



## **Regular Article**

### **The Effect of Interactive Infographics on Improving English Language Grammar of Commercial School Students**

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## **Abstract**

The current research aimed at investigating the effect of interactive infographics on improving English language grammar of commercial school students .The research adopted a quasi-experimental design. Also it included one independent variable which was interactive infographics and one dependent variable which was improving English language grammar. The participants of the study consisted of (60) second year of commercial school students from Nasser commercial school, Beni Suef. Those participants were randomly assigned to either the experimental or control group; 30 students each .The experimental group was taught using interactive infographics and the control group was taught by the regular method . The t-test used

to determine the statistical differences of the mean scores of the two groups in the administration test. the effect size was calculated .The current research indicated the positive effect of using interactive infographics on improving English language grammar of commercial school students .

**Key words: Interactive infographics - English grammar – Commercial schools .**

## **Introduction**

English is one of languages that has an important role in communication. A high percentage of world publications in science, technology and commerce are in English. Through learning English, learners will develop confidence to communicate effectively in listening , speaking , reading and writing English. English learning involves the four language skills; listening, speaking, reading, and writing. In addition to the four language skills, English learners also acquire grammar, vocabulary, spelling, and pronunciation.

The importance of English language also appears in the demand for language skills in different sectors of the labor market. High studies and some fields now require it as a prerequisite for admission. Technological universities linked to technical education that plays a significant role in the country's progress. It was necessary to shed light on this kind of education and the importance of English language in it .The main problem we encounter in Egypt regarding this type of education is the lack of respect. the way society perceives technical school graduates, hence the current trend .

In the last two years, Egypt has been improving the curricula of its technical education. In line with this, Tomakin (2014: 116) states that somebody cannot master

a language without knowing its grammar because grammar helps him or her to construct meaningful words or sentences. Additionally, Priya (2015: 447) argues that communication becomes coherent and logical by using grammar. Teaching grammar plays a significant role in facilitating effective communication and language learning, help learners to communicate accurately, avoid common errors, and express themselves creatively , (Noor, 2022) .

Subasini and Kokilavani (2013) asserted that Grammar is the structural basis of our ability to express ourselves .Using the correct grammar is essential for avoiding misconceptions and to help the listener to understand the speaker easily .Language with faults slows down the communication and conversations .

Ozcan (2015) asserted that grammar has a main role in teaching and learning languages and it is one of the most challenging aspects to be taught . If learners want to improve their English skills, they must begin with learning the grammar rules and then practising them until it becomes a habit. The better they get with their hold of grammar, the more confident they will feel when speaking or writing in English. It will also help them avoid common errors that may cause confusion for others listening to or reading what they say.

In order to enhance teaching English grammar of technical education students, it was important to search for new educational means that improve English grammar and due to its importance ,there was a need to adopt attractive and effective technological innovations and means in teaching English grammar instead. One of the modern ways to facilitate the teaching of grammar what is known as infographics that can develop the learning process.

Infographics is one of the technologies that provide a visual representation of information and ideas, which facilitates the learning process .Infographics is not only a tool for transferring knowledge ,but a tool for generating knowledge ,ideas ,understanding relationships and various phenomena using graphics ,shapes ,fixed and interactive images .Diverse in the learner`s mind and making it interesting and effective (Gebre,2018).

There are different kinds of infographics, including interactive, animation and static. Interactive infographics depend on the readers who are required to control them by watching videos, selecting visual elements, or selecting answers. They are considered interactive as they ask for user input and collect statistics, data, and other information (Shaltout & Fatani, 2017).

## **Context of the Problem**

The research problem became clear through the following :

### **The researcher`s experience**

During the researcher`s observation in some classrooms while working as an English teacher at Nasser commercial school for Nasser Educational Administration of Beni Suef, it was found that commercial education students have some difficulties in understanding English grammar skills ,which are taught using regular methods despite the presence of technological progress.

### **The pilot study**

To investigate the problem among commercial school students ,the researcher administered a diagnostic test to (30) second – year commercial school students at

Nasser commercial school. The results showed students' difficulty in understanding English language grammar as the percentage of the correct answers in grammar skills did not exceed 50%, that showed the students need to improve their grammar performance .

