

Using a Multimodal Program to Enhance EFL Fourth Graders' Vocabulary Learning and Use

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Abstract

The present study was conducted to explore the impact of using a multimodal program to enhance EFL fourth graders' vocabulary learning and use. The study adopted the quasi-experimental design. Sixty boys and girls pupils randomly selected from Shalby Primary School at Minia Governorate participated in the study. They were divided into two intact groups: a treatment group and a non-treatment one, each comprising 30 pupils. A Multimodal program was designed by the researcher and used with the treatment group while; the non-treatment one received the regular way of instruction. Instruments of the study contained a vocabulary learning test and a vocabulary use one. Results revealed that the treatment group significantly surpassed the non-treatment one in the post-performance of both the vocabulary learning test and the vocabulary use one. A number of recommendations and suggestions for further research were presented.

Key words: A Multimodal Program- Vocabulary Learning – Vocabulary Use

المستخلص

استخدام برنامج متعدد الوسائط لتعزيز تعلم المفردات اللغوية واستخدامها لدى تلاميذ الصف الرابع

الابتدائي الدارسين للغة الانجليزية كلغة أجنبية

أ.م.د. / مروة جمال محمد شحاته

أستاذ المناهج وطرق تدريس اللغة الإنجليزية المساعد

كلية التربية- جامعة المنيا

هدفت الدراسة الحالية إلى معرفة أثر برنامج متعدد الوسائط في تعزيز تعلم واستخدام مفردات اللغة الإنجليزية لدى تلاميذ الصف الرابع الإبتدائي الدارسين للغة الانجليزية كلغة أجنبية. استخدمت الدراسة التصميم شبه التجريبي. تكونت عينة الدراسة من ستين تلميذ وتلميذة تم إختيارهم عشوائيا من مدرسة شلبي الإبتدائية بمحافظة المنيا. تم تقسيمهم إلى مجموعتين ، مجموعة تجريبية و أخرى ضابطة تضم كل منها ٣٠ تلميذا. تم تصميم برنامج متعدد الوسائط من قبل الباحثة واستخدمته مع المجموعة التجريبية بينما تلقت المجموعة الضابطة الطريقة المعتادة في التدريس.تضمنت أدوات الدراسة اختبار تعلم المفردات اللغوية واختبار استخدام المفردات اللغوية . أظهرت النتائج أن المجموعة التجريبية تفوقت بشكل ملحوظ علي المجموعة الضابطة في الاختبار البعدي لكلا من اختبار تعلم المفردات اللغوية واختبار استخدام المفردات اللغوية. وقدمت الباحثة مجموعة من التوصيات والمقترحات لمزيد من البحوث المستقبلية.

الكلمات المفتاحية: برنامج متعدد الوسائط – تعلم المفردات اللغوية- استخدام المفردات اللغوية

Introduction

Undoubtedly, education in Egypt has witnessed unprecedented era of reform and development in the recent years as never before. Pre-university education curricula have been subjected to such development, against which conventional methods of teaching and learning are no longer effective and proved unsuccessful. With regard to the English curriculum of fourth graders, there is a complaint by pupils, families as well as teachers documented through social platforms about the quality and quantity of its vocabulary. The quantity and quality of vocabulary included are more different than ever, in addition to its big number in a single lesson which is considered above their age level. Therefore, new effective methods of teaching vocabulary should be investigated.

Throughout a child's developmental and academic years, it is essential for them to acquire words to comprehend written expressions. Consequently, vocabulary learning is viewed as the initial step towards learning a foreign language. A sentence is usually made up of several vocabulary items. Although some teachers may think that vocabulary learning is an easy process, learning new vocabulary items has always been challenging for the learners. (Bansong, Poopatwiboon and Sukying, 2023)

Vocabulary is the building chunks of language and significant to the mastery of all language skills, because they are the smallest element of the sentences and help their users deliver their meaning. It is essential to language and is of great significance to language learners. The noticeable role of vocabulary knowledge in foreign language learning has been recently documented by theorists and researchers in the field (Lotfi, 2007). According to Mohamad et. al. (2018), vocabulary knowledge appears to be one of the most vital language components that Egyptian students need to possess to be able to communicate effectively.

Recently, vocabulary learning has been a progressively interesting topic of discussion particularly for researches, teachers, theorists, curriculum designers, and others involved in language instruction (Zaire, 2015). Vocabulary plays a main part of language proficiency and use. On the other hand, it is assumed that lack of vocabulary knowledge can cause communication breakdown. As claimed by Rahmadhani (2015), the essential language component is vocabulary which can assist students' ability to the four skills in a language listening, speaking, reading and writing.

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Kabooha and Elyas (2018) confirmed that the process of vocabulary teaching and learning has been considered a challenge for EFL teachers as well as learners because there has been limited attention given to vocabulary instruction in the EFL classrooms over the years. Thus, the need for efficient pedagogical techniques for vocabulary instruction is one of the chief concerns among many EFL scholars and researchers.

