



# **Using Infographics for Developing EFL Inferential Comprehension Skills among Al–Azhar Secondary Institute Students**

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## **ABSTRACT**

This study aimed at developing EFL inferential comprehension among Al-Azhar secondary institute students through using infographics. The participants of the study consisted of 30 first year secondary students in Al-Azhar Daraw institute for girls, Daraw, Aswan Governorate during the first semester of the school year 2020-2021. The study was a pre-post test quasi-experimental study. The study followed the one group (the study group). The study group was tested before conducting the experiment ( pre- test), and after implementing the experiment (posttest). They were taught through using infographics. The instruments of the study included an EFL inferential comprehension skills pre-post test. The results of the study revealed a statistically significant difference between the mean scores of the study participants in the pre and post administrations of the EFL inferential comprehension skills tests in favor of the post administrations. Results showed that Using Infographics improved EFL inferential Comprehension Skills among Al-Azhar Secondary Institute Students.

### **Keywords:**

Infographics ; inferential comprehension; EFL inferential comprehension Skills

## المستخلص باللغة العربية

تهدف الدراسة إلى تنمية مهارات الفهم الاستنتاجي للغة الإنجليزية كلغة أجنبية لدى طلاب المرحلة الثانوية الأزهرية من خلال استخدام الانفوجرافيك. تكونت عينة الدراسة من ٣٠ طالبة، تم اختيارهم بشكل عشوائي من الصف الأول الثانوي بمعهد فتيات دراو الثانوي بمحافظة أسوان خلال الفصل الدراسي الأول من العام الدراسي ٢٠٢٠-٢٠٢١. اتبعت الدراسة المجموعة الواحدة (مجموعة الدراسة). تم تعليم طالبات هذه المجموعة باستخدام الانفوجرافيك من أجل تنمية مهارات الفهم الاستنتاجي للغة الإنجليزية كلغة أجنبية. اشتملت أداة الدراسة على اختبار في مهارات الفهم الاستنتاجي في اللغة الانجليزية قبلي - بعدي. أظهرت النتائج أن استخدام الانفوجرافيك أدى إلى تحسين مهارات الفهم الاستنتاجي في اللغة الإنجليزية كلغة أجنبية لدى طالبات المعهد الثانوي الأزهرية.

الكلمات المفتاحية :

الانفوجرافيك - مهارات الفهم الاستنتاجي

## **Introduction**

English is a very important language. Many people want to learn English because it's the most common language in the world. Many of the world top films, books and music are published and produced in English. Therefore, learning English is a means of having a greater cultural understanding. Today English is widely taught around the world as a second language. To understand what is written in English, students should have many reading skills.

Reading is an essential skill in learning process. It is a receptive skill through which the learners obtain knowledge and information. The other three skills, listening, speaking and writing are related to reading. Students collect information through reading that enhances speaking and writing. Reading is a dialogue between the reader and the text. Furthermore, it's a thinking process that makes the reader interact with the text to use suitable cognitive processes to comprehend texts (El-Hadad, 2012).

Reading is usually defined as the ability to extract meaning from written text. Identifying words on a page doesn't make students successful readers. When the words are understood and transcend the page to become thoughts and ideas then one is truly reading. Comprehension; therefore, is the capacity for understanding those thoughts and ideas. Reading comprehension is ability to understand and attain meaning from what has read (Duggan, 2009).

Reading comprehension skills are classified into literal comprehension (on the line), interpretive or inferential (between the

lines), critical and creative comprehension (beyond the lines). Literal comprehension involves surface meanings and teachers can ask students to find information and ideas that stated in the passage. At the second level (inferential) students go beyond what is said and read for deeper meanings. It involves the ability to assess the accuracy or worth of materials read and includes thinking processes such as drawing conclusion, making generalization and predicting outcomes. The last level is critical reading where the ideas and information are evaluated. It involves the ability to apply meaning to one's own life (Shehata, 2006).