### **Previous studies**

Jendeya (2015) investigated the impact of 5E Model on developing tenth graders' English grammar learning and their attitudes towards it .To achieve this aim ,the researcher adopted the experimental approach and employed a sample of (68)EFL male .The researcher chose two classes of the four ones which he was teaching .The regular method was used in teaching the control group ,while the 5E model was taught using the experimental one .The findings of the study revealed that there were significant differences in learning English grammar between the two groups favoring the experimental group.

Cifci (2016) aimed at investigating the effects of use of infographics on students' achievement and attitude in geography course. The study was designed as quasi-experimental study. Therefore, it can be said that using infographics in geography lessons increase academic achievement and attitude levels of the students. It can also improve visual and verbal learning levels. Besides, these findings can also help teachers give alternative and different instructional materials in geography lessons.

Kongwat (2019) investigated the effects of collaborative reading instruction using infographics on students' comprehension and to evaluate the quality of infographics created by students after reading the passages. The 18 participants of this research, grade 11 students. The research instrument was reading comprehension

test. The study is a quasi-experimental research. The results showed that students' comprehension was improved by the experiment and the information presented through infographics.

## **Statement of the Problem**

The problem of the research showed in the students' disability and misunderstanding of English grammar . During the learning process, commercial school students have difficulties in English grammar .

## **Questions of the Research**

The main question of the research can be stated to :

What is the effect of using interactive infographics on improving English grammar of commercial school students ?

## **Objectives of the Research**

Based on the problem statement above, the researcher aims mainly at investigating the effect of using interactive infographics on improving English grammar skills among commercial school students .

## **Significances of the Research**

The significance of the research sprang from the following:

1-Making students interact with each other and with their teachers, and helps students on consolidation of information better than traditional methods.

2-Helping students to pay their attentions with teachers because the teaching through new methods as interactive infographics is very interesting.

3-Facilitating the teaching of grammar for commercial school students.

4-Making teachers use new methods, which reduce teachers' efforts, make them guiders for students and make students participate in the learning process .

5-Using Infographics generally and interactive infographics in particular may contribute in the use of officials in the Ministry of Technical Education to make decisions to use technical methods in teaching English grammar.

## **Hypotheses of the Study**

1- There is a statistically significant difference between the mean scores of the experimental and control groups in the post - administration of English grammar test in favor of the experimental group.

2-There is a statistically significant difference between the mean scores of the experimental group in English grammar pre -test and the post test in favor of the post.

## **Delimitations of the Study**

The current research was delimited to:

1. The participants were (60) of 2nd year commercial students-Nasser commercial school-Beni Suef .

2. Improving English grammar items as identifying comparisons between present and discontinued past activities ( used to ) , Identifying adverb and adverb phrases,

How to give warnings . ( Imperatives form Positive &Negative) , Using the first conditional of ( IF ) , Identifying reported speech with if or whether, Using reported speech with Wh questions ( past ) , Using reported speech with Wh questions ( past ) , Identifying future forms and Identifying the present perfect tense included in the English language course – in commercial education –the second semester- throughout using interactive infographic

3. The second term of the academic year 2023/2024.

## **Method**

### **Population**

The population of the study consisted of 2nd year of commercial school from Nasser commercial school at Nasser Educational Administration in Beni Suef governorate. Directorate enrolled in the second semester of the academic year (2023-2024).

### **Participants**

The participants were randomly selected from Nasser commercial school. A group of the second grade of commercial school students. They were assigned to two groups, an experimental group (N=30) and a control group (N= 30).

### **Design of the Study**

The current research adopted the quasi-experimental design where 60 students of the second year of commercial; school from Nasser commercial school at Nasser Educational Administration in Beni Suef. were randomly selected. The experimental



group was taught by interactive infographic in teaching English grammar, while the control group was taught by the regular method. Both groups received English language grammar pre-post test.

This design included the following variables:

1. Independent variable, which was used interactive infographics .
2. Dependent variable, which was teaching grammar for commercial school students .

## **Definition of Terminology**

### **1-Infographics**

Yildirim (2016) defined it as displaying information inside a given flow that contains a lot of images, graphs, forms, symbols, and sentences in a logical sequence by preparing them. Damyanov and Tskanov (2018) defined it as a visual representation of facts, information, or knowledge. It conveys information in a specific and practical manner and can be used for signs, maps, and technical documents that demand a rapid simple explanation of complex information.

The researcher defines Infographic operationally as a modern method that a teacher can use to teach grammar, as it depends on pictures and drawings to explain it in a way that makes grammar simple ,fun and interesting for commercial school students .

