Using a Virtual Learning Tours Program in Teaching English as a Foreign Language to Develop Elementary Stage Pupils' Vocabulary and Grammar

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ABSTRACT

The aim of the current study was to investigate the effect of using a virtual learning tours program on developing vocabulary and grammar skills of elementary stage pupils. The study used the quasi-experimental research design. Sixty pupils participated in the study, They were randomly chosen and divided into two intact groups the experimental and the control group which lasted for ten weeks. The participants received teaching using virtual learning tours. The instruments of the study included a pre-post vocabulary test, a pre-post grammar test. Results of the study revealed that there were statistically significant differences between the mean scores of the experimental group and the control group on the post vocabulary and grammar tests in favor of the experimental. The findings indicated that using the virtual learning tours program positively affected elementary stage pupils' vocabulary and grammar skills.

***Key words**:* virtual learning tours, vocabulary skills, grammar skills, elementary-stage pupils

Introduction

In our increasingly globalized world, mastering English as a Foreign Language (EFL) is more crucial than ever. At the heart of this mastery are vocabulary and grammar, the fundamental components of language learning. Effective communication in any language relies heavily on a robust vocabulary and a solid grasp of grammar. Vocabulary provides the necessary words to express ideas, emotions, and information, while grammar structures these words into coherent and meaningful sentences. Without an adequate vocabulary, learners might struggle to identify the suitable words to convey their thoughts, leading to misunderstandings or incomplete communication.

Grammar, on the other hand, ensures that these words are organized in a way that makes sense to others. It governs the rules of sentence formation, such as word order, tense, and agreement between subjects and verbs. Thornbury (2014) describes grammar as a "sentence-making machine," enabling learners to construct a wide array of sentences from a finite set of rules. This structural knowledge is crucial for clarity and precision in communication. For instance, incorrect grammar can alter the meaning of a sentence entirely, leading to confusion. A simple error in subject-verb agreement or tense can obscure the intended message, highlighting the importance of grammatical accuracy.

Academic Success

In academic contexts, a strong command of vocabulary and grammar is indispensable. Pupils are often required to read complex texts, write essays, and participate in discussions, all of which demand high levels of language proficiency. Extensive vocabulary knowledge facilitates reading comprehension, a critical skill for academic success. Schmitt (2008) notes that without a sufficient vocabulary, pupils may find it challenging to understand textbooks, journal articles, and other academic materials, which are often laden with specialized terminology.

Moreover, academic writing requires the use of precise vocabulary and sophisticated grammatical structures to present arguments clearly and persuasively. Luoma (2014) emphasizes that academic contexts highly

value grammatical accuracy, as it contributes to the logical coherence and credibility of written work. Errors in grammar can lead to misinterpretations and weaken the writer's arguments. For example, a poorly structured thesis statement or an ambiguous clause can detract from the overall quality of an academic paper. Therefore, developing strong vocabulary and grammar skills is essential for pupils to excel in their academic pursuits.

Acquiring EFL vocabulary and grammar is fundamental to effective communication, academic achievement, and professional success. Vocabulary provides the words necessary to express ideas, As Schmitt (2010) points out, vocabulary is a significant predictor of language proficiency, influencing how well learners can understand and produce spoken and written language.

while grammar ensures these ideas are conveyed logically and coherently. Together, they form the foundation of language proficiency, enabling learners to communicate confidently and accurately in diverse contexts. As educators and learners prioritize developing these skills, they pave the way for comprehensive language competence and success in both academic and professional arenas.

However, learning vocabulary and grammar represents a significant challenge for EFL (English as a Second Language) elementary school pupils. This difficulty is seen across various educational settings, including those in Egypt, where numerous studies have delved into the specific hurdles faced by young learners. Despite the crucial role that vocabulary and grammar play in language acquisition, elementary school pupils often struggle with these components due to various cognitive, contextual, and pedagogical elements.

- Cognitive Challenges

Elementary school pupils are at a developmental stage where their cognitive abilities are still growing. This immaturity can make it hard for them to grasp abstract grammatical rules and remember extensive vocabulary. According to theory of Piaget of cognitive development, children in this age group are typically in the concrete operational stage, where they find it difficult to understand abstract concepts that are not

directly tied to their sensory experiences (Piaget, 1952). Vocabulary and grammar, with their often abstract rules and meanings, fall into this category.

A study by El-Sayed (2018) found that young learners often struggle to memorize and apply new vocabulary and grammatical structures. This challenge is worsened by the limited exposure to English outside the classroom, restricting opportunities for reinforcement and practice. The study also noted that pupils struggled to transfer vocabulary and grammar knowledge to practical communication tasks, indicating a gap between learning and application.

- Contextual Challenges

The learning environment significantly influences the acquisition of vocabulary and grammar. In many Egyptian schools, large class sizes and limited resources pose substantial barriers. A study by Hassan (2016) pointed out that overcrowded classrooms and inadequate teaching materials impede effective language instruction. Teachers are often unable to provide individualized attention, and the lack of engaging, interactive materials further diminishes pupils' motivation and ability to learn.

Additionally, the socio-cultural context plays a vital role. English is not commonly used in everyday communication in Egypt, leading to limited exposure outside the school environment. This lack of immersion can hinder vocabulary acquisition and grammatical understanding, as pupils have fewer opportunities to practice and internalize what they learn in class. El-Dakhs (2017) found that Egyptian pupils often rely on rote memorization rather than meaningful learning, which negatively impacts their long-term retention and ability to use the language creatively.

- Pedagogical Challenges

Effective teaching strategies are crucial for overcoming the difficulties in learning vocabulary and grammar. However, traditional teaching methods, which are prevalent in many Egyptian schools, may not be the most effective for young EFL learners. These methods often emphasize rote learning and repetitive exercises, which can be disengaging and insufficient for developing deep understanding and practical language skills.