Inferential comprehension involves more logical thinking than literal understanding. At this level, students use their personal knowledge, intuition, and imagination as a basis for conjectures or hypotheses. They need to be able to see relationships among ideas, for example how ideas go together and also see the implied meanings of these ideas. So, Inferential comprehension includes thinking process such as drawing conclusions, making generalization and predicting outcomes (Sheng,2000; John&Allan&Kathleen, 2004)

Students are required to go beyond the text at inferential comprehension skills. They inferred details, main ideas, sequence, comprehension, and cause and effect relationships by using their own experience, intuition, and possibly predict outcomes (Rasinski ,2000; Vethamani .2008).

Reading comprehension skills are taught in our schools, within the framework of regular teaching method which neglects inferential

comprehension skills. No innovative method is practiced. Regular method concentrates on achievement rather than comprehension. Students find difficulty to comprehend reading passages because they are not exposed to classroom activities that support real and authentic situations (Ali, 2013).

Good learning experiences ask students to investigate and make sense of world. While there are many ways to do this, curriculum has traditionally skewed towards reading to interpret students' sense-making. But there is another way. Infographics represent data and information visually, in pictures, engaging more parts of the brain to look at a problem from more than one angle. Infographics ask for active response from the viewer, raising questions, "What am I seeing?" and "What does it mean?" As the old adage goes, a picture is worth 1000 words, and a picture can be essential when complexity demand more than words can say. Infographics are simply graphic depictions of information which are visually attractive. The name, infographic is basically a combination of information and graphic (Krauss, 2012).

Infographics combine data with design to enable visual learning. This communication process helps deliver complex information in a way that is more quickly and easily understood (Smiciklas, 2012). An infographic is one of the many visual learning tools available to support learning and retention. Infographics are not new; in fact they have been utilized for hundreds of years. Maps from 8000 years ago can be considered a form of infographics as they were visualizations that combined words and pictures to transfer information (Thompson, 2016).

Smiciklas(2012) defined Infographics as the visual display of any data or information with the aim of presenting the information in a quick and clear way. It may be named as data visualization, information design or architecture of information depending on its aim. Infographics combine data with design to enable visual learning. This communication process helps deliver complex information in a way that is more quickly and easily understood. Shaltout (2016) also defined Infographics as art of transforming data, information and complex concepts to photographs and drawings that can be understood clearly.

Kibar, and Akkoyunlu, (2014) conducted a study in which is discussed how to use infographics as a learning tool in order to equip students with visual literacy. A study was conducted with 64 teacher candidates from Hacettepe University, Faculty of Education. The aim of the study was to expose the usage of infographics as a learning tool. Teacher candidates designed infographics of instructional design model themed individually within the course. As a result of the rubric evaluation the scores of “visualization” and “components” dimensions were found lowest; scores of “colors”, “fonts” and “information organization” dimensions was found relatively higher.

Although infographics are so new among educational materials, in fact the components used to prepare them are not that new. While preparing 8 an infographic, many components such as images, drawings, figures, symbols, graphics and texts are used either separately or together for the presentation of information. In this respect, the innovation brought by infographics is the use of visual components in the presentation of information and the way of building

the content (Dick, 2013). Infographics can be used to serve different educational purposes. Since comprehensive information can be presented through infographics, they can be used for different purposes such as showing the relationship between different concepts, transferring processes and events, presentation of the content of the course and summarizing the subjects learnt (Meeusah & Tangkijiwat, 2013).

Schulten (2010) pointed out that using infographics would save students hours that they usually need to process tens of pages in their history or science books. Similarly, EFL teachers may save time they usually spend on teaching vocabulary that belongs to the same category or grammar items such as modals, tenses or prepositions. This is because infographics can provide both teachers and students with the necessary learning resources to master the target language. Teachers can creatively combine images, charts and links to video clips in one neat space. Al Hosni (2016) added that there is a wide range of infographics that are available online for EFL teachers to use in their classrooms. Teachers can use these infographics to teach different language skills as well as content that is complex to understand by EFL learners.