Hulstijin (2013) in foreign language vocabulary instruction and learning, there are two types of vocabulary learning: incidental and intentional. Incidental learning happens without conscious effort, while intentional learning involves a careful attempt to memorize factual information.

In (2011), Ahmed confirmed that incidental vocabulary learning includes learner's capability to guess the meaning of new words from the contextual clues. Incidental vocabulary learning has some benefits such as guessing word meaning from the context, fostering deeper mental processing and promoting retention. Yet, incidental vocabulary instruction also has some boundaries in some features. Successful guessing in context happens when about ninety five percent of the lexical items in a context are already known. Though, lack of sufficient vocabulary knowledge particularly at the elementary level may prevent their guessing from the context.

Hassan (2019) highlighted that the progression of technology has not only smoothed the path to teach more people effectively, but allowed educators to change the paradigms of conventional educational practices with modern technologies. Consequently, private and public educational institutions are competing with one another to digitalize their classrooms so as to enhance teaching and learning along with to stimulate the stakeholders. Thus, technology has a significant role in today's language classrooms. Teachers integrate varied forms of technology to support their teaching and involve learners in the learning process.

In this respect, multimodal approach helps students develop their understanding. It lets students learn happily, effectively and study in a relaxed, active, autonomous learning atmosphere. With the prevalent use of multimedia technology in the arena of teaching, the multimodal teaching approach has appeared, and students' development of multi-literacy has become possible (Zhao, 2017).

The transform of message is effectively achieved, when vocabulary learning happens through multimedia that contains animation, pictures, written texts, power point and videos. Multimedia aids vocabulary learning by linking memory with images, thereby providing more opportunities to encounter and retain language (Shao, 2012). Input from visual and auditory modalities is also employed in language instruction because utilizing multiple modalities can foster recall in language learning. (Sydorenko, 2010).

Through pictures learners can visualize the lesson. It is one type of media that has essential role in the teaching-learning process. Khafidhoh and Carolina (2019) investigated the impact of utilizing pictures for teaching vocabulary, and found that teaching vocabulary using pictures to the seventh-graders is efficient and it could also attract the learners' attention. In the same line, Winita and Rasyida (2018) utilized pictures to teach English vocabulary to eighth graders. They revealed that pictures are powerful media to improve English vocabulary, and using picture can be alternative technique for vocabulary instruction.

Özer and Avci (2015) emphasized that animation is another way to solve problems when it comes to children. It fulfills the different needs of the young learners as it uses more than one sense, attracts students' attention and is reliable. Teaching vocabulary to young learners using animation cartoon can help students to learn vocabulary more pleasantly because most children like watching cartoons. It can lower their affective filter, make them feel relaxed and arouse their spirit in learning since learning with fun can increase students' achievement.

Bajrami and Ismaili (2016) emphasized that videos can be utilized in different instructional and teaching settings- in classroom, as a method of presenting content, promoting discussion and providing illustration for a particular topic and content. Besides, it is hypothesized that video material can be used as authentic material input and as a motivational tool. In general, students find the experience of using video material to be interesting, relevant, beneficial and somewhat motivating in class. Yawiloeng (2020) extended saying that recently, English classroom teachers find videos a beneficial source that can help learners understand English vocabulary. Audios, images and videos in multimedia materials can enhance vocabulary learning.

Recently, researchers have shown growing interest in using videos for EFL vocabulary learning due to their plentiful benefits. Lin's (2011)

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study identified a connection between vocabulary development and the use of videos. Lin suggested utilizing videos to aid learners in acquiring vocabulary and highlighted the advantages of videos in facilitating vocabulary learning through the use of sounds and images.

Azman and Mai (2015) asserted that multimedia stimulates vocabulary learning among foreign language learners. They pointed out that multisensory materials- such as words, audio, images, and animations-can be used alongside text and graphics to help learners engage in meaningful contexts, thus enhancing comprehension. Consequently, incorporating modern innovations in vocabulary instruction is beneficial for learning vocabulary in today's era.

PowerPoint, as a multimedia tool, can be utilized by language instructors as an efficient and innovative technique to teach vocabulary and educators may be able to substitute the conventional techniques which teachers usually use in the form of pictures, flashcards, dictionaries and others (De Leon Perez & Garcia de Angulo, 2013).

There are many positive merits of using PowerPoint. In the first place, PowerPoint is user friendly. If teachers can use it properly, it can satisfy most of learners' needs. Moreover, PowerPoint is fun to watch and fun to make. This software program permits users to manipulate images, texts, color, sound and video. Additionally, teachers can create their own presentations and use them again and again, and they are very useful in large classrooms. Therefore, as teachers become more acquainted with PowerPoint, more merits can be found particularly in teaching vocabulary (Radanov, 2008). PowerPoint presentations facilitate learners' engagement and attention, creating a positive learning atmosphere, supporting word retention, and expanding learners' talking time (Pham & Nguyen, 2018).