El-Mohammadi (2019) conducted a study on the impact of interactive and communicative teaching methods on EFL learners in elementary schools in Cairo. The study revealed that pupils taught with interactive methods, such as games, songs, and storytelling, showed significantly better retention of vocabulary and a more intuitive grasp of grammar compared to those taught with traditional methods. The research emphasized the need for a shift towards more engaging and student-centered teaching approaches that cater to the developmental needs of young learners.

- Strategies for Improvement

To address these challenges, a multi-faceted approach is necessary. Incorporating technology into language learning can provide interactive and engaging ways to learn vocabulary and grammar. Educational apps and online games can make learning fun and provide instant feedback, which is crucial for young learners. A study by Abdel-Rahman (2020) demonstrated the efficiency of using applications for mobile devices in enhancing acquiring new vocabulary among Egyptian elementary school pupils. The research revealed that pupils who made use of language learning apps demonstrated notable increase in vocabulary retention and usage.

Abdel-Rahman (2020) added that training teachers in modern, interactive teaching methods is essential. Continuous professional development can empower educators with the skills to produce more captivating and supportive environment for learning . Programs that focus on active learning strategies, differentiated instruction, and the use of multimedia resources can help teachers attend to the various needs of the students .

While learning vocabulary and grammar poses significant challenges for EFL elementary school pupils, especially in contexts like Egypt, these challenges can be mitigated through thoughtful and innovative strategies. Addressing cognitive, contextual, and pedagogical barriers requires a comprehensive approach that includes modern teaching methods, technological integration, teacher training, and community involvement. By adopting these strategies, educators can better support young learners in

acquiring the essential vocabulary and grammar skills needed for English language proficiency. One of these strategies is virtual environment.

Online virtual worlds have become an urgent and essential tool in foreign second language instruction. They motivate learners, promote learners' autonomy and social presence. Virtual worlds are a kind of reality since they give an opportunity to learners to communicate with others in text , audio or video in the target language , in addition to sharing their ideas related to language learning (Henderson et al., 2009).

According to Bell (2008), the virtual environment is a consistent asynchronous network of individuals enabled by networked computers who are represented as avatars.

Vicker (2010) defines virtual worlds as an deep social environment when educators can visit suitable places on the internet and socialize with others in real-time through (text and voice) conversation. Similarly,(2008) views virtual worlds as a long-lasting virtual environment where individuals can interact with others and feel as though they are there with them .

Dalgaro and Lee (2010) postulate that the virtual environments become of essential significance in the field of education. They provide environment in three dimension that is realistic and include communication and incorporation (immersive users) and the opportunity to establish a rapport and connections between the student and the teacher, for that teacher needs to comprehend this virtual environment and find out how to enhance performance and engage in more physical and educational activities in addition to learning how to create and implement these instructional activities within the context of environment in three dimensions .

Moreover , virtual environments offer educators with the real chance to participate in online or language courses as they allow the learners to visit places related to the target language culture and get familiarized with cultural aspects of the target language. Current Technology is evolving essential not just in peoples' professional life additionally in their individual lives.

Besides, the teachers and pupils are using it effectively. Many language departments, institutes, virtual environments are now used in both public and private schools environments to encourage and facilitate language acquisition (Dalgaro & Lee, 2010) .

Sobkowaik (2011) states that the use of computers in foreign language instruction and learning as been acknowledged nowadays as a second-dimensional environment (2D) and three-dimensional environment (3D), including virtual worlds accessed through browsers as they one of he newest technologies that I find most interesting . Furthermore , internet 3D technologies provide an interactive three dimensional content on the internet (Diehl, 2002).

According to Cooke (2008), these new technologies serve as a source of inspiration for students , who can use the to stay connected while conducting a number of intentional educational inquiries or side-stepping intended educational objectives . Pupils in 3D environments frequently offer chances to engage in life – like social interaction while simultaneously engage in meaningful learning activity.

Chittaro and Ranon (2007) point out that virtual environments add a great various online research quality. text , audio , image and video-based content abound on the 2Dweb , real –time social interaction and a sense of location are enhanced by the 3Dwb .They add that in virtual environment provides the opportunity to replicate the real world as it is or make new worlds with experiences that can benefit people understand principles and learn to perform specific tasks.

Stacey and Gerbic (2007) show that virtual education and distance learning share many similarities . However, subject – object interaction happen in the moment by direct student –teacher interaction , the student and the material in addition , the teacher can act instrumentally and he may be substituted by the digital platform , a computer program.

Conventional methods provide external knowledge material obtained from the course book and conveyed by language teachers inside the classroom, but using virtual worlds in a foreign language give learners a real chance to interact effectively and in a vital way, which may be a unique

alternative whole experience. It is because the virtual world offers a first-person experience and allows for life-like interaction. In addition, it provides knowledge acquisition that happens naturally and needs less mental work than traditional teaching methods (Chittaro & Ranoo, 2007).

As pointed out by Harper et al. (2000), apart from the reality, the best setting for creating a context based on real – world student activity are virtual ones . Because virtual worlds offer remarkable prospects for language learners to investigate , cooperate and fully submerge themselves in a chosen environment . They often use constructivist learning. Can (2009) points out that virtual world lets language learners build objects and change their avatar's appearance and alter the places surrounding them which, in turn, enable pupils to socially co-construct knowledge in domains that are relevant to them. Besides, virtual world can also be applied to task-based language learning, focusing on using authentic language and encouraging learners to make choices about the target language input they process (Collentine, 2011).

Moreover, Sobkowiak (2011) explains that such a virtual setting offers fantastic language opportunities since it offers: a) - total immersion in the target language, b) entire communication experience that is multimodal and multimedia communication -c) the target language and communication activity's virtual authenticity , and (d) virtual worlds such as second life provide assertive communication and didactic potential in which pupils of various cultural background and different time zones can meet together, the pupils are forced to move in space and use the target language for help, communication is related by real actions such as walking, sitting or flying, rich language interactively – functional interaction takes place between the teacher and the Learners and among the learners, and language mistakes which do not interrupt communication are ignored or saved for further analysis.