### **Context of the problem**

In spite of the importance of EFL inferential comprehension skills, there's a lack in inferential comprehension skills among secondary school students. This problem was indicated by the result of different studies such as: AbdElla(2003), ElHadad(2012), Mansour(2010), Hamid(2012), Ahmed(2015), Hassan,(2013) .

According to the researcher's experience in teaching, it has been noticed that El-Azhar secondary institute students need to develop the EFL inferential comprehension skills. They can't predict what follows from text information. They aren't able to guess meaning from context. They have difficulty to infer specific information. They can't interpret figurative language. To make sure the problem, the researcher conducted a pilot study in which an inferential comprehension test adopted (Ali, 2013), Appendix (A), has been applied to sample students (N=28) from first year El-Azhar institute for girls in Daraw, where the researcher works, Aswan governorate. The pilot study contains an inferential comprehension test. The maximum score is 22 marks. The result of the pilot study revealed that the average of the students' degrees is (9.3) with percentage (42%). So there is a great need for developing inferential comprehension skills.

### **Statement of the problem**

El-Azhar secondary institute students' level in EFL inferential comprehension skills is low, so the present study is going to investigate the effectiveness of infographics on developing EFL inferential comprehension skills among El-Azhar secondary institute students

### **Questions of the study**

The study answered the following questions:

1. What are the EFL inferential comprehension skills required for secondary school students?
2. How can infographics be used to enhance EFL inferential comprehension skills among secondary school students?
3. What is the effectiveness of using infographics in developing EFL inferential comprehension skills among secondary school students?

### **Objectives of the study:**

The main objective of the present study is

Identifying the effectiveness of using infographics in developing inferential comprehension skills .

### **Significance of the study:**

The present study is significant for:

1. **Students:** as it helps in:
  - Developing their EFL inferential comprehension skills
  - Evoking students' motivation by using methods of learning which are based on visual figures.
2. **Teachers:** as it helps in:

- Providing them with a list of important inferential comprehension skills that are required for secondary stage students.
- Providing them with infographics as effective tool in teaching and learning processes.

**3. English curricula developers:** as it helps in:

- Drawing their attention to the effect of using infographics in developing EFL inferential comprehension skills among secondary stage students.
- Encouraging and helping them to use infographics in their lesson plans.

**Procedures of study:**

To conduct the present study, the following steps were taken:

1. Reviewing the literature and previous studies related to EFL reading inferential skills.
2. Preparing the tools and materials of the study. The tools included a pre- post test to measure students' EFL inferential comprehension skills.
3. Submitting the pre- post test to a jury
4. Modifying the pre- post test validity and reliability according to the jury's opinion.
5. Selecting the participants of the study at random and putting them in one group (a study group).

6. Pre- testing the study group.
7. Conducting the experiment where the study group students were taught using infographics.
8. Post-testing the study group.
9. Treating data statistically and interpreting the result.
10. Providing recommendations and suggestions for further research.

### **Terminology**

#### **EFL Inferential comprehension:**

Inferential comprehension is the ability to process written information and understand the underlying meaning of the text. This information is then used to infer or determine deeper meaning that is not explicitly stated. Inferential comprehension requires readers (Duggan, 2009; Sheng,2000; El-Hadad, 2012).

#### **Infographics:**

An infographic is the visual display of any data or information with the aim of presenting the information in a quick and clear way. It may be named as data visualization, information design or architecture of information depending on its aim (Smiciklas, 2012).

Shaltout (2016) also defined Infographics as art of transforming data, information and complex concepts to photographs and drawings that can be understood clearly.

An infographic, defined by Krum (2013) as a larger graphic design that combines data visualizations, illustrations, text, and images together into a format that tells a complete story. The present study will adopt this definition.

### **Method of the study:**

#### **Participants:**

Participants in the present research were (n=30) first year secondary school students. The participants were one group (the study group). First year secondary students were selected because they must have the ability to move from learning to read to reading to learn. Moreover, they had the skills of using technology effectively.

#### **Design:**

The present research was a pre–post test quasi–experimental study. The study group was tested before conducting the experiment ( pre–test), and after implementing the experiment (posttest).