To sum up, the multimodal approach helps to cater for learners' diverse learning styles. Vocabulary can be presented through colors, images, and video for the visual mode, sound and music for the auditory mode and text and writing prompts for the reading/writing mode. Teachers can employ multimedia methods, such as pictures, videos, animation, and PowerPoint presentation to facilitate language learning in general and vocabulary learning and use in particular.

In addition, multimodality can engage learners' attention, create a collaborative learning atmosphere, support word retention, and maximize learners' talking time. They could facilitate pupils' comprehension of vocabulary, encourage classroom interaction, and heighten pupils' interest.

For this reason, the researcher adopts multimodal approach to enhance vocabulary learning and use among Egyptian EFL fourth graders.

Review of literature and Related Studies

Former studies have explored the impact of multimedia on enhancing learners' vocabulary learning , knowledge, usage, and overall language learning development, such as the study conducted by Bansong ,Poopatwiboon and Sukying (2023); Kessler (2022); Hariyono (2020); Mohammad, Abdel-Haq and Al-Hadi (2018); Aghaei and Goughlani (2016); Shao (2012); Tabar and Khodareza (2012) and Zarei and Khazaie (2011).

Bansong ,Poopatwiboon and Sukying (2023) conducted a quasi-experimental study to explore the impact of multimodal teaching on primary school students' English vocabulary knowledge and their attitudes towards this teaching method. The participants included 59 primary school students, divided into an experimental group of 33 students and a control group of 26 students. Two tests were developed to assess the participants' receptive and productive vocabulary knowledge. Additionally, a questionnaire was created to assess their attitudes towards using multimodal teaching methods. The results indicated that while both groups improved their vocabulary knowledge, statistical analysis showed that the multimodal teaching technique significantly improved the participants' receptive and productive vocabulary knowledge.

Kessler (2022) conducted a study to explore the use of multimedia annotations (text, pictures, Graphics Interchange Formats (GIFs), and videos) in vocabulary learning. It was found that different types of multimedia annotations could foster vocabulary acquisition by providing multiple representations of words, which cater for various learning styles and improve retention and use of vocabulary.

In 2020, Hariyono conducted a study focusing on student engagement when using YouTube videos to teach vocabulary at an English course. The research employed descriptive-qualitative methods, using observation and documentation to collect data. Conducted at an English course in Bogor, the study involved seven young learners in second grade. The findings were categorized into two themes: students' reactions to classroom activities and teacher instructions, and students' engagement with YouTube videos. The study revealed that most young learners at the English course were actively involved during the use of YouTube videos for vocabulary instruction. They responded positively to the learning

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activities and expressed a preference for learning English vocabulary through YouTube videos.

Mohammad, Abdel-Haq, and Al-Hadi (2018) conducted a study research to investigate the authentic materials approach and its impact in teaching vocabulary in the EFL classroom. The study included three main parts. The first part addressed vocabulary itself, its importance, and various teaching strategies. The second part defined authentic materials, discussed their importance, and examined their impact on vocabulary acquisition and other language skills. Lastly, the third part suggested a framework for teaching vocabulary in the EFL classroom based on authentic materials.

Aghaei and Goughlani (2016) explored the issue of vocabulary retention using multimodal pedagogy with sixty Iranian EFL female pre-intermediate learners. The experimental group received vocabulary instruction through multimodal pedagogy across ten sessions, while the control group received conventional pedagogy. Results indicated that students exposed to diverse modes of meaning-making showed improved long-term vocabulary retention. The study provided pedagogical visions relevant for English language instructors and curriculum designers.

Shao (2012) conducted a study that reviewed computer-assisted language learning (CALL) and focused on the development of CALL multimedia. Drawing from constructivist theory, the research examined the use of multimedia software for vocabulary acquisition. The study included a case study utilizing surveys to assess the interest levels of Chinese college students in the multimedia software they used, as well as their attitudes towards its application. Moreover, the study aimed to evaluate the effectiveness of multimedia applications among Chinese EFL learners.

Tabar and Khodareza (2012) studied the use of multimedia for vocabulary learning among pre-intermediate EFL learners. Their research revealed that multimedia software significantly helped learners in acquiring, using, and retaining vocabulary compared to conventional teacher-led instruction.

Zarei and Khazaie (2011) conducted a study to explore how Iranian English language learners acquire L2 vocabulary using laptop-based delivery of multimodal materials. Participants were categorized into four groups based on their visual and verbal short-term memory abilities. Following the treatment, they were assessed on their ability to recognize and recall vocabulary items. The findings showed that, except for the group

with low visual and low verbal abilities, the other three groups, exposed to vocabulary items with visual or written explanations, performed notably better on the tests. These results highlighted the importance of considering learners' cognitive styles when teaching vocabulary.