### **2- Interactive infographics**

Interactive infographic is a new method of digital interactive media that allow users to interact with information and choose the manner of presenting information visually through letting users control how much information can be viewed and interact ,With the designed interactive features like buttons and icons users can select the way of presenting information according to their needs and this can create more bonds between users and information (Dur, 2014) .

Shaltout&Fatani (2017) stated that interactive infographics depends on the readers who are required to control them by watching videos ,selecting visual elements ,or selecting answers .They are considered interactive since they ask for user input and collect statistics, data and other information . The researcher defined interactive infographics as visual presentations of information and data for the content of English grammar in which graphics and information are made in an organized and concise manner that allows commercial school students to interact with them and control the information they want to obtain .

### **3-English grammar**

Kumar (2013,p:483 ) stated it as "The study of words and the ways work together ;an invisible force that guides us as we put words together into sentences " . In The Cambridge Encyclopedia of the English Language, two definitions for grammar are given, the first being “the study of sentence structure, especially with reference to syntax and morphology, often presented as a textbook or manual”, and the second as “a systematic account of the rules governing language in general, or specific languages, including semantics, phonology and often pragmatics” (Crystal 2019: 514-515).

The researcher defines grammar operationally as a set of rules that determine the structure of different words and expressions in English language , which can be taught through infographics to facilitate understanding in a clear and effective way.

## **Review of Literature**

Akay and Toraman (2015) conducted a descriptive study to identify English language learners' attitudes towards grammar and analyzed these attitudes in the framework of several variables (gender, age, faculty, time spent on learning English, and proficiency level). The participants were 293 students who have English language education in preparatory school of Anadolu University in six different proficiency levels . The instrument was an attitude scale. The analyses assured that gender, age, time spent on learning English, and proficiency level variables did not create significant differences in the attitudes. However, findings of the study indicated that students in faculties like Science, Humanities, Education, and Engineering have more positive attitudes towards learning grammar than Economics, Business Administration, and Communication Faculty students.

Alotiabi (2016) investigated the effect of using Infographics on developing students' grammar achievement. The participants of the study were pupils in the first grade in Riyadh, divided into control and experimental groups. The two groups received pre and post-administration of the study instruments. The results assured that using infographic as a learning tool enhanced pupils' learning for grammar and improve their achievement.

Bicen and Beheshti (2019) investigated the usage of Infographics in a flipped classroom learning environment called "Flipped Classroom Instructional Infographics". The results of the study indicated that students' motivations in the

experimental group compared to the control were more triggered by the engaging and comprehensive nature of flipped classroom instructional infographics, meaning that they could absorb the concepts easier, memorize the information faster, and became more confident in the educational process.

Nhan and Yen ( 2021 ) investigated the impact of Infographics-based learning on students' motivation on an English language grammar course. The study employed an experimental research design and the participation of sixty grade-11 students studying in a high school in Mekong Delta, Vietnam. There are two groups , one the treatment group (n = 30) that used the Infographics-based learning; and the other non-treatment group (n = 30) which was taught using traditional method . The results of suggested that the positive impacts of the use Infographics-based learning instruction improving the students' motivation in learning grammar English and improving the quality of their performance in grammar were observed.

## **Research Methodology**

### **Instruments and Materials of the Study**

- A grammar pre-post test on the target lessons.
- Interactive infographics design of the taught units.

### **The pre-post English grammar test on the target lessons:**

#### **A-Test Specifications Table**

##### **1- 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.

## **2-Constructing the Test Specification Table:**

To construct the table, the researcher determined the types of questions which she would use in the English grammar test. She determined the grammar items of the lessons which he tried to measure. She constructed four types of questions as follow:

### **• Types of questions:**

1-Choose the correct answer (8) points for ( 8 ) questions .

2-Correct the undelined words ( 8 ) points for ( 8 ) questions .

3-Re-write the sentences ( 16 ) points for ( 8 ) questions .

4-Complete the sentences ( 8 ) points for ( 8 ) questions .

## **3-Validity of the Test Specification Table:**

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. The researcher completed the final form of the table after the jurors' recommendations.

## **B-The Pre-Post English Grammar Test**

### **1- The General Aim of the Test**

The general aim of the test was to measure the effect of Interactive Infographic on Improving English Language Grammar of the second year of Commercial School. On the consideration that the experimental group members were taught using interactive infographic , while the control group members were taught using regular teaching method .