#### **Settings:**

The setting includes both the timing of the research and its place .The research was conducted at El–Azhar Daraw institute for girls in Aswan El–Azhar Zone, Aswan Governorate. The research was carried out during the first term of the school year 2020–2021. The experiment lasted for 8 weeks with 2 sessions every week and each session lasted for 60 minutes.

### **Instruments and Materials:**

To achieve the purpose of the research, the following instruments and materials were developed:

- 1- An EFL inferential comprehension skills checklist required for first year /secondary school students.
- 2- A pre- test to measure students' EFL inferential comprehension skills.
- 3- A post- test to measure students' EFL inferential comprehension skills.

### **Description of the EFL inferential comprehension skills checklist:**

**Purpose:** The EFL inferential comprehension skills checklist aimed at identifying the required skills for first year secondary school students.

**Sources:** The EFL inferential comprehension skills checklist was developed based on the previous researches and related studies to identify the required EFL inferential comprehension skills for the participants of the research. The EFL inferential comprehension skills, included in the checklist in its initial form, were derived from some sources such as: Ahmed, (2007); Awad (2009); Abdel Wahab (2010); Mansur (2010); Mohamad (2010); El-Hadad (2012); Ali (2013); Shami (2013); Almongy (2014); El-Nahrawy (2014).

**Components :** The initial form of the EFL inferential comprehension skills checklist included seven sub-skills (Predicting

outcomes, Interpreting figurative language, Getting the main idea, Drawing inference from the text, Paraphrasing parts of the text, Guessing meaning from context, Linking the text and meaning to students' previous).

### **Validity of the EFL inferential comprehension skills checklist:**

The checklist of the EFL inferential comprehension skills was submitted to a panel of jury members EFL specialists at Faculty of Education N=10 ( Appendix C ) to identify its validity and to determine the degree of importance of each skill. Moreover, the jury members were asked to add, omit and modify the checklist.

### **The EFL inferential Comprehension Skills pre – post test:**

The pre–post test was one test of two equal copies in content, number of items and the levels of ease and difficulty of questions.

**Purpose:** The purpose of the EFL inferential comprehension skills pre – post test was to measure students' EFL inferential comprehension skills before and after using infographic to estimate its effect on developing EFL inferential comprehension skills among first year of among Al–Azhar Secondary Institute Students.

### **Description:**

The EFL inferential comprehension skills pre – post test was designed to measure six sub–skills. It consisted of one EFL passage

that includes three types of questions that measure EFL inferential comprehension skills.

### **Test validity**

To measure the test validity , the first version of the test was submitted to a panel of EFL Specialists in EFL curricula and instruction(N=11) , to evaluate each question in terms of covering the specified sub–skills, sufficiency of the number of questions, clarity of the test instructions and items and suitability of the test for the students' language level. Most of the jury members accepted the test as it was without any modification. However, few jury members suggested some changes in phrasing the questions. Except for this, the jury members indicated that the test has clear instructions and is appropriate for measuring what it was intended to measure.

### **Test reliability**

For estimating the reliability of the EFL inferential comprehension test, the following two methods were used:

A) To calculate the pre–post test reliability of the reading skills, the pre–post test was administered to thirty students of First year secondary school students at El–Azhar Daraw institute for girls, Aswan governorate (other than the experimental group who received the treatment) at the first term of the school year 2020–2021. Cronbach Alpha was used. The following table shows this result.

**Table ( 1 ) Reliability of the EFL inferential Comprehension skills Pre–Post Tests.**

The reading skill	Cronbach Alpha
Inferential	0.829

The table result showed that inferential skills were 0.829. This means that the test is highly reliable.

B) The text was administered again after two weeks to make sure that students would not remember their answers from the first administration. The two administrations were correlated using Pearson correlation coefficient. The correlation coefficient calculated was 0.843 which was significant at the 0.01 level. This means that the test was reliable. The following table shows this:

**Table ( 2 ) Using Pearson correlation coefficient to calculate the test reliability**

The reading skill	Pearson correlation coefficient
Inferential	0.831**

### **Using Infographics:**

Using infographics aimed at developing EFL Inferential comprehension skills which is necessary for EI-Azhar first year secondary Institute students.

