Regular Article

The Effect of Digital Graphic Organizers on Teaching English Grammar for Primary Stage Pupils' Grammatical Proficiency

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Abstract

This research aimed and investigating the effect of using digital graphic organizers strategy on teaching English grammar for six grade primary stage pupils. The participants of the research included (60) sixth grade primary pupils from El-Dawa primary schools, Beni-Suef. The participants were randomly assigned to form two groups; one to be a non-treatment group (30) and the other to be a treatment group (30). The quasi- experimental design was used in the study. The data were collected by the researcher using a proficiency test in English grammar. Findings showed that the participants of the treatment group outperformed those of the non-treatment group in grammar proficiency, indicating a significant effect of the strategy in this regard. The research results also showed that there was a strong positive change in the participants' grammar proficiency and this change

appeared in their post test marks. The research presented some recommendations and suggestions for further research.

Keywords: Graphic Organizers, Digital Graphic Organizers, Grammatical Proficiency.

Introduction

Teaching English as a foreign language has become an important thing in modern communities but it is not also an easy task. Teaching English as a foreign language (TEFL) in the Middle East and Egypt in particularly catches the attention of many researchers and scholars, specially the difficulties and obstacles that teachers and pupils face. In foreign second language teaching, several language educators agree that making pupils aware of grammatical facts is one of the vital aspects in language teaching that teachers should do. They are helpful for pupils to learn other language skills. Grammar teaching is one of the cornerstones in enabling learners to communicate meaningfully and accurately and advance their communicative skills in second language proficiency.

Grammar is considered a part of language teaching that helps learners to develop the essential skills for their success in diverse environments where English is used. A further support for this point comes from (Tarigan, 2008) who showed that without grammar instruction learners frequently fail to achieve advanced levels of communicative competence. Thus, it is crucial to teach grammar through communicative techniques. The communicative grammar teaching can improve the quality of second/foreign language learning/teaching (Nisrane, 2008; Pekoz, 2008 and Tarigan, 2008).

English grammar is notoriously difficult to learn for both native and second-language speakers. There are so many intricacies,

obscure rules, and exceptions that it comes as no surprise that different generation of teachers have used various approaches to teaching grammar. In the past, memorization-based techniques that relied on repetition slowly gave way to more creative methods. Today, people live in a society that prizes literacy and is willing to adapt to more effective methods to achieve the best results in teaching grammar (Macfadyen, 2018).

Over the years, many methods have been developed for teaching grammar and have been built upon, abandoned, or combined, all with the same goal in mind teaching pupils how to communicate effectively and understand how to use the English language. Because of the grammatical complexity of English, each method has its pros and cons. Some lessons are less likely to be remembered, while others may require more in-depth explanation and practice. Regardless of how grammar is taught, a well-rounded understanding of English grammar is the most important factor in improving the literacy of students (Macfadyen, 2018).

Graphic organizers are visual representations that portray relationships among key concepts and provide schematic mapping for this information. These visual portrayals or illustrations have been shown to assist in the connection of key concepts and in the building of schema and have been researched extensively with reading comprehension and across multiple other subjects (Vaughn et al., 2011). However, their use as an intervention for improving students' writing has not been as well documented. Within the realm of education, graphic organizers assist with establishing relationships between concepts and are tools used for both research and communication (Kim et al., 2004; Sitko et al., 2005).

Teachers have often used graphic organizers as a way to help students brainstorm new ideas. When there is a large amount of information, it is hard for the brain to decode and digest. The graphic organizer can logically organize the information. If the learning process lasts for a long time, to comprehend and memorize information in a structured way is more relaxed. For example, a timeline is especially helpful for remembering the chronological sequence of historical events. A storyboard can help students summarize a story in terms of time, place, event, and climax. Teachers can use a KWL chart to engage students better during class Pfeiffer (2020).