## **2- Constructing the Pre/Post English grammar Test**

To construct the test, the researcher referred to the directives of the Ministry of Education and reviewed literature and related studies regarding grammar learning. English grammar test consisted of Thirty-two ( 32 ) questions. All the questions are obligatory. The questions are multiple choices, Correct , Rewrite and Complete . The test is of forty (40) marks. The test duration is ninety(90) minutes.

## **3-Validity of the Pre-post English grammar Test.**

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 second commercial stage.
- 2- 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:
  - The test items reflect the objectives.
  - There is coherence between the test items and the table of specifications.
  - The layout is acceptable.

-The time assigned is enough to answer all questions.

#### **4- Reliability of the Pre-post English grammar test.**

To confirm that English grammar 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 was carefully considered. Test questions were reformed according to their suggestions. Moreover, prior to the main study, a pilot study was conducted, with a group of 30 students from Naser commercial school who were excluded from the sample, to check the reliability of the pre-test and post-test. In order to prove that the test is reliable, the reliability of the test was calculated via Cronbach's Alpha and was 0.73 , which indicates that the questions were highly reliable.

### **Interactive infographics Based Units**

#### **1- The Aim of interactive infographic Design of the Taught Units**

The design aimed to help students learn grammar by a new tool in teaching grammar, which may help them to learn easier and faster. The researcher tried to help her students to learn grammar in different way in order to make them improve their English language grammar. Interactive infographic may help them arrange their ideas, combine the hole tense with its all items in their mind effectively without confusion.

#### **2- Designing the Taught Units**

Based on reviewing literature and related studies, the aims of TEFL in commercial schools in Egypt (directives of the Ministry of Education) and surveying various theses and dissertations conducted on the importance of grammar , On

reviewing the literature the researcher found that there are a lot of free websites that help in designing infographics . The researcher also found out that one can design interactive infographic by using PowerPoint which would be easier for students to use. The researcher designed the units by PowerPoint and showed the students how to use the free sites to design interactive infographic . Some groups inside the experimental group could use these sites and were able to design their own designs . Others preferred to use PowerPoint as it was easy to use.

### **The Content of the Designed Lessons**

It consisted of fifteen sessions taught to the experimental group students through interactive infographics . In the first session, in which the researcher and the participants met, the pre English grammar test was administered to both the experimental and control groups. In this phase of the research, both the experimental and control groups answered the English grammar tes. In the second session, the researcher provided a brief introduction to infographics , showed them some videos about it and explained what was expected of the participants. In the third session, the researcher presented a brief review of the previous session. Subsequently, the researcher introduced interactive infographic. First she explained the tool based on an introduction.

The learners are supposed to listen attentively to the instructor instructions then beginning to imitate and start to do roles.. This tool was selected because it is suggested that collaborative activities which reduce some of the anxiety of low language performance learners. It may also encourage students to reflect, transfer, interact, and exchange their opinions. It allows commercial school students to interact with them and control the amount of information they want to obtain , select



visual elements or select answers. They are considered interactive as they call for user input and collect statistics, data and other information. The designed lessons contained the grammar lessons of the second term of English subject for the second commercial grade.

#### **4-Steps of Conducting interactive infographics**

Conducting interactive infographic can be hard work for the instructor both in preparation and in execution, but the work tends to pay off in terms of student motivation and accomplishment. The researcher did the following:

1-She helped students to know what infographic means and how it may be useful for them in learning grammar.

2-She showed them the different types of infographics and how they can use them easily.

3-She started to teach them by using interactive infographic and made them apart of the lesson.

4-They showed the researcher their own designs and she evaluated them and encouraged them to be better.

5-They participated gradually in the lessons and started to have the confidence.

6-Finally they were able to design their own infographics more efficiently and they could understand the structure without confusion.

## **Results and Discussions**

### **Results of the First Hypothesis:**

The first hypothesis stated "There is a statistically significant difference between the mean scores of the experimental and control groups in the post - administration of English grammar test in favor of the experimental group ".

T-test was used to measure the differences between the mean scores of the experimental and control groups in the post English grammar test .