### **Description of the treatment:**

The treatment started with the pre-test session .After that, there were 13 sessions. These sessions were instructional sessions through which EFL Inferential comprehension skills were developed among the

participants of the research using infographic. Finally, the treatment ended with the post test session.

The treatment was implemented during the first term of the academic year 2020/2021. The treatment lasted for eight weeks from 21 October 2020 to 23 December 2020. Two sessions were per week and each session lasted for 60 minutes.

### **Instructional aids:**

The following instructional aids were used in treatment of the research:

- Data show is used for presenting infographic to students.
- Lap top
- Hand out for every student

### **Role of teacher:**

The roles of the teacher were varied, she worked as:

- Creator and presenter infographics to students,
- Scaffolder, focusing on the dialogue among students during dealing with infographics.
- A guide, motivator, facilitator, feedback provider, monitor and evaluator.
- Encouraging students to read a infographic and draw conclusions from it.

### **Roles of students**

- Cooperating with other students, asking questions and commenting on what is said.
- Discussing and making dialogue among each other and between them and teacher.
- Participating in tasks.
- Evaluating their tasks.

### **The stages of infographics presentation:**

These stages of infographic presentation were carried out through reading instruction as follow:

#### **Stage one: preparation**

##### **Before reading**

- The teacher observed and studied the fundamental concepts and ideas of the text.
- The teacher chose the appropriate infographic for each text.
- The teacher presented the infographic as a visual representation for interpreting skill of reading the text.
- The teacher presented the original text and the infographic to students and asked them about their opinions about the two forms.
- The teacher asked the students to compare between a text based on the infographic and the original text.

- The infographic was followed by activities which encouraged students to discuss and engage in the text.
- The activities also included techniques such as skimming and scanning through texts and visuals to answer questions after the infographic presentation.
- The teacher gave them opportunities to predict the content of the text, such as key vocabulary and key ideas.
- The activities also included drawing brief conclusions form. The infographic in which text was used, was visualized in front of students. The students had to conclude what they thought was happening based on just infographic they saw.

### **Stage two: Implementation**

#### **During reading**

- The teacher Scaffolded the students to follow up the information stated in the infographic.
- The activities in during reading were designed in the light of scaffolding reading experience to help students comprehend the text.
- The activities included what the teacher and students did together during reading such as:
  - Reading and answering questions, making connection or sequencing the parts of the text and making conclusion to reading.

- The teacher asked the students to focus on visual interpretation when answering questions.
- The teacher asked the students to form a text based on the infographic and compared it with the original text to check their comprehension.

### **Post reading**

The post reading activities provided the opportunity for the students to reflect on the meaning of the text such as:

- Synthesizing and gathering information from the text and using post reading strategies to evaluate the author message.
- Getting students to compare different ideas presented in the text and then explaining what they learned.

### **Findings of the study:**

The findings of the present study are presented in the light of the following hypothesis of the study:

### **The hypothesis:**

The hypothesis of the present study stated that there is a statistically significant difference between the mean scores of the participants in the inferential comprehension skills as a whole in the

pre–post test. The significance is in the favour of the post test. The following table shows this:

**Table (3) Findings of the t. test between the mean scores of the participants in the inferential comprehension skills as a whole in the pre–post test.**

skill	test	No	mean	Std deviation	T.value	df	sig	$\eta^2$
Inferential comprehension skills	pre	30	0.80	0.48	11.47	29	0.01	0819
	post	30	253	0.63				

It is clear from this table that there is a statistically significant difference between the mean scores of the students in the inferential comprehension skills in the pre–post test. The difference is in favour of the post test. The level of significance is 0.01 which indicates different degrees of improvement in the inferential comprehension skills. This improvement is due to using variety of infographics in dealing with the reading texts. The following figure shows this.

