitable and valid.

Previous achievement in vocabulary:

To find if the level of the two groups whether similar or different in their previous acquaintance with vocabulary, the researcher examined two groups' performance on the pre achievement test. Table (1.3) outlines the results of the test.

Table (1.3): T-test for differences between groups due to a pre vocabulary achievement test

Variable	Group	N	Mean	Std. Deviation	T	Sig. value	sig. level
	Control	40	57.500	23.156	-0.044	0.965	not sig.
	experimental	41	57.732	24.565			

"t" table value at (81) d f. at (0.05) sig. level equal 2.00

The results in Table (1.3) showed that significant value was more than (0.05), and calculated t was less than t table. Therefore, there were no statistical differences at (0.05) between groups concerning the pre vocabulary achievement test.

Analysis, results and discussion

The experimental study was designed to investigate the effectiveness of using the metacognitive strategy on the developing of learning vocabulary and its retention. These results from the experiment are reflected as shown below:

Research question 1**:** Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean scores in vocabulary achievement between the Metacognitive strategy (experimental group 1) and the traditional method (control group) in the post test?

The researcher tested the first hypothesis by using independent samples T test in order to answer the first question.

1. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between the Metacognitive strategy (experimental group) and the traditional method (control group) in the post test.

    Table (1.4) reveals statistically significant differences in the results of the independent samples T test.

Table (1.4): T test for differences between control and experimental 1 group due to post vocabulary achievement test

Model	Group	No.	Mean	Std.	T	Sig.	η^2
Post vocabulary achievement test	Control	40	19.30	5.7	12.55	0.000	0.66
	Experimental 1	41	38.93	5.2			

"t" table value at (79) d f. at (0.01) sig. level equal 2.66

Table (1.4) reveals that there were statistical significant differences at ($\alpha = 0.05$) in the total mean score in vocabulary achievement between the experimental group who studied vocabulary through the metacognitive strategy and the (control group) who studied English vocabulary through the traditional method in the post test. And these differences are in favor to the metacognitive group.

To calculate (Eta Square) the researcher used the following formula:-

$$\eta^2 = \frac{t\,(n1+n2)}{\sqrt{df \times n1 \times n2}}$$

The value was compared with the rely Level of size effect based on the following table in order to determine the size of the effect:

Table (1.5): Standards level of size effect

Level	Small	Medium	Large
η^2	0.01	0.06	0.14

Eta Square equal (0.66) as shown in Table (1.5) and it is more than (0.14), This reflects a high effect of using the metacognitive strategy in teaching English vocabulary.

Research question 2: Are there statistically significant differences at ($\alpha \leq 0.05$) in the total mean scores in vocabulary achievement between post application and delayed application among the metacognitive group (experimental group 1)?

The researcher tested the first hypothesis by using independent samples T test in order to answer the first question.

1. There are no statistically significant differences at ($\alpha \leq 0.05$) in the total mean score in vocabulary achievement between post application and delayed application among the metacognitive group (experimental group

Table (4.1) revealed statistically significant differences in the results of the independent samples T test

Table (1.6): T test for differences between post application and iterative application among (experimental group)the metacognitive strategy .

Model	Application	No.	Mean	Std.	T	Sig.	η^2
Experimental (metacognitive strategy)	Post – test	41	38.93	5.20	1.962	0.057	0.10
	Iterative – test	41	38.60	8.12			

"t" table value at (40) d f. at (0.05) sig. level equal 2.021

Table (1.6) reveals that there were statistical no significant differences at (α = 0.05) in the total mean score in vocabulary achievement between post application and delayed application among (experimental group). This significant differences improve the effectiveness of using metacognitive strategy in developing pupils' vocabulary of English language and its retention. The following formula was used to calculate (Eta Square):-

$$\eta^2 = \frac{t^2}{t^2 + d.f}$$

In addition, table (1.6) showed that Eta equal (0.1).

Conclusion

The present study has adopted the experimental approach to investigate the influences of metacognitive strategy on developing vocabulary learning among the eighth graders. The results revealed that the metacognitive strategy could enhance and facilitate the learning of vocabulary. The quantitative data resulted from the experimental group has made big and significant progress as a result of using the metacognitive strategy in both learning and retaining vocabulary. This progress can be related to the use of the three main steps of the met cognitive strategy (planning, monitoring and evaluating) without exception.

In other words, the experimental group had received explicit practice and instruction.s This explicit instruction gave learners knowledge and opportunities to use different materials, which enhance their learning of vocabulary during the performance of the experiment. The practice of the systematical procedures develops students ability to be more conscious about learning. The students who studied vocabulary through the metacognitive strategy develop certain systematical procedures including planning how to plan learning vocabulary, set objectives and goals, determine the allowed time, select the most appropriate materials, monitor their learning, use a combination of procedures to accomplish their specific goals, practice continuous self-testing in all steps of the process of learning vocabulary, practice using the vocabulary in real life not just memorizing and moreover to evaluate the process of learning in general.

The findings of this study supports the foreign language research on metacognitive strategy on learning English vocabulary. The results of this study indicate a positive effect of the metacognitive strategy on vocabulary learning and its retention. These results corroborate studies focused on the use of metacognitive strategy on developing vocabulary learning such as (Zhao, 2009; Ranjbar, 2003; Al-Khasawneh and Huwari, 2014).

The results of this study also supports the foreign language research literature on using metacognitive strategy of the other components and skills of the language such as reading comprehension.

Recommendation

The findings of the present study have implications in education in general and teaching English as a foreign language in particular .Teachers, learners, supervisors and curriculum designers can get benefit from the results of this study. For learners, it is important to be aware of different metacognitive strategies and accommodating it to learning style .The main objective of helping students to use the metacognitive strategy is to help them to be responsible of their learning through planning, setting their goals and monitoring their learning. All these objectives can be achieved by training students to use the metacognitive strategy which encourage them to become more active, effective, responsible and independent learners.

For teachers, using metacognitive strategy can help them to overcome the most common challenging that is providing vocabulary through context. As the metacognitive strategy provides teachers with a variety of vocabulary through social contexts which facilitates both acquiring and retaining vocabulary. Using the metacognitive contains encountering and exposure to language through contexts which help both teachers and learners to develop vocabulary learning. Teachers can choose suitable textbooks, techniques and materials to accomplish their tasks smoothly and freely.

Supervisors and curriculum designers can develop the curriculum through enriching it with social contexts and extend the tasks outside the classroom to involve students in real life situations. Curriculum also can be designed to enhance learners to use different process of the metacognitive strategy such as planning, setting goals and monitoring. These processes can be achieved through designing different tasks in the syllabus.

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