**Table (1) t. value and its significance in the post grammar test for the control and the experimental groups**

Group	N	Mean	Std. Deviation	Mean difference	t value	Si g	Effect size
Exp.	30	31.067	8.0769	11.4333	5.427	.010	0.34
Control	30	19.633	8.2399				

Table 1 proves that there was a significant difference between the results of the experimental and control groups in the post English grammar test as the t value was (5,427) which is statistically significant at 0.01 Therefore, The first hypothesis was confirmed , concluding that there is a significant difference in improving English grammar between learners taught with interactive infographic and those taught by the regular method in favor of the experimental group. Moreover, in order to make sure that the results obtained from the t-tests are reliable and to measure the effect of interactive infographics on students' English grammar , the effect size of this tool on students' English grammar was calculated according to the following Formula

Eta squared using a basic formula :

$$\text{Eta squared} = \text{SS effect} / \text{SS total}$$

The general guidelines for interpreting the effect size are as follows:

- .01: Small effect size
- .06: Medium effect size
- .14 or higher: Large effect size

the calculated effect size value of the instructional tool on students' English grammar according to Eta squared was .34 . Therefore, it can be inferred that interactive infographic had a large effect on the experimental group students ' English grammar performance on the post test as compared to that of the control group students receiving regular teaching. So, the effect size shows that interactive infographics was really effective and improved English grammar of commercial school students.

### **Results of the Second Hypothesis:**

The second hypothesis stated "There is statistically significant difference between the mean scores of the experimental group in English grammar in the pre and post test in favor of the post test .T-test was used to measure the differences between the mean scores of the experimental group in the pre and post English grammar test.

**Table: (2) Presents t- test results of English grammar test for the experimental group in the pre and post test**

Test	Group	N	Mean	Std. Deviation	Mean Difference	T- value	Sig	Effect size
Total	Exp (pre)	30	14.967	7.4115	16.1000	13.008	0.01	0.854
	Exp (post)		31.067	8.0769				

Table ( 2 ) showed that the experimental group achieved a higher degree of improvement in the post test than the pre - test in English grammar test as t-value (13.008) was highly significant at (0.01) level.. The mean of the experimental group post- grammar test was (31.067) and the mean of the pre- test was (14.967). The second hypothesis is confirmed, concluding that there is a significant difference in improving English grammar between learners in the pre and the post grammar test of the experimental group in favor of the post test which indicates the effect of interactive infographics on improving the students' English grammar.

Moreover, in order to make sure that the results obtained from the t-tests are reliable and to measure the effect of interactive infographic on students' English grammar, the effect size of the tool on students' English grammar was calculated. The calculated effect size value of the instructional tool on students' English grammar according to Eta squared was (0.854) . Therefore, it can be inferred that interactive infographics had a large effect on the experimental group students ' English grammar

performance on the post test as compared to that the pre - test. So, the effect size shows that interactive infographic was really effective and improved English grammar of commercial school students.

## **Conclusion**

The results showed that using interactive infographics in teaching grammar had a positive effect on improving grammar. The experimental group outperformed the control group in the post grammar test. Also the experimental group in the post grammar test outperformed the same group in the pre grammar test in the whole score and the effect size showed that interactive infographic was really effective and improved English grammar of commercial school students. This means that if the teacher uses an effective tool like interactive infographics in teaching English language grammar will improve their ability in learning grammar. In the researcher's point of view students' improvement in grammar relies on the use of technology such as interactive infographics.

## **Recommendations**

Based on the results of the current research, the following recommendations were offered:

1-The research was reached to the positive tool “Interactive Infographics” facilitating the teaching of English language grammar for second grade of commercial school students .

2-follow the latest development in TEFL to promote student involvement and active participation, enhance classroom interaction, elevate motivation and interest, improve students' language skills through understanding grammatical structures and avoid rote learning.

3- Students are better to use interactive infographic , so they can become autonomous learners, do actively use all senses, promote effective team work, create healthier learning environment, and give chance to develop their thoughts and ideas in English.

4-Adapting interactive infographics in teaching grammar in all educational stages.

5-Training English teachers for using interactive infographics in their teaching. Making teachers, use new methods, which reduce teacher's efforts, make them guiders for students and make students participate in class.

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

### **Suggestions for Further Studies**

In light of the present research results, more studies can be suggested in the area of using interactive infographics in teaching English as a foreign language:

1- Investigating the effectiveness of using interactive infographic in developing commercial school students' pronunciation .

- 2- Conducting a study to investigate the effect using interactive infographics on developing productive skills (speaking and writing).
- 3- Conducting a study using interactive infographics to develop the speaking skills.
- 4- Conducting a study to investigate the effect of infographics on developing students ' fluency.
- 5- Conducting a research that investigates the effectiveness of using infographics on the pupils of special needs.

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