Chittaro and Ranon (2007) claim that 3 D virtual environment offers a significant number of benefits for language learning which may be related to a) three-dimensional graphics, which offer a more realistic and detailed demonstration of topics, (b) the possibility of analyzing the same issues or

phenomena from different perspectives, (c) more manageable and more appealing interaction with other pupils when compared with business with a coursebook or computer, (d) the presence of virtual teachers or other animated pedagogical agents. For example, life-like characters may positively impact learners' perception of the learning experience and (e) the opportunity to collaborate with one or more virtual companions.

Teaching English with technology and virtual world provide a special setting where language instructors an distant learns can interact socially and they can be used in conversations that switch between text chat and audio modes for second language feedback and communication (Wigham & Chanier, 2015). Virtual world can also help students overcome cultural barriers and gain more self – assurance when studying them . In addition, virtual world offers a 3D space or spatial space simulation : the capacity to display a three – dimensional 3D simulation or spatial space) and a space for experience in which pupils learn by doing and pay attention to the results of their activities (Kerimbayev &Akramova, 2013).

Richard (2003) shows four apparent effects of media and learning are summarized by a well –known researcher in multimedia for learning , drawing on ten years of research findings . The initial impact of multimedia development comes from multiple studies showing that the combination of word and picture encouraged deeper understanding or knowledge that might be more applicable to problem solving than words alone. The second effect (the coherence effect) indicates that when only pertinent information was provided , deeper learning might be attained The contiguity the third effect indicates that more profound understanding might happen when words and images are close proximately to every other. The ultimate and fourth effect is the personal location effect which indicated the possibility of deeper learning could be replaced or omitted when spoken and written language were less formal.

According to Lloyd et al., 2017), over the past few years, as devices and tools get cheaper and better, Google expedites field trips virtually without ever leaving the classroom . The teacher is capable of leading tour guides pupils on virtual reality environment monitoring the actions while

drawing their focus to particular virtual space points ; several apps on VR, such as expedition, can be integrated into EFL/ESL lessons. Virtual reality is defined as "immersion computer technology that imitates setting and makes it possible for a user simulation to be there and engage with it " The term of virtual reality first described by John Lanier, the founder of virtual learning research. Reality refers to hardware such as a computer, VR headset, more technically called head motion display.

In their view, Bonner and Reinders (2018), virtual reality can be a a helpful supplement to all languages. (ELT education that improves learning and raises student interest). Similarly, Gadelha (2018) and Lloyd et al. (2019) maintain that virtual reality can supply pupils with immersive learning experiences through merging the outside and inside worlds at the same time. Since virtual reality in L2 education is still a relatively new technology , teachers of the language do not use it. They do not activate the function of virtual reality in the classroom.

Sanchez et al. (2000) content that virtual world in the forms of virtual learning takes embodies abstract ideas and knowledge , quit specific "material" forms and expression. White lock et al. (2000) describe for users some exciting opportunities to enter new worlds using the virtual reality system. IKram et al. (2015) describe virtualization in mobile learning in the article considers some formats of virtual learning used in the theoretical and practical training of university pupils. The developed structures proved that virtual knowledge broadens the scope of education people of different social status and position, studying in other countries.

Besides, some forward-looking formats of virtual learning are presented, working to improve the education process further. Kerimbayev (2016) notes that it was essential to consider two fundamental moments that affect the way a faculty at a university uses a virtual environment for training

directly at training quality and what outcomes can be reached there with studying the impact of the virtual environment rather than the traditional educational perspective and online training is what makes this ork

significant in the pedagogical sphere, Information and instructional technologies are integrated during the subjects and objects process . in this instance practice is related to the intellectual , cultural . emotional and social domains of human activity

Merrill (2002) claims that applying the first principles can help to increase student engagement can be incorporated into instruction , specially when using real – world examples , to increase student engagement problem activating existing knowledge, demonstrating new experience, allowing the pupils in order to apply the latest knowledge and enable he student to incorporate the newly acquired knowledge into their own environment

According to Erik Van Raaij (2008), the accomplishment of the virtual world depends mainly on learner acceptance and good use of such a learning system. Results indicated that perceived usefulness has a

direct effect on VLE use.

Merrienboer (2002) proposes that the efficiency of virtual learning can be significantly enhanced when it is adequately created with consideration for the needs of the students and the educational goals , the aim of virtual environment is enhancing the procedural knowledge of pre-service teachers to instruct oral interaction French the learning tasks to consist of the situation and the part-task practice exercises(grammar and vocabulary).

Chou and Liu (2005) note the advantages of The potential of virtual learning to replace series and increase convenience , flexibility , student retention , and individual learning currency of the material, and feedback. Leidner and Jarvenpaa (2015) promoted the virtual environment by minimizing the adverse effects through recognizing the context and pupils' needs as virtual learning environment users .

Despite the necessity of virtual reality in teaching English vocabulary and grammar, its use is infant. This is supported by Chee (2007) who mentioned that although using virtual world is important in teaching and learning foreign language , it is still beginning, particularly when it comes to using such a world to teach vocabulary and grammar.

Some studies investigating the impact using an online instruction environment on vocabulary and grammar learning showed positive effects. For example, Smith and Brown (2020) explored the impact of a virtual learning environment (VLE) on the vocabulary acquisition of secondary school pupils. The VLE incorporated interactive multimedia resources, including videos, games, and quizzes designed to engage pupils and facilitate vocabulary learning. There was A quasi-experimental design utilized , involving pre-tests and post-tests to measure vocabulary gains among pupils in the experimental and control groups. Results showed that pupils using the VLE exhibited significantly higher vocabulary acquisition compared to the control group, highlighting the effectiveness of multimedia-enhanced VLEs in vocabulary learning.