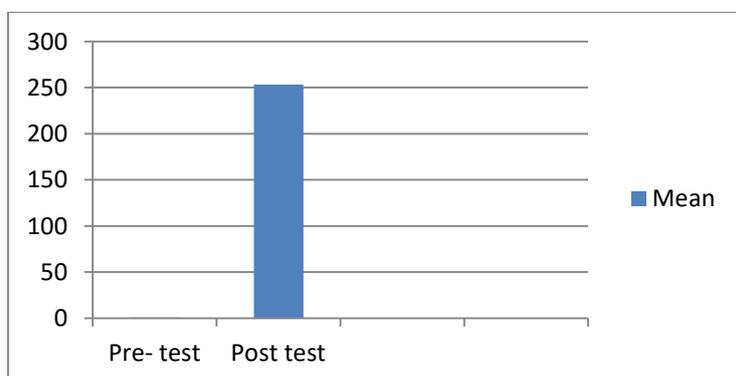


Figure ( 1) the mean scores of students in all inferential comprehension skills in the pre–post test.

To calculate the difference between pre–post test significance, t. value was used as the following table shows:

**Table (4 ): Findings of T. value of the difference between the mean scores of the students in the pre–post administration.**

Skills	Pa difference		T.test	D.F	sig	$\eta^2$	F	Effect size
	Mean	St.d						
Inferential	1.23	0.82	8.27	29	0.01	070	3.07	large

It is clear from this table that the calculated which means that the difference between the mean scores of the pre–post test reached the level of significance statistically, this hypothesis was accepted.

### **Discussion of the results:**

The findings from the mean scores on the pre and post test of the English inferential comprehension skills revealed that using infographics for dealing with the texts of different types improved the student’s inferential comprehension of such texts. This may be due to the fact that using infographics as a scaffold reading experience incorporated the suggested activities in the reading instruction. With the use of these activities, the participants engaged in pre reading activities, during reading tasks and post reading ones. In each part, the students were

encouraged to participate and improve their overall inferential comprehension skills through using the infographics with scaffolded reading experience. The infographics were used as a major instructional material in each lesson and session. This result is consistent with Kennsdy Chunknl (2019).

An alternative exploration for the students improvement in the overall inferential comprehension skills that the infographics used in the present study employed a combination of several textual enhancement techniques simultaneously which helped the students to concentrate on form– meaning and vocabulary use during and post reading with the teacher scaffolding during the three stages of reading. This result is similar to Puzy and Lonz (2015).

It can also be interpreted that the students' improvement in the overall inferential comprehension skills was a result of the multiple exposure at different texts with different words. Through infographics which entails that, the students either met these words in the some texts multiple times in one setting or encounter them repeatedly in different texts over an extended period of time. The infographics with all its types focused on the input enhancement to help student to reach the expected degree of output performance.

### **Conclusions:**

Based on the result of the present study, it can be concluded that infographic was effective in developing first year students' EFL reading comprehension skills among Al–Azhar Secondary Institute Students.

Learning with infographics allowed learners to understand the

information in an organized way and improved comprehension of information, ideas and concepts. So, there is a great need to use infographics in the classrooms.

### **Recommendations:**

Based on the finding of the present study, recommendations can be made regarding the duration of reading comprehension instruction, the sample of population, the nature of population, the gender of the population, the variety of infographics, and the different subject means scores of information as follows:

- The reading instruction which directs the teachers to use infographics should vary according to the type of the text to enable the students to decode the visual parts of the text and its meaning.
- The use of infographics should be suitable to the students' level so as to help the students deal with the infographics at all stages of reading.
- The task-based activities related infographics could be planned in a way that helps students engage in and apply it in similar texts.
- It is also recommended that the infographics can be applied to literal texts for different subject's areas especially the argumentative texts and expository ones.

- Infographics can also be used at a large scope in novels which have long texts.

### **Suggestions for further Research:**

Within the limitations of the present study as well as the result research, the following topics are suggested for further research:

1. Using infographics for developing EFL listening Skills among Secondary school Students.
2. Using infographics for improving grammar learning for EFL Secondary school Students.
3. Using Infographics for developing EFL Secondary school students' story comprehension and increasing their retention ability.

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