Graphic organizers, specifically digital graphic organizers, aid students with the planning and organization of final writing products (Lorber, 2004, Unzueta, 2009). Digital graphic organizers have features that allow students to organize, edit, and customize their graphic organizers using various font styles, graphics, hyperlinks, and audio. In the digital form, graphic organizers assist students with writing assignments by allowing them to easily update and revise content while working toward a final writing assignment. Likewise, Royer and Royer (2004) reported that students were also able to make revisions to their written text and communicate more clearly as they uncovered relationships between concepts. This can be attributed to the use of various electronic tools within digital graphic organizers that allow for ease of revision. Unlike paper-based organizers, digital organizers provide an opportunity to reorganize text while utilizing easy-to- access editing tools. According to Royer and Royer (2004), there is an ease of construction, an ease of revision, and the ability to customize concept maps in ways that are not possible when using paper and pencil.

Cook (2008) defines grammatical proficiency as the knowledge of language stored in a person's mind. The term was first used by Chomsky in the 1960s and refers to the implicit knowledge of structural regularities of language in the mind and the ability to recognize and produce these distinctive grammatical Structures. Holim and Terry (2010) think that grammatical proficiency is the ability to recognize lexical, morphological, syntactical, and phonological features of a language and to use these features effectively to interpret, encode, and decode words and sentences. It is both an important pedagogical skill and an important part of target language proficiency. Grammar allows us to develop our language awareness to assist in achieving these functions of grammatical proficiency. Grammatical proficiency is the explicit awareness of how language works.

In order to use a word it is necessary to know what part of speech it is and what grammatical patterns it can fit in to. Grammar plays a great role in which lexical words can be chosen to go in harmony with the structure of the sentence. Therefore knowing a word is not restricted to knowing how to pronounce it, how to write it, how to acquire it but also how to use it in a meaningful sentence (Sinclair, 2005). A different perspective to grammar shows the practice of grammar as a system of language would help improve the cognitive ability of learners and the competence of analyzing grammar can apply to semantic analysis in language (Mulroy, 2004).

Statement of the Problem

The problem of the study was observed by the researcher through teaching English to grade six at El Dawa primary school that

many pupils have had problems in learning grammar and this weakness clearly appears in the achievement of the pupils when they write or speak English language in class. The researcher decided to make a diagnostic test to stand on the type of the problem. This test included all the tenses are in the primary stage.

Aim

The current study aimed at:

-Identifying the effect of using digital graphic organizers on pupils' grammatical proficiency.

Hypothesis of the Study

This study seeks to test the validity of the following hypothesis:

There is a statistically significant difference between the mean scores of treatment group and the non-treatment group in English grammar proficiency post-test in favor of the treatment group.

Method

The current study adopted the quasi-experimental design where 60 pupils of the six grade primary stage from El-Dawa primary school, Beni-Suef Governorate were randomly selected. They were assigned to two groups, a treatment group (N=30) and a non-treatment group (N= 30). The treatment group received Digital Graphic Organizers strategy in teaching English grammar, while the non-treatment group received the regular method of teaching grammar. Both groups received English grammar pre-posttest as well as the engagement pre-post scale. Treatment took place during the first se mester of the school year 2020/2021 for eight weeks.

Participants

Sixty pupils of the six grade primary stage from El-Dawa primary school, Beni-Suef Governorate were randomly selected. They were assigned to two groups, a treatment group (N=30) and a non-treatment group (N= 30).

Instruments

For the purpose of the study, the following instruments and materials were designed and used by the researcher:

1- A grammatical proficiency pre-post test.

2- A teacher's guide based on digital graphic oranizers.

3- Pupils' worksheets.

The pre-post English Grammar Proficiency Test

The General Aim of the Test

The general aim of the test was to measure the effectiveness of using digital graphic organizers strategy on teaching English grammar for primary six grade pupils' grammatical proficiency, and how that would increase their engagement. On the consideration that the treatment group members were taught using Digital graphic organizers Strategy, while the non-treatment group members were taught using the regular teaching strategy.

Constructing the Pre/post English Grammar Proficiency Test

To construct the test, the researcher referred to the directives of the Ministry of Education particularly English grammar of primary stage and reviewed literature and related studies regarding English grammar. English grammar proficiency test consisted of 20 multiple choice questions, 20 odd one out questions and 20 correct questions which cover English grammar items in use.