Jones and Taylor (2019) investigated the use of a VLE to enhance grammar skills among university pupils. The study utilized a VLE with grammar tutorials, interactive exercises, and immediate feedback mechanisms. A group of participants was assigned to an experimental group , which used the VLE, and a control group, which received traditional instruction. Pre- post test results indicated that the experimental group showed significant improvement in grammar proficiency in contrast to the control group . The findings indicate that VLEs can be a valuable tool in higher education for improving grammar skills.

Lee and Kim (2021) examined the effectiveness of a VLE designed to improve both vocabulary and grammar among ESL learners. The VLE included a combination of instructional videos, interactive grammar exercises, and vocabulary games. The study employed pre- and post quantitative data was gathered using a mixed methods approach student feedback and interviews. The results demonstrated significant gains in both vocabulary and grammar skills in the experimental group. Pupils also reported high levels of satisfaction with the VLE, citing its engaging and interactive elements.

1.2 Context of the problem

Out of the researcher's experience in teaching English in Egypt, Literature review and pilot study she noticed that fourth-year elementary

stage pupils' level at elementary school in Matai, Minia, Egypt is poor in learning vocabulary and grammar. The researcher observed many problems that face the pupils. Most teachers use traditional methods of teaching vocabulary and grammar. In a conventional vocabulary lesson, pupils listen to the words pronunciation and their Arabic translation from the class teacher and they are asked to memorize the words. Then the pupils are tested in choosing the correct word to complete the sentences given. Correct answers are emphasized in this kind of lesson, but the process of learning vocabulary through using technology, flashcards, and puzzling is usually ignored. In a typical grammar class, teachers use the mother tongue more than the target language, in addition to teaching the grammatical structures by indoctrination which produces a low performance of pupils in using grammatical structures (Al-Seghayer, 2014). Therefore, the current study tried to help those pupils develop their vocabulary and grammar learning through designing and implementing a virtual learning tours program.

The researcher conducted a pilot study where she tested ten fourth-year elementary stage pupils. In the vocabulary test, the pupils were given twenty multiple-choice items .In the grammar test the pupils were given ten multiple – choice about grammatical structures.

The findings of the vocabulary piloting study test showed that about 75% of the pupils lack vocabularies.

In the vocabulary test, the pupils were given twenty multiple-choice items.

The findings of the grammar piloting study test showed that about 68% of the pupils lack grammatical structures.

1.3 Statement of the Problem

Based on the results of the pilot study of the pilot study, the problem of the current study could be stated as follows: Fourth-year elementary stage pupils have poor EFL vocabulary and grammar. This may be due to the conventional methods of teaching vocabulary and grammar used by teachers; pupils' lack of vocabulary, and not using grammatical structures properly. Additionally, the amount of time dedicated to vocabulary and grammar is limited.

1.5 Aim of the study

The current study aims to investigate the effect of using a virtual learning tours program on developing fourth-year elementary stage pupils' vocabulary and grammar.

1.6 Significance of the study

The present study might be important for EFL pupils, teachers, designers of curriculum , and researchers.

For **pupils,**

- It might help them in being aware of the vocabulary and grammar learning.
- It might enhance their vocabulary and grammar proficiency.
- It might motivate them to practice the vocabulary and grammar outside the class using the modern technological applications.
- For **teachers**,
- It might direct their attention to the virtual leaning tours program and its impact on EFL vocabulary and grammar.

It would provide them with the technological applications used in the program that might help them teach vocabulary and grammar. This would develop the pupils' EFL vocabulary and grammar.

For **curriculum designers**,

It would provide them with an accurate picture of the virtual leaning tours to design curricula using it in teaching EFL vocabulary and grammar.

It might draw their attention to the benefits of the virtual leaning tours in teaching EFL vocabulary and grammar. Consequently, they might incorporate their usages into teaching English language skills in different curricula.

For **researchers,**

- It would shed light on the importance of the virtual leaning tours for EFL learners and encourage them to research using the virtual leaning tours to enhance pupils' performance of English language skills.

1.7 Instruments of the study

- A pre –post vocabulary test
- A pre –post grammar test

1.8 Delimitations of the study

The current research was delimited to:

1. Sixty fourth-year elementary stage pupils were randomly chosen at Matai Official language school, Minia governorate.

2. **Content**

- Vocabulary skills:

-Using word roots and Affixes.

-Exploring word relationships (synonym, antonym)

- Identifying word denotation and connotation

- Using words to provide text clues

-Using reference text material for context clues

- Grammar skills:

- Identifying the pronouns referents

- Using correcting verb forms and tenses.

- Using correct comparative short syllable adjectives

- Using correct comparative long syllable adjectives

- Using correct demonstratives

3. Time

The treatment lasted for ten weeks during the first semester of the academic year 2023-2024

4. Place

Matai official language schools, Minya Governorate

1.9 Definition of Terms

Virtual environment

Chittaro and Ranon (2007) define the virtual environment as a mean to offer provide the opportunity to replicate the state of world currently or to create complete new environments , supplying experiences than can help people in understanding concepts as well.

Virtual environment is operationally defined as using videos, YouTube, and educational websites in teaching vocabulary to the experimental group to enhance their vocabulary learning.

Vocabulary

Cameron (2005) defines vocabulary as a component of knowledge of language that plays a great role for learner in acquiring language .

Flexner(2003) defines vocabulary as a stock of words used or recognized by or known to specific person or people .

Vocabulary is operationally defined as the ability of the experimental group to have knowledge about vocabulary which includes the meanings, the spoken form, the written form, and the synonym and antonym of the words.

Grammar

The American Heritage Dictionary of English language , 5th edition (2009) defines grammar as a system of rules and principles for speaking and writing a language. That part of the study of language which deals with the forms and structure of words (morphology), with their customary arrangement in phrases and sentences (syntax) , and now often with language sounds (phonology) and word meanings (semantics).

Grammar is operationally defined as the mastery the language rules which help the experimental group to understand the hidden meaning of the sentences and construct meaningful sentences using the correct grammar rules.

3.1 The study design

The present study adopted the quasi-experimental group design.