Commentary

From a careful inspection of the related literature stated above. The researcher may say that few studies were attempted to investigate the use of multimodality and its effect on vocabulary learning and use especially in the Egyptian context. Yet, some studies investigated the impact of multimodality on students' vocabulary acquisition and retention and its impact on creating a powerful environment in the classroom. However, reviewing the related literature helped the researcher in her study to document the problem, state the hypotheses, build up the program, design the instruments, implement the experiment and interpret data.

Context of the Problem

From the researcher's observation as a staff member for being an external supervisor at different elementary schools at Mina Governorate, it has been observed that the majority of EFL fourth graders lack the ability to learn and use vocabulary in different situations. To confirm the researchers' observation, two surveys were conducted. The first survey consisted of a number of questions. It was conducted on twenty EFL elementary school teachers to 1) explore what methods they use to teach vocabulary, and 2) How they address learners' challenges in learning and utilizing vocabulary items and their knowledge about multimodality. The second survey was an oral one of only two inquiries applied on twenty EFL fourth graders to explore 1) How English vocabulary lessons are taught, and 2) To what extent they are provided with the opportunity to use the vocabulary they learn.

Moreover, the researcher and another colleague analyzed the content of the textbook 'Connect 4' which is comprised of six units; five lessons each. The results of the content analysis of EFL fourth graders English textbook, see table (1), shows the number of words in each unit, themes, and example words of each theme. The number of vocabulary items in each unit and lesson in the English textbook is big and does not take into account the individual differences between pupils. In addition, the textbook is congested with vocabulary items, such as (those of the themes of Body systems, Plant cells, and Energy) that are above the age and the academic level of pupils. Based on the nature of the primary school pupils, they can

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build a better understanding of new words if supported with the help of multimodalities. Therefore, the current research proposes using the multimodal approach to enhance fourth graders' vocabulary learning and use.

Table (1) Content Analysis of Egyptian EFL Fourth Graders' First-Term English Textbook" Connect 4"

Units	Number of words per unit	Themes	Example Words
Unit (1) I Feel Good	42 words	Food	Watermelon Sugar cane
		Body systems	Diaphragm Esophagus
		First- aid	Band- aid Scrape
Unit (2) Desert Animals	35 words	Egyptian animals	Pelican Fennec fox
		Comparative adjectives	Heaver More beautiful
Unit (3) Why do we grow plants?	48 words	Plants	Germinate Tamarisk
		Plant Cell	Carbon dioxide Chloroplast
		Superlatives	Heaviest Most beautiful
Unit (4) Where do you live?	45 words	Buildings	Apartment Shopping mall
		Prepositions	In front of Next to
Unit (5) Where do you work?	47 words	Jobs	Screwdriver Tape measure
		Electricity	Lightning Socket
Unit (6) What do you do?	33 words	Industry	Education Mining
		Energy	Hydroelectric Non-renewable
		Verbs	Encourage Respect
Total	250 words	15 Themes	

Statement of the Program

Based on the researcher's observation, the results of the two surveys, the results gained from analyzing the content and the pertinent literature on the dominant influence of using multimodality inside EFL classrooms it became evident that EFL fourth graders' vocabulary learning and use needed to be enhanced.

Therefore, the current study aimed to investigate the use of "A Multimodal Program to Enhance EFL Fourth Graders' Vocabulary Learning and Use".

Aim of the Study

The present study aimed at identifying the impact of using a Multimodal program to enhance EFL fourth graders' vocabulary learning and use.

Hypotheses of the Study

Drawing upon logical reasoning and evidence from literature, the researcher could propose the following hypotheses:

- 1- There would be a statistically significant difference between mean scores obtained by the participants of the treatment and the non-treatment groups (favoring the treatment group) in the post testing of the vocabulary learning test.
- 2- There would be a statistically significant difference between mean scores obtained by the participants of the treatment and the non-treatment groups (favoring the treatment group) in the post testing of the vocabulary use test.

Significance of the study

The significance of the current study lied in the following:

1. It spotlighted the multimodal approach as an effective and successful solution for vocabulary learning enhancement.
 2. It might draw the consideration of EFL teachers to the necessity for using multimodalities in order to meet all learning styles.
 3. It might draw the consideration of EFL teachers to the importance of utilizing multi-sensory learning with younger learners for the purpose of effective learning as well as use of vocabulary.
 4. It offered a Multimodal program for enhancing EFL fourth graders' vocabulary learning and use.
 5. It offered a vocabulary learning test.
 6. It offered a vocabulary use test
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Delimitations

This study was delimited to:

1. **Participants of study:** Two intact classes were randomly selected from among fourth year primary school.
2. **Place:** Shalby Primary School at Minia Governorate was the place of the experimentation.
3. **Time Duration :** The experimentation lasted for one semester (First term 2023-2024)
4. **Enhancing pupils' Vocabulary learning will be delimited to:**
 - identifying the spoken and written form of vocabulary items.
 - identifying the part of speech of vocabulary items.
 - identifying the meaning of vocabulary items.
5. **Enhancing pupils' Vocabulary Use will be delimited to:**
 - using the suitable words according to the context.
 - using vocabulary items to form correct sentences.