Validity of the Pre/post English Grammar Proficiency Test

To confirm that English grammar proficiency test measures what it is mainly designed to measure, it was evaluated by a panel of experts in educational studies and EFL Specialists. Their recommendations and comments were carefully considered. Test questions were reformed according to their suggestions. For estimating the validity of the test, it was submitted to a panel of jurors (N=5), three faculty members in TEFL and two senior supervisors of ELT. There were some recommendations as follows: 1- they recommended modifying the questions; in order to fit the age group of the sixth year primary stage pupils, 2- some of jury recommended to reduce the number of multiple choice questions, 3- Furthermore, one of the jury members recommended choosing the questions items according to the questions types.

The validity of the test was established according to the following criteria: 1- The test items reflect the objectives.

2- The questions suit sixth year primary school pupils' level.

3- There is coherence between the test items and the table of specifications.

4- The layout is acceptable.

5- The time assigned is enough to answer all questions.

Reliability of the Pre/post English Grammar Proficiency Test

To prove the reliability of the test piloting was conducted, with a group of 30 pupils from Al-Dawa primary school who were excluded from the sample, to check the reliability of the pre-test and

post-tests. In order to prove that the test was reliable, Cronbach's Alpha was calculated and it was 0.89, which indicated that the questions were highly reliable. The correlation coefficients ranged between the score of each question and the total score of the scale from 0.46 to 0.79 which they are all high and function at 0.01.

Duration of the Pre/post English Grammar Proficiency Test

The researcher specified the time needed for answering the test items during piloting the pre-post English grammar proficiency test on a randomly 15 pupils from Al-Dawa primary school for boys and girls. The researcher calculated the time of the test of each pupil and divided the total time by their number and the average time was taken according to the following equation:

$$900/15 = 60 \text{ minutes.}$$

Administration of the Pre/post English Grammar Proficiency Test

After modifying the test according to feedback of the jury members, the final form of the test which included (60) questions was pre-administered to both the treatment and non-treatment groups on 3 Oct.2019, namely, two days prior to the treatment, before teaching by using digital graphic organizers strategy. Test time was (60) minutes. The pupils were given an idea about the purpose of the test that it had nothing to do with their academic evaluation.

The post/test was administered to the two groups three days after the treatment which ended on 7 Nov, 2019. Post/test conditions were relatively the same as those of the pre-test in terms of place and time.

Test specifications table

Types of questions / Grammar items	Choose the correct words	Circle the odd one out	Correct the underlined word	Score
Prepositions of location	4-5	1-2-19	3-4	7
Yes/No questions with was	1-2	3-5	1-2	6
Food quantities	16-26	8-10	7-8	6
Wh-questions with How many-How much	15-23	12-15	5-6	6
Emphatic pronouns	30-31	6-20	9-10	6
Simple past	7-10	4-9	11-14	6
Adverbs of frequency	47-49	11-16	15-16	6
Yes/No questions with Do / Does	13-44	17-18	13-19	6
Adverbial phrases of frequency	18-19	7-13-14	18-20	7
Wh-question with How often	8-9		17-12	4
				60

The Aim of the Test Specification Table

The researcher designed this table to determine the type of questions and the items which he wanted to measure by these questions as shown in appendix (K).

Constructing the Test Specification Table

To construct the table, the researcher determined the types of questions which he would use in the English grammar proficiency test. He determined the grammar items of the lessons which he tried to measure. He constructed three types of questions and ten grammar items as follow:

- **Types of questions:**

1- Choose the correct answer

(20) points. 2- Circle the odd

one out (20) points.

'3- Correct the underlined word (20) points.

- **Grammar items:**

1- Prepositions of location.

2- Yes/No questions with (was).

3- Asking about quantities (food quantities).

4- Wh-questions with How many and

How much. 5- Emphatic pronouns.

6- Simple past.

7- Adverbs of frequency.

8- Yes/No questions with

Do/Does. 9- Adverbial

phrases of frequency.

10- Wh-question with

(How often).

The questions were divided equally on these items.

Significances of the Study

The researcher provides teachers of English with a strategy that may help in teaching grammar to deliver the information faster and

easier and it may make the pupils more effective.