3.2 The participants

Sixty fourth-year elementary stage pupils enrolled in Matai Official Language School, Matai City, Minya, in the first term of the academic year 2023-2024. The range of the pupils' ages is 10 years old. The experimental group of 30 pupils was instructed using the virtual learning tours whereas the control group of 30 pupils received instruction using the traditional method of teaching vocabulary and grammar.

3.3 The instruments

3.3.1 The Pre- post Vocabulary Test

3.3.1.1 Aim of the test

Pre – and post – tests for the test were administered . As a pre-test, it was applied to define the pupils' vocabulary skills before beginning the treatment. As a post-test, it was applied to examine the effect of using the virtual learning tours program to develop the pupils' vocabulary skills. In the test, pupils were asked to answer four questions.

3.3.1.2 Test description

The test included five questions. The first question was about unscrambling words. The second question was choosing words from the box suitable to the pictures given. The third question was choosing words to complete the sentences given. The fourth question was about sentence completion and word order. The fifth question was about writing a paragraph using the words given.

3.3.1.3 Test instructions

The instructions were clear , easy to understand and free from any possible ambiguous items . They contained details about the aim of the test, time allowed to finish the test and how to record the answers. An answer sheet was given for each pupil .

3.3.1.4 Test Duration

During piloting the test, it was recorded that 90 minutes would be adequate time for pupils to read the tasks and answer the test. This time was recorded based upon:

The amount of time taken by each teacher divided by the number of all teachers. The average time was 30 minutes

3.3.1.5 The test facility, difficulty, and discrimination indexes

The results of piloting the test have been analyzed to determine the facility index, the difficulty index and the discrimination index of each test items as shown in the table below:

Table (2) *Facility, difficulty, and discrimination indexes for the vocabulary test items*

Q.	Facility index	Difficulty index	Discrim. index	Q.	Facility index	Difficulty index	Discrim. index
1	0.62	0.38	0.48	**27**	0.60	0.40	0.45
2	0.48	0.52	0.37	**28**	0.48	0.52	0.40
3	0.40	0.60	0.33	**29**	0.60	0.40	0.37
4	0.54	0.46	0.60	**30**	0.50	0.50	0.40
5	0.68	0.32	0.37	**31**	0.45	0.55	0.38

6	0.45	0.55	0.80	**32**	0.40	0.60	0.60
7	0.38	0.62	0.70	**33**	0.48	0.52	0.64
8	0.55	0.45	0.34	**34**	0.60	0.40	0.38
9	0.54	0.47	0.70	**35**	0.42	0.58	0.40
10	0.50	0.50	0.34	**36**	0.60	0.40	0.38
11	0.60	0.40	0.37	**37**	0.62	0.38	0.48
12	0.43	0.57	0.33	**38**	0.48	0.52	0.37
13	0.47	0.53	0.48	**39**	0.40	0.60	0.33
14	0.50	0.50	0.36	**40**	0.54	0.46	0.60
15	0.62	0.38	0.70	**41**	0.68	0.32	0.37
16	0.45	0.55	0.37	**42**	0.40	0.50	0.75
17	0.40	0.60	0.45	**43**	0.38	0.62	0.70
18	0.52	0.48	0.70	**44**	0.55	0.45	0.34
19	0.57	0.43	0.34	**45**	0.54	0.47	0.70
20	0.51	0.49	0.37	**46**	0.50	0.50	0.34
21	0.66	0.34	0.40	**47**	0.68	0.32	0.37
22	0.45	0.55	0.60	**48**	0.50	0.50	0.70
23	0.35	0.65	0.70	**49**	0.38	0.62	0.66
24	0.50	0.50	0.40	**50**	0.55	0.45	0.40
25	0.54	0.47	0.65	**51**	0.60	0.40	0.75
26	0.52	0.48	0.34				

The results in table (2) revealed that the test facility index is acceptable as it falls between 0.35 and 0.68. They also reveal acceptable discrimination index which is above 0.25

3.3.1.5 Test Validity

To be sure of the test validity, a jury of five TEFL specialists read the test to judge its items in terms of the following points:

a) Appropriateness of the test items to pupils' linguistic level.

b) Clarity and linguistic correctness of the test items.
c) Ability of the test items to measure the specified skills.
d) Suitability of the test items to the overall aim of the test.

The following table shows the agreement percentage of jury members on the test questions.

Table (3) *Agreement Percentage of Jury Members on the Test Items (No. 5)*

Q. No	**1**	**2**	**3**	**4**	**5**
No. of Agreements	٥	٥	٤	٤	4
Percentage	80%	100%	٨٠%	٨٠%	٨٠%

According to table (3), the percentage of the jury members' agreement on the test items was between 80% and 100%. Thus, it is an accepted percentage.

For more validity, correlation coefficient between the score of each item and the total score of the skill was calculated as in the following table:

Table (4)

The Correlation Coefficient between each Question with the Total Score

Question	Correlation coefficient between the items andthe total score
1	0.69*
2	0.72*
3	0.68**
4	0.76*

* Significant at 0.05 level** Significant at 0.01 level

Table (4) reflects the positivity of all the values of the correlation coefficient and they were significant at the levels of (0.05) and (0.01). This refers to high correlation between each question and the total score of the test.

3.3.1.6 Test Reliability

In order to measure the reliability of the test, a pilot study was administered to a randomly selected sample of 10 pupils. It was conducted 14 days

before implementing the experiment. Reliability of the test determined by using Cronbach's Alpha was found to be (0.80), which is considered an acceptable level of reliability.

Table (5) *Reliability of the vocabulary test*

Question	Cronbach's Alpha
1	0.82
2	0.80
3.	0.82
4	0.80
Total	0.80

As shown in table (5), the reliability coefficients for the questions of the vocabulary test and the total test are high. Thus, the test is considered reliable for the decided purpose of the current study.

3.3.1 .6 Test Scoring

One mark was recorded to each item of the test. Thus, the total mark was 40.