Definitions of Terms

The Multimodal Approach

Perry (2012) defined the multimodal approach as "meaning-making" of how learners interpret and make sense of experiences, events, or information. This can be achieved through a diversity of communicative channels which include visual, audio , linguistic and spatial patterns of meaning.

According to Massaro (2012), the multimodal approach refers to a learning situation which engages multiple sensory systems of the learner. This kind of learning can include a diversity of visual inputs in addition to text. Some examples include pictures, video, animation, and graphic organizers.

Kress (2013) defined the Multimodal approach as how people communicate or interact with each other through using speaking, writing, gesture, gaze and visual forms.

In the current study , the multimodal approach is operationally defined as a significant approach in language learning and communication , that enables EFL fourth graders to make meaning of the exposed lexical items using two or more modes of meaning e.g audio , visual , gestural , and spatial .

Vocabulary Learning

Vocabulary learning is the cognitive process of acquiring, comprehending, and incorporating new words into one's lexicon. It utilizes strategies like exposures to language input, contextual inference, word analysis, and deliberate practice in using and recalling (Folse & Briggs, 2004).

Vocabulary learning involves acquiring, learning, understanding, and integrating new words into one's lexicon, including grasping their meanings, forms and usage. It utilizes cognitive strategies like exposure, contextual inferences, mnemonics, and repeated encounters in diverse contexts. (Schmitt & Schmitt, 2020).

Vocabulary learning is operationally defined as the capability of EFL fourth graders to learn new words and understand their meanings.

Vocabulary Use

Schmitt and Schmitt (2020) provided a recent definition of vocabulary use is that vocabulary includes the words we need to know to understand what we hear and read, and to communicate clearly and precisely. It is categorized into listening vocabulary (words we understand when we hear them), speaking vocabulary (words we use in speech), reading vocabulary (words we need to know to understand what we read), and writing vocabulary (words we use in writing).

Vocabulary use is operationally defined in this study as the ability of EFL fourth graders to effectively employ words in various contexts to communicate clearly and accurately.

Consequently, the difference between vocabulary learning and use is that the former is related to acquisition, understanding, memory and contextual awareness whereas the latter is related to application, fluency, comprehension and adaptability. Vocabulary learning focuses on acquiring and understanding new words, while vocabulary use is about applying and integrating these words into communication effectively. Both processes are indispensable and complementary in developing strong language skills.

Material and Method

Research Design

In order to accomplish the aim of this study, the researcher employed a quasi-experimental design (pre-post control design). Both a treatment group and a non-treatment group underwent pre-posttests assessing vocabulary learning and usage in English as a foreign language. The

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treatment group received instruction using a multimodal program, while the non-treatment group received regular instruction.

Participants

The participants in this study were selected from fourth-grade pupils attending Shalby Elementary School in Minia Governorate. Two intact classes were randomly selected, with one class assigned to the treatment group and the other to the non-treatment group. Each class consisted of 30 English as Foreign Language (EFL) pupils who had been studying English for three years.

Duration

The experiment lasted for one semester, conducted during the first semester of the academic year 2023-2024. Ten sessions were conducted, each lasting 45 minutes, with an additional two sessions devoted to pre-testing and post-testing of the instruments.

Instructors

The treatment group received instruction from an EFL teacher who received two orientation sessions on using the assigned multimodal program with the study participants, ensuring that she understood the program's overall objectives. The researcher attended most sessions to observe and ensure the experiment's proper implementation, while another teacher instructed the non-treatment group using the conventional way of instruction.

Variables

1- Independent Variable

The use of a Multimodal Program to enhance EFL Fourth Graders' vocabulary learning and use

2- Dependent Variables

- 1-Enhancing EFL fourth graders' vocabulary learning.
- 2-Enhancing EFL fourth graders' vocabulary use.

3- Control Variables

- **Pupils' grade and age:** All pupils in both groups are approximately 10 years old.
- **The same content:** "Connect 4" which is the English language syllabus for Egyptian public schools addressed to fourth graders.
- **Level of English proficiency:** They are equivalent, because they have been studying English for 3 years.

Instruments and Materials

Instruments

The following instruments were designed by the researcher:

- A. A Pre-post vocabulary learning test.
- B. A Pre-post vocabulary use test.

A. The Pre-post vocabulary learning Test (See Appendix A)

Test Objectives

The test was designed to:

1. assess how far EFL fourth graders identify the form of vocabulary items.
2. assess how far EFL fourth graders identify the parts of speech of vocabulary items.
3. assess how far EFL fourth graders identify the meaning of vocabulary items.

Test Construction

The researcher developed the test based on the subdomains of vocabulary learning outlined earlier and the content covered in the program. The test consisted of thirty items that reflected the objectives emphasized in the program. A table of specifications guided its design. The answer key was attached to the test.