Digital graphic organizers may help pupils in the following:

1. To know the usage of each tense in correct way.

2. How to form questions in correct way using the correct helping verb.

3. How to answer the questions without mistakes.

4. How to distinguish between the keywords of each tense without confusion.

Digital graphic organizers may help teachers in the following:

1. Delivering the information to their students faster and easier.

2. Helping teachers make the class more effective.

3. Helping teachers to achieve to the grammatical proficiency to their pupils.

4. Breaking the ice inside the classroom and effects on pupils engagement.

Digital graphic organizers may help course designers in the following:

1. Designing programs that depend on digital graphic organizers to make them easy to use.

2. Thinking in using modern teaching methods in their courses.

3. Encouraging them to focus on both the proficiency and engagement.

Definition of Terms

1. **Digital Graphic Organizers:**

An organizer, in a digital format, that allows users to organize ideas, information, and resources using text boxes, outlines, graphics, audio, and videos **(Fuller, 2013)**. Digital graphic organizer is a support tool for students with emotional disorders, and the use of digital graphic

organizers can lead to students with emotional disorders working independently while grasping content knowledge **(Blankenship et al., 2005)**.

Digital graphic organizers are tools that offer ways for students to represent their thoughts or ideas using different fonts, colors, images, and even audio to consider what a text means or to write their own text **(Colwell, 2015)** Digital graphic organizers are strategies which help pupils to organize and visualize their ideas and help them to copy and paste from the graphic organizers to another document, **(Anderson, 2014)**.

The researcher adopts **(Anderson, 2014)** definition.

2. Grammatical Proficiency:

Cook (2008) defines grammatical proficiency as the knowledge of language stored in a person's mind. The term was first used by Chomsky in the 1960s and refers to the implicit knowledge of structural regularities of language in the mind and the ability to recognize and produce these distinctive grammatical structures. Grammatical proficiency is the ability to recognize lexical, morphological, syntactical, and phonological features of a language and to use these features effectively to interpret, encode, and decode words and sentences Holim and **Terry (2010)**.

Grammatical proficiency is the ability to understand and express meaning by producing and recognizing well-formed phrases and sentences **Sulmaupb (2012)**. Grammatical proficiency was defined by **Fodor (2010)**, as theoretical and practical knowledge of a limited number of grammatical rules, which allow generating an unlimited number of correct sentences. It can be assumed that the grammatical competence in the context of learning a foreign language is a set of theoretical knowledge (rules) and language skills that are necessary and

sufficient for students to construct correct sentences, to understand them, to monitor grammatical errors, to pass judgments about right and wrong linguistic forms, and to perform language testing tasks. The researcher adopts **Fodor (2010)** definition.

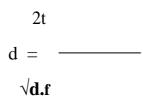## 4.1.1. Results of the Study

Testing the hypothesis
"There is a statistically significant difference between the mean scores of non-treatment group and the treatment group in English grammar proficiency post- test in favor of the treatment group."

Table: (1) Presents t- test results of the English grammar proficiency post –test

Group	N.	Mean	DF	Std. Deviation	t-test	Sig	Effect size
Exp.	30	54.50	58	4.385	7.266	0.01	0.47651
Control	30	39.03		10.804			

Table: (1) shows results concerning the second hypothesis which addressed the differences between the mean scores of the non-treatment group and those of the treatment group on the post administration of a pre post English grammar proficiency test.

t-test for independent samples was used to compare the mean scores of the control and experimental groups. Table (6) proves that there was a significant difference between the results of the non-treatment group and the treatment group, as the t value was 7.266, which is statistically significant at 0.01 Therefore, the first study question is answered, concluding that there is a significant difference in English grammar proficiency between learners taught with digital graphic organizers and those taught by the traditional method in favor

of the treatment group. Moreover, in order to make sure that the results obtained from the t-tests are reliable and to measure the effect of digital graphic organizers strategy on students" English grammar proficiency, the effect size of this strategy on students" English grammar proficiency was calculated according to the following Formula suggested by (Dunlap, 1994).

$$d = \frac{2t}{\sqrt{d.f}}$$

Where d = the calculated effect size, t = the estimated t value and √d.f. = the square root of degrees of freedom. The referential framework for identifying the effect size of t- values is as follow:

Table: (2) The referential framework for identifying the effect size of t-values

Effect size (d value)	Degree
From 0.2 till less than 0.5	Small
From 0.5 till less than 0.8	Medium
0.8 or more	Large

As shown in table: (2), the calculated effect size value of the instructional strategy on pupils' English grammar proficiency was (0.47651). Therefore, it can be inferred that the digital graphic organizers strategy had a large effect on the treatment group pupils' English grammar proficiency performance on the post- test as compared to that of the non-treatment group pupils receiving conventional teaching.

Discussion of Results

Several existing studies on digital graphic organizers focus on how organizers are used to enhance text comprehension and increase learning among students with learning disabilities (Blankenship et al., 2005; Ives, 2007). While there are lots of researches on graphic organizers, in general, a few studies address the use of computer-assisted or digital organizers but they focus on using partial versus fully completed graphic organizers, note-taking, and retention of information (Crooks et al., 2007; Robinson et al., 2006).

(Blankenship et al., 2005) revealed that digital graphic organizers, like Inspiration Software, have been proven to be effective learning tools. (Blankenship et al., 2005) also indicated that there is a lack of literature on using digital graphic organizers.

Several existing studies of Grammatical Proficiency approved that grammatical proficiency is very important for pupils to be able to write and speak in correct way and it is also very important for teachers to measure their students' language proficiency. Most of the existing studies confirm that; there are a lot of factors affect pupils' grammatical proficiency as (Nahid, 2015) approved that indirect consciousness raising tasks on high school English learners' grammatical proficiency and consciousness raising tasks grammar instruction was more effective than traditional grammar instruction in the development of the third grade experimental group's grammatical ability. (Nor & Norkamruzita, 2012) found that there was effects of Web-Based Language Learning on University Students' Grammar Proficiency. (Glovanna, 2015) also approved that Teaching grammar in context was the most preferred method among the respondents.

Conclusions

Within the delimitations of the study and on the basis of the study results, the following conclusions have been drawn:

1- Digital graphic organizers strategy is effective on developing pupils' English grammar proficiency.

2- Digital graphic organizers may provide a means to foster language performance among pupils. It provides an enjoyable chance to teach grammar to EFL learners.

3- Digital graphic organizers may provide a means to foster language performance among pupils. It provides an enjoyable chance to teach grammar to EFL learners. This strategy has significance in shaping the cognitive structure and generating meaningful learning. This strategy is usable for every branch of education.

4- Digital graphic organizers strategy appears to enhance the learners' confidence in learning English.

5- Digital graphic organizers increases the student success and remembrance by the help of its properties such as attracting attention , good presentation of information and having more enjoyable learning atmosphere.

6- Digital graphic organizers strategy represents a visual representation of the learners' cognitive structure, and therefore, can help them learn effectively.

7- Through digital graphic organizers learners become meta-cognitively, motivationally and behaviorally active participants in their learning process.

5.1.1. Recommendations of the Research

Based upon the findings of the research and the above mentioned conclusions, the following recommendations are suggested:

1) **Learners of English Language**

1. EFL learners should be encouraged to use digital graphic organizers to enhance their English grammar proficiency.

2. Pupils' centered learning should be emphasized and activities (before, during and after learning) should be maximized.

3. Pupils should become the center of the learning process and should share more responsibilities. Hence, more opportunities should be given to self-evaluate their performance.

4. Pupils should be motivated to freely communicate and interact with each other to practice the grammar activities.

5. Pupils should play their roles in learning English grammar. They have to participate actively in different activities in the classroom to use the language in real life situations.

2) **Teachers of English are recommended to**

1. Be aware of the importance of grammar and how to help their pupils to be proficient in English grammar.

2. Encourage group work and pair work during learning grammar.

3. Highlight Cooperative learning through sharing and group work activities.

4. Give immediate-feedback after each activity to enhance pupils' learning.

5. Evaluate grammar proficiency during the whole year regularly to help pupils be accustomed to such a skill and overcome their fear and problems.