3.3.2 The Pre- post Grammar Test

3.3.2.1 Aim of the test

The test was performed as a pre and post-test. As a pre-test, it was used to define the pupils' vocabulary skills before beginning the treatment. As a post-test, it was used to examine the efficiency of using the virtual learning tours to develop the pupils' grammar skills. In the test, pupils were required to answer four questions.

3.3.2.2 Test description

The test included four questions. The first question was choosing words to complete the sentences given. The second question was about circling the odd words out and replacing them with the correct ones. The third question was rearranging the words to make correct sentences. The

fourth question was about composing sentences or questions from the words given.

3.3.2.3 Test instructions

The instructions were clear , concise and devoid of any ambiguities. The test objective , the amount of time allotted to finish it , and instructions for recording the answers were all included ,An answer sheet was provided.

3.3.2.4 Test Duration

During piloting the test, 90 minutes were noted that may be sufficient time for pupils to achieve the tasks and answer the test items . This time was recorded based upon:

The amount of time taken by each teacher divided by the number of all teachers. The average time was 30 minutes

3.3.2.5 The test facility, difficulty, and discrimination indexes

The results of piloting the test have been analyzed to determine the facility index, the difficulty index and the discrimination index of each test items as shown in the table below:

Table (6) *Facility, difficulty, and discrimination indexes for the vocabulary test items*

Q.	Facility index	Difficulty index	Discrim. index	Q.	Facility index	Difficulty index	Discrim. index
1	0.40	0.60	0.45	**17**	0.38	0.62	0.70
2	0.52	0.48	0.70	**18**	0.55	0.45	0.34
3	0.57	0.43	0.34	**19**	0.54	0.47	0.70
4	0.51	0.49	0.37	**20**	0.50	0.50	0.34
5	0.40	0.60	0.45	**21**	0.38	0.62	0.70
6	0.66	0.34	0.40	**22**	0.68	0.32	0.37
7	0.45	0.55	0.60	**23**	0.50	0.50	0.70
8	0.35	0.65	0.70	**24**	0.38	0.62	0.66

9	0.50	0.50	0.40	**25**	0.55	0.45	0.40
10	0.54	0.47	0.65	**26**	0.60	0.40	0.75
11	0.45	0.55	0.60	**27**	0.50	0.50	0.70
12	0.35	0.65	0.70	**28**	0.38	0.62	0.66
13	0.57	0.43	0.34	**29**	0.54	0.47	0.70
14	0.51	0.49	0.37	**30**	0.50	0.50	0.34
15	0.62	0.38	0.70	**31**	0.68	0.32	0.37
16	0.45	0.55	0.37	**32**	0.40	0.50	0.75

The results in table (6) revealed that the test facility index is acceptable as it falls between 0.35 and 0.68. They also reveal acceptable discrimination index which is above 0.25

3.3.2.5 Test Validity

To examine the test validity, a panel of jury members of five TEFL specialists evaluate the test to judge its items in terms of the following points:

a) Test appropriateness of items to pupils' linguistic level
b) Test Clarity and linguistic correctness items.
c) Ability of the test items to measure the specified skills
d) Suitability of the test items to the overall aim of the test

The following table shows the agreement percentage of jury members on the test questions.

Table (٧)

Agreement Percentage of Jury Members on the Test Items (No. 5)

Q. No	**1**	**2**	**3**	**4**
No. of Agreements	٥	٥	٤	٤
Percentage	100%	100%	٨٠%	٨٠%

According to table (7), the percentage of the members of jury's agreement on the test items was between 80% and 100%. Thus, it is an accepted percentage.

For validity, correlation coefficient between the score of each question and the total score of the skill was calculated as in the following table:

Table (8)

The Correlation Coefficient between each Question with the Total Score

Question	Correlation coefficient between the items andthe total score
1	0.78*
2	0.80*
3	0.70*
4	0.68**

* Significant at 0.05 level** Significant at 0.01 level

Table (8) reflects the positivity of all the values of the correlation coefficient and they were significant at the levels of (0.05) and (0.01). This refers to high correlation between each question and the total score of the test.

3.3.2.6 Test Reliability

For measuring the reliability of the test, a pilot study was administered to a randomly chosen sample of 10 pupils. It was carried out 15 days before implementing the experiment. Reliability of the test decided by using Cronbach's Alpha was found to be (0.80), which is considered sufficient degree of reliability.

Table (9) *Reliability of the vocabulary test*

Question	Cronbach's Alpha
1	0.84
2	0.82
3.	0.78
4	0.76
Total	0.80

As shown in table (9), the reliability coefficients of the questions of the vocabulary test and the total test are high. Thus, the test is considered reliable for the decided purpose of the current study.

3.3.2.6 Test Scoring

One mark was recorded to each item of the test. Thus, the final score was 40.

Table (9)

Means, Standard Deviations, t-Values and Significance of Differences of the Experimental and Control Groups on the Pre- performance of the Vocabulary Test

Vocabulary Skills	**Experimental Group N= 30**		**Control Group N= 30**		**df**	***t*-value**
	Means	**SD**	**means**	**SD**		
Using word roots and Affixes	0.87	0.56	0.93	0.54	58	1.04
Exploring word relationships (synonym, antonym)	1.06	0.38	1.12	0.32	58	1.17
Identifying Denotation and connotation	0.89	0.42	0.78	0.50	58	1.08
Using words to provide text clues	0.92	0.50	0.86	0.60	58	0.82
-Using reference text material for context clues	0.70	0.62	0.83	0.56	58	0.47
Total score	4.44	1.80	4.52	1.94	58	1.40

Tabulated '*t*' = 2.02 at (0.05) level

Table (19) shows that there were no statistically significant differences at (0.05) level between the mean scores of the experimental and control groups on the pre-performance of vocabulary test. The calculated t-values in all vocabulary skills and the test results were less than its tabulated

value. This means that the level of the pupils on vocabulary was homogenous and their pre-performance was poor.