Piloting the Test

Piloting the test was conducted on 30 pupils enrolled at fourth year Shalaby Primary School at Minia Governorate, who were not part of the experimentation. The pilot study took place two weeks before the real experimentation. It was conducted to determine the test validity, reliability and the exact duration.

Item Type

The test contained 30 items, consisting of 15 multiple-choice questions (MCQs), 3 correction items, 5 items requiring choice and completion, and 7 completion items.

Scoring

The total score of the test is thirty marks; one mark for each item.

Time

Throughout the pilot study, the researcher recorded the time each student took to complete the test, finding that on average, it took 45 minutes for pupils to read and answer the questions.

Instructions

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The test instructions and the test itself were written in English. They were concise, clear, and free from any possible ambiguity. The instructions provided a brief introduction on how participants should approach answering the test questions. They also contained information about the time allowed to complete the test.

Validity

- **Content Validity**

The content validity of the test was assessed by a panel of seven TEFL experts who evaluated its validity based on the following criteria:

- a) The Linguistic formulation of items.
- b) Whether the items effectively assessed the targeted objectives.
- c) The appropriateness and relevance of the items for the target participants.
- d) The adequacy of item coverage for the skills tested in the test and
- e) the suitability of model answers.

After incorporating the suggested modifications by the jury members, they confirmed the suitability and applicability of the test. The final version of the test, revised based on their recommendations, was then given to the participants. To compare between the preliminary version and final one, multiple-choice items were decreased from 20-15 items and five items (from 11 to 15) were changed completely. In addition, 7 completion items were added.

- **Internal Consistency of the Vocabulary Learning Test**

After conducting the pilot study, the collected data was used to calculate the internal consistency of the pre-post vocabulary learning test, including the correlation coefficient between each test item and the total test scores adjusted for that item's contribution. The results are summarized in the following table:

Table (2)The Internal Consistency between Each Item and the Total Vocabulary Learning Test (N=30)

Item	Correlated item-total Correlation	Item	Correlated item-total correlation	Item	Correlated item-total correlation
1	0.72	11	0.32	2	0.4
2	0.53	12	0.63	2	0.5
3	0.46	13	0.43	2	0.3
4	0.44	14	0.31	2	0.2
5	0.44	15	0.36	2	0.2
6	0.39	16	0.37	2	0.3
7	0.43	17	0.41	2	0.3
8	0.34	18	0.33	2	0.2
9	0.78	19	0.48	2	0.5
10	0.32	20	0.32	3	0.3

Reliability

The reliability coefficient of the test score was estimated by the Alpha Cronbach method. The data obtained was calculated and the reliability coefficient was (0.84), which was considered acceptable. According to Aikens (2000) and Aron et.al (2006), a test should perfectly have a reliability coefficient between 0.70 and closer to 0.90 to be estimated useful.

Difficulty Index

The whole difficulty index of the test was 0.37, with individual item difficulties ranging from 0.30 to 0.70 (See Table 3). According to Harris (1996), items that were answered correctly by over 92% of students (extremely easy) or by less than 30% of students (extremely difficult) were typically disregarded because they did not significantly contribute to the test's measurement function. Consequently, the difficulty index of the vocabulary learning test was acceptable.

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Discrimination Index

Item discrimination was calculated to assess how effectively each item distinguishes between high and low achievers on a test. It was found in this test that the item had a confident discriminating power. None of the test items had a zero or a negative discriminating power. According to Harris (1996), the variation of each item reaches its maximum when difficulty index=facility index = (0.50). He also identified that the discrimination index is considered low if it ranged between (0.20) to (0.40), medium if it ranged between (0.40) to (0.60), and high if it is more than (0.80). So, discrimination index was found to be satisfactory as it ranged between (0.60) and (0.93). For the index of difficulty, index of facility and item discrimination, see Table (3).

Table (3) Indices of Difficulty, Facility and Discrimination of the Pre-post Vocabulary Learning Test

Item	Facility	Difficulty	Discrimination
1	0.70	0.30	0.80
2	0.60	0.40	0.60
3	0.57	0.43	0.86
4	0.67	0.33	0.66
5	0.53	0.47	0.93
6	0.70	0.30	0.60
7	0.53	0.47	0.93
8	0.70	0.30	0.60
9	0.63	0.37	0.73
10	0.67	0.33	0.66
11	0.70	0.30	0.60
12	0.57	0.43	0.86
13	0.30	0.70	0.60
14	0.70	0.30	0.60
15	0.67	0.33	0.66
16	0.60	0.40	0.60
17	0.70	0.30	0.60
18	0.44	0.56	0.86
19	0.30	0.70	0.60
20	0.70	0.30	0.60
21	0.63	0.37	0.73
22	0.44	0.56	0.86
23	0.67	0.33	0.66
24	0.37	0.63	0.73
25	0.67	0.33	0.66

Item	Facility	Difficulty	Discrimination
26	0.63	0.37	0.73
27	0.57	0.43	0.86
28	0.67	0.33	0.66
29	0.53	0.47	0.93
30	0.70	0.30	0.60

B. The Pre-post Vocabulary Use Test (See Appendix B)

The vocabulary use test was developed the by the researcher.