6. Use more active learning strategies and activities during the process of learning in general and in teaching grammar in particular.

7. Change traditional roles from being just as a carrier of knowledge to a facilitator, a guide, an adviser, a manager and an encourager for the educational process.

8. Organize special training for the low-achievers to give them the opportunities to participate and correct their mistakes.

9. Develop students' speaking skills by giving them enough time to interact with each other freely.

10. Enroll in training courses for self-development to be able to use the modern active learning strategies.

11. Pay more attention to develop pupils' creative skills especially engagement via asking students not to stick to certain answers but to be flexible and give numerous responses.

12. Provide pupils with a relaxing, effective, and interactive environment that fosters interaction and helps to develop the pupils' engagement.

13. Exchange their ideas and experiences with other teachers of English from different countries.

14. Offer different opportunities for pupils to use the language they know by using different activities and taking into their consideration the individual differences among students.

3) Curriculum Developers

1- More concentration should be paid to develop curricula which develop creative thinking of pupils rather than memorizing.

2- Since reading is an important skill in developing other skills, it should receive the attention it deserves. So more focus should be given to reading especially in primary and preparatory stages.

3- Curriculum developers are advised to integrate the use digital graphic organizers in the English curriculum.

4- Curriculum developers Put into consideration the new methodologies when design the educational curricula especially those related to teaching languages.

5- Curriculum developers should design educational curricula which are related to the real-life to make the pupils more attractive for the studying.

6- Curriculum developers have to insert different activities in the curriculum which help students work cooperatively and give them opportunity to speak more.

7- Curriculum developers should design educational curricula

which depend on using active learning strategies in general and with digital graphic organizers strategy in particular to develop pupils' English grammar proficiency and give pupils the opportunities to practice the language freely and correctly.

8- Curriculum developers have to make the exam specifications include assessments for the pupils' engagement like the other skills.

4) English Language Experts, Specialists, and Supervisors are recommended to

1. Set training courses should be provided for EFL teachers to give them practice on the use of digital graphic organizers strategy in the learning process.

2. Organize scientific conferences and seminars with experts from different countries all over the world to exchange experiences and promote the level of education in Egypt.

3. Organize workshops for teachers of English about using active learning strategies in teaching English language in general due to the effect of these strategies on developing the language skills.

5) Other researchers are recommended to

1. Design programs based on using digital graphic organizers strategy to develop some other English language branches such as drama, translation, poetry and telling stories.

2. Conduct studies on using digital graphic organizers strategy to develop other language skills; writing, reading, and listening.

3. Adopt using digital graphic organizers strategy through in enriching the students' vocabulary in English at different educational stages.

4. Conduct studies to investigate the effect of using digital graphic organizers strategy through cooperative learning in decreasing the pupils' speaking anxiety.

5. Conduct studies to investigate the effect of using digital graphic organizers strategy on improving the weak pupils' achievement.

5.1.2. Suggestions for Further Research

In light of the present research results, more studies can be suggested in the area of using digital graphic organizers strategy in teaching English as a foreign language:

1- Conducting a research to investigate the effect of using digital graphic organizers strategy on developing Pupils' motivation towards learning English language.

2- Conducting a research to investigate the effect using digital graphic organizers strategy on developing productive skills (speaking and writing).

3- Conducting a research to investigate the effect of diagrams on developing pupils' fluency.

4- Conducting a research to investigate the effect of digital graphic organizers on developing primary stage pupils' language skills.

5- Conducting a research using digital graphic organizers strategy to develop the speaking skills.

6- Conducting a research that investigates the effectiveness of using digital graphic organizers strategy on the pupils of special needs.

7- Conducting a research that investigates the effectiveness of using digital graphic organizers strategy on the pupils' attitudes towards English as a foreign language.

8- Conducting researches on using digital graphic organizers strategy to develop some other English language branches such as drama, translation, poetry and telling stories.

9- Conducting a research to find out the effect of positive attitudes of teachers towards using digital graphic organizers strategy on developing the English speaking skills for their students.

10- Conducting a research to find out the effectiveness of using digital graphic organizers strategy on developing the pupils' other language skills and sub-skills at different educational stages.

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