2-The Pre-post Grammar Test

The pre-post grammar test was given to the study participants before implementing the program in order to gather data regarding pupils' grammar level. The test was administered on October 2, 2023. Pupils' answers were checked and data were collected, recorded, and statistically analyzed to indicate the grammar ability of the participants of the study before introducing the educational program. This table below clarifies the findings of the pre- grammar test.

Table (10)*Means, Standard Deviations, t-Values and Significance of Differences of the Experimental and Control Groups on the Pre-performance of the Grammar Test*

Grammar skills	**Experimental Group N= 30**		**Control Group N= 30**		**df**	***t*-value**
	Means	**SD**	**means**	**SD**		
Identifying the pronouns referents	1.04	0.40	1.22	0.54	58	0.85
Using correct verb forms and tense	0.80	0.52	0.83	0.32	58	0.33
Using correct comparative and superlative short syllable adjectives	1.27	0.60	0.97	0.58	58	1.08
Using correct comparative and superlative long syllable adjectives	0.96	0.72	0.76	0.60	58	0.66
Using correct demonstratives	0.54	0.80	0.40	0.87	58	0.48
Total score	4.51	1.90	4.18	3.40	58	1.30

Tabulated *'t'* = 2.02 at (0.05) level

Table (10) shows that there were no statistically significant differences at (0.05) level between the mean scores of the experimental and control groups on the pre-performance of grammar test. The calculated t-values in all the sub-skills and the total score of the test were lower than its tabulated value. This means that the level of the pupils on grammar was homogenous and their pre-performance was poor.

Statistical Analysis

In the present study, the independent sample *t*-test was utilized in discussing the results of the study instruments.

4.1 Results

The Study 's treatment period lasted for ten weeks. At the conclusion of the treatment, the vocabulary and grammar tests were administered to the two groups. Scores of the pupils were examined and contrasted using the Statistical Package for Social Sciences (SPSS) to calculate the *t*-test values that explain the variation in the study participants' post administration mean scores of vocabulary and grammar tests.

4.1.1 The Findings of the First Hypothesis of the Study

According to The first hypothesis the experimental group pupils would outperform the control group pupils on the post-performance of the vocabulary test. The results analysis showed that the experimental group achieved significantly higher than the control group on the vocabulary and test.

Table (12) *Standard Deviation , Means , t-Values and Significance of Differences of the Experimental and Control Groups on the Post-performance of the Vocabulary Test*

Vocabulary skills	**Experimental Group N= 30**		**Control Group N= 30**		**df**	**t-value**
	means	**SD**	**means**	**SD**		
Using word roots and Affixes	3.86	0.86	1.02	0.50	58	8.28

Exploring word relationships (synonym, antonym)	4.60	0.74	1.30	0.42	58	9.36
Identifying Denotation and connotation	4.22	0.78	0.80	0.55	58	8.82
Using words to provide text clues	3.80	0.92	0.84	0.58	58	6.82
-Using reference text material for context clues	3.70	0.98	0.95	0.62	58	7.70
Total Score	20.18	4.73	4.91	1.89	58	10.45

Tabulated 't' = 2.02 at (0.05) level

Table (12) shows that there were statistically significant differences at (0.05) level between the mean scores of the experimental and control groups on the post-performance of the vocabulary test favoring the experimental group in all the test. The pupils' scores in listening test indicated significant growth where the calculated t-value exceeded its tabulated value. The results confirm the validity of the first hypothesis.

Analysis showed that the use of virtual learning tours program had an effect on pupils' overall vocabulary test. *t*-Value was calculated using Cohen's d. formula:

$$d = \frac{2\,t}{\sqrt{df}}$$

Where d is the effect size value, t represents the calculated *t*-test value, and df is the degree of freedom for the t-test.

Table (13)*Means, Standard Deviations, t-Values and Significance of Differences of the Experimental Group on the Pre- and Post-performance of the Vocabulary Test*

Vocabulary-skills	Pre		Post		df	t-Values	Effect size
	means	SD	means	SD			
Using word roots and Affixes	0.88	0.56	3.86	0.86	29	8.70	3.22
Exploring word relationships (synonym, antonym)	1.04	0.40	4.60	0.74	29	9.12	3.37
Identifying Denotation and connotation	1.07	0.36	4.22	0.78	29	7.63	2.82
Using words to provide text clues	0.96	0.50	3.80	0.92	29	6.50	2.40
Using reference text material for context clues	0,74	0.63	3.70	0.98	29	6.20	2.31
Total score	4.69	1.85	20.18	4.73	29	10.25	3.78

Tabulated 't' = 2.02 at (0.05) level

Table (13) shows that the mean scores of the experimental group on the post-performance of the overall test were higher than that obtained in the pre one. All t-values were significant at the 0.05 level which affirmed the efficiency of the program in developing the pupils' vocabulary skills.

4.2.1 The Results of the Second hypothesis of the study

According to the second hypothesis the experimental group pupils would perform better than the control group pupils on the post-performance of the grammar test. The results of the analysis demonstrated that the

experimental group outperformed the control group by significant margin on the grammar test.

Table (14)*Means, Standard Deviations, t-Values and Significance of Differences of the Experimental and Control Groups on the Post-performance of the Grammar Test*

Grammar skills	**Experimental Group N= 30**		**Control Group N= 30**		**df**	***t*-value**
	Means	**SD**	**means**	**SD**		
Identifying the pronouns referents	6.25	1.20	2.20	0.82	58	8.90
Using correct verb forms and tense	5.40	0.92	1.03	0.28	58	7.83
Using correct comparative and superlative short syllable adjectives	7.20	1.32	1.00	0.78	58	8.30
Using correct comparative and superlative long syllable adjectives	6.52	0.72	0.89	0.48	58	8.10
Using correct demonstratives	4.70	0.88	0.62	0.30	58	11.20
Total score	30.07	5.44	5.74	2.88	58	14.60

Tabulated 't' = 2.02 at (0.05) level

Table (14) shows that there were statistically significant differences at (0.05) level between the mean scores of the experimental and control groups on the post-performance of the grammar test favoring the experimental group in all the test. The pupils' scores showed high results indicated significant development in the grammar test where tabulated value is less than the calculated t value . The results confirm the validity of the second hypothesis.