Test Objectives

The test sought to assess EFL fourth graders' 1) use of the suitable words according the context, and 2) use of vocabulary items to form correct sentences.

Construction

The test was designed according to the sub domains of vocabulary use and the content areas that were included in the program. It involved twelve items signifying the most important and emphasized objectives of the program. The test was developed in the light of to a table of specifications. The answer key was attached to the test (See appendix B).

Piloting the Test

The test was piloted on 30 pupils enrolled at fourth year Shalaby Primary School at Minia Governorate apart from those allotted to the experiment. The pilot study was done two weeks before the experimentation. It aimed to figure out the validity and reliability of the test and determine the test time.

Item Type

The test included 12 items, 4 completions with one word items, 2 completion with a sentence items, 6 sentence formulation items.

Scoring

A point is given for each correct completion with one word item. Two points are given for each correct item whether completion with a sentence, or sentence formulation item. The total score is 20 marks.

Time

Throughout the pilot study, the researcher estimated the time each student took to complete the test, finding that on average, it took 45 minutes to read the tasks and fill them up.

Instructions

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Both the instructions of the test and the test itself were written in English. They were concise, understandable and free from any probable ambiguities. The instructions contain a concise introduction to make it simple for the participants to answer the test. They also contain information about the time allotted to complete the test.

Validity

- **Content Validity**

The content validity of the test was assessed by a panel of seven TEFL experts who evaluated its validity based on the following criteria:

- a) The Linguistic formulation of items.
- b) Whether the items effectively assessed the targeted objectives.
- c) The appropriateness and relevance of the items for the participants.
- d) The adequacy of item coverage for the skills tested in the test and
- e) The suitability of model answers.

After incorporating the suggested modifications by the jury members, they confirmed the suitability and applicability of the test. Some of the jury members suggested replacing some difficult words with more easy ones.

- **Internal Consistency of the Vocabulary Use Test**

After conducting the pilot study, the collected data was used to determine the internal consistency of the vocabulary use test, including the correlation coefficient between each test item and the total score of the test, after subtracting the degree of this item from the whole test. The results are as shown in the following table (4):

Table (4): The Internal Consistency between each Item and the Total Vocabulary Use Test (N=30)

Item	Correlation item-total correlation	Item	Correlation item- total correlation
1	0.63	7	0.32
2	0.28	8	0.26
3	0.24	9	0.35
4	0.43	10	0.20
5	0.34	11	0.41
6	0.29	12	0.26

Reliability

Deciding the reliability of the test was done after conducting the pilot study, the data gained was calculated and the reliability coefficient reached

0.72, which was considered acceptable. The reliability coefficient of the test score was estimated by Alpha Cronbach method.

Difficulty Index

Responses to individual items were examined to estimate item difficulty index of the test. The difficulty index of this test as a whole is 0.36, it ranged from 0.30 to 0.70. See table (5). Harris (1996) stated that items correctly answered by at least ninety two percent of the students (excessively easy) or those answered by less than thirty percent of the students (too difficult) will be put apart as they do not function significantly to the measurement of the test. Therefore, the difficulty index of the vocabulary use test was acceptable.

Discrimination Index

The item discrimination was computed to assess how effectively each item differentiates between high and low achievers on a test. It was observed that the item has a confident discriminating power, with none displaying zero or negative discrimination.

It was observed that the item demonstrates positive discriminatory ability. The discrimination index was deemed acceptable, falling within the range of 0.60 to 0.93. Table 5 presents the difficulty index, facility index, and item discrimination data. Discrimination index was proved to be satisfactory as it ranged between 0.60 and 0.93. Table (5) shows index of difficulty, index of facility and item discrimination.

Table (5) Indices of Difficulty, Facility & Discrimination of the Pre-Post Vocabulary Usage Test

Item	Facility	Difficulty	Discrimination
1	0.70	0.30	0.60
2	0.70	0.30	0.60
3	0.67	0.33	0.60
4	0.70	0.30	0.60
5	0.70	0.30	0.60
6	0.67	0.33	0.66
7	0.44	0.56	0.86
8	0.60	0.40	0.80
9	0.67	0.33	0.60
10	0.70	0.30	0.60
11	0.56	0.44	0.86
12	0.53	0.47	0.93

The Multimodal Program

(See Appendix C)

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The construction of the program went through the following procedures:

1. Reviewing literature and previous studies related to: Multimodality, Vocabulary Learning and Vocabulary Use.
2. Conducting content analysis of the first term text book "Connect 4" of fourth year elementary school pupils.
3. Reformulating the content of the term textbook "Connect 4" using multimodality.
4. Establishing the content validity of the program by having it assessed by five TEFL staff members.
5. Assigning the treatment group and non-treatment group.
6. Administering the pre-tests.
7. Teaching the program
8. Administering the post-tests.