Analysis showed that using the virtual learning tours program had an effect on pupils' grammar skills. *t*-Value was calculated using Cohen's d. formula.

Table (15)*Means, Standard Deviations, t-Values and Significance of Differences of the Experimental Group on the Pre- and Post-performance of the Grammar Test*

Grammar Skills	Pre		Post		df	t-Values	Effect size
	means	SD	means	SD			
Identifying the pronouns referents	1.04	0.40	6.25	1.20	29	9.40	3.47
Using correct verb forms and tense	0.80	0.52	5.40	0.92	29	10.08	3.73
Using correct comparative and superlative short syllable adjectives	1.27	0.60	7.20	1.32	29	8.33	3.07
Using correct comparative and superlative long syllable adjectives	0.96	0.72	6.52	0.72	29	11.22	4.15
Using correct demonstratives	0.54	0.80	4.70	0.88	29	7.74	2.85
Total score	4.51	1.90	30.07	5.44	29	18.35	3.77

Tabulated 't' = 2.02 at (0.05) level

Table (15) shows that the mean scores of the experimental group on the post-performance of the grammar test were higher than that obtained in the pre one. All t-values were significant at the 0.05 level which affirmed the efficiency of the virtual learning tours program in developing the pupils' grammar skills.

4.2 Discussion of the Results

The results displayed above show that the elementary pupils' vocabulary and grammar skills were developed after the treatment. This

significant development confirmed the effect of using the virtual learning tours program on developing the pupils' vocabulary and grammar skills.

The development of the experimental group in vocabulary and grammar performance could be attributed to different reasons. For example, the virtual learning tours involved the pupils in cycles of cognitive activities. Therefore, the pupils' engagement with the virtual learning tours assisted the pupils to practice various cognitive processes that helped develop their vocabulary and grammar. This result is consistent with the result of Yılmaz (2015).

The direct instruction of each skill of vocabulary and grammar reinforced grammar and vocabulary skills and increased the motivation and desire of pupils to learn and use words and grammatical structures more. This result is consistent with the result of Abidin et al. (2011). The pupils could trace their performance through assessing their own understanding and remembering with their partners. That helped the pupils identify overall patterns of errors they made during using vocabulary and grammar, and decide the place and reason of mistakes they made, thereby reconstructing their language and altering their performance.

The virtual learning tours consisted of videos and animations which attract pupils and interact with the texts they watched; this facilitated their vocabulary and grammar learning. The virtual learning tours are well-structured and could take pupils in a logical sequence from one step to another. The teacher directed pupils clearly on how they can benefit from each previous step to switch to the other. This means that pupils could go from one phase to another based on their progress and whether they need to go back to previous steps that could help them install what they have learned.

The virtual learning tours were effective in providing a good environment for pupils to interact with each other. They worked in groups and communicated with each other while learning vocabulary and grammar and doing the tasks and activities. The researcher's feedback and the frequent positive comments and encouragement affected the pupils positively and helped them eager to participate in the vocabulary and

grammar activities. They could take turns and share in answering the questions and quizzes.

Such development in learning vocabulary and grammar are due to the use of the virtual learning tours. The results of the current study are consistent with the results of Martinez and Rodriguez (2017), Jones and Taylor (2019), Smith and Brown (2020) ,and Lee and Kim (2021) who provided evidence that virtual learning tours significantly enhance these skills among elementary and secondary pupils.

Martinez and Rodriguez (2017) found that integrating virtual learning environment in language education led to noticeable improvements in pupils' vocabulary and grammar. The study emphasized the interactive nature of virtual learning tours, which engage pupils more efficient than traditional methods. By providing instant feedback and allowing for consistent practice, learning virtual tours help pupils refine their pronunciation, enhance their vocabulary and grammar, and improve their overall language proficiency.

Similarly, Jones and Taylor (2019) observed that virtual learning environment facilitate a more immersive learning experience. Their study highlighted that virtual learning environment enable personalized learning paths, allowing pupils to progress at their own pace. This personalized learning helps pupils develop their grammar skills more efficiently.

Smith and Brown (2020) reinforced these findings by demonstrating that the use of virtual environment resulted in significant improvements in pupils' vocabulary. The virtual learning environment incorporated interactive multimedia resources, including videos, games, and quizzes designed which engaged pupils and facilitate vocabulary learning. They found that using the virtual learning environment exhibited significantly higher acquisition of vocabulary when compared to the control group, highlighting the effectiveness of multimedia-enhanced VLEs in vocabulary learning.

Lee and Kim (2021) used virtual learning environment which included a combination of instructional videos, interactive grammar exercises, and vocabulary games to improve ESL learners' vocabulary and

grammar. They found that using virtual learning environment could improve both vocabulary and grammar among ESL learners. The results demonstrated significant gains in both vocabulary and grammar skills in the experimental group. Pupils also reported high levels of satisfaction with the VLE, citing its engaging and interactive elements.

However, the findings of the current study are not aligned the results of Jarmon et al. (2009) who assessed the effect of virtual environments on the acquisition of grammar skills among EFL learners. Results showed that students in VLEs did not perform significantly better in grammar tests compared to those in traditional classrooms. The study suggested that the lack of direct interaction with instructors and peers might have contributed to this outcome, indicating that VLEs alone may not be sufficient for effective grammar instruction.

Additionally, the results of the current study are not consistent with the results of Hew and Cheung (2010) who investigated the limitations and difficulties related to the use of virtual learning (VR) in language learning, particularly its effects on vocabulary and grammar acquisition. Findings indicated that while VR environments were engaging, they often led to cognitive overload, which hindered vocabulary and grammar retention. Additionally, technical issues and the high cost of VR equipment were significant barriers to effective learning.

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