General Objectives

1. Listen about foods and how to keep healthy.
 2. Read about foods and how to keep healthy.
 3. Search about foods and how to keep healthy.
 4. Write about foods and how to keep healthy.
 5. Practice making sentences with 'and' or 'but'.
 6. Read and listen to a Chinese fable.
 7. Distinguish between long and short vowels.
 8. Talk about a place in Egypt.
 9. Research and make a presentation.
 10. Listen about desert animals.
 11. Read about desert animals.
 12. Research about desert animals.
 13. Write about desert animals.
 14. Practice making comparisons.
 15. Differentiate between the /p/ and /b/ sounds.
 16. Describe " Camels" and " Horses"
 17. Use fractions to express about recipes.
 18. Write a fact file.
 19. Research and make a poster.
 20. Listen about plants and how they help us.
 21. Read about plants and how they help us.
 22. Talk about plants and how they are beneficial.
-

23. Practice making sentences with the superlative.
24. Listen to a short story and answer post listening questions.
25. pronounce words with the consonant blends /sl/ and /sw/ correctly.
26. Write the life cycle of a sunflower.
27. Research and write a short report.
28. Listen about different houses and places in a town.
29. Read about different houses and places in a town.
30. Describe their houses and places in a city.
31. Practice making sentences with prepositions.
32. Read to a short story and answer post reading questions
33. Pronounce words with /f/ and /v/ sounds correctly.
34. Write a short article about their village or city.
35. Research and make a poster about their city.
36. Listen about workers in their community.
37. Read about workers in their community.
38. Write about workers in their community.
39. Be acquainted with the concept of 'electricity'.
40. Practice using demonstrative pronouns in sentences from their own.
41. Practice word stress on two-syllable words.
42. Write about the advantages and disadvantages of dissimilar jobs.
43. Make a report about workers in their community.
44. Read about more jobs.
45. Explore the concept of "industry" and the terms of some common industries.
46. Demonstrate knowledge about prime numbers.
47. Distinguish and pronounce short sounds.
48. Learn about words with the prefix dis-.
49. Write about a job they want to do.

Content of the Program

- Unit 1: "I feel good"
 - Unit 2 : "Desert Animals"
 - Unit 3 : "Why do we grow plants?"
 - Unit 4: "Where do you live?"
-

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- Unit 5 : "Where do you work?"
- Unit 6 : "What do you do?"

Strategies for Implementing Multimodality in Teaching Vocabulary

1. **Visual Tools:**
 - Mind maps and word clouds to show relationships between words.
 - Flashcards with images and words.
2. **Auditory Tools:**
 - Listening to songs, jazz chants, stories, podcasts, or dialogues that use new vocabulary.
 - Audio recordings of word pronunciations and sentences.
3. **Kinesthetic Activities:**
 - Role-playing or acting out words.
 - Physical objects to demonstrate meanings (e.g., using a real apple to teach the word "apple").
4. **Interactive and Digital Tools:**
 - Multimedia presentations and videos to introduce and practice new words.
 - Educational apps and online games that focus on vocabulary.
5. **Textual Tools:**
 - Diverse texts, from stories to articles, to expose learners to new vocabulary.
 - Writing activities where learners use new words in sentences or paragraphs.

Teaching Methods

- Pointing and labeling
 - Eliciting Questions
 - Non-eliciting questions
 - Brief definitions
 - Extended usage
 - Visualization / Guided Imagery
 - Mind Mapping
 - Videos
-

- Comic Strips

Teaching and Learning Activities

- Word Guessing Game
- Information gap activity
- Run to the board activity
- Connect Two Words Activity
- Cross Puzzles
- Hot Seat Activity
- KWL Chart
- Role-Playing
- Think-pair-share

Evaluation Procedures

The researcher used both formative and summative assessment to assess students' progress:

- Formative assessment was conducted throughout the implementation of the program. It was used to make sure that the prescribed objectives had been achieved. It aimed to give feedback to participants on their performance and feedback to the instructor that everything was done as expected. After each lesson was a number of questions that students had to answer to measure how far they had learned and used the assigned vocabulary in the lesson. Additionally the included activities implied in the program sought to continuously assess pupils' vocabulary learning and use e.g " *Run to the Board*" activity which pupils really admired.
- Summative assessment was also conducted. After each unit there was a unit evaluation. Additionally, Summative assessment was also done at the end of the experimentation. To assess how far EFL pupils learned the key vocabulary and had the ability to use the assigned vocabulary in different situations.

Results , Discussion , Recommendations and Suggestions for further research

Results

Testing first hypothesis

The study's first hypothesis anticipated a statistically significant difference between the mean scores of the treatment group and the non-treatment group in the post-test of vocabulary learning, favoring the treatment group.

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The analysis of the collected data using a t-test revealed that the treatment group had significantly greater improvement on the vocabulary learning test compared to the non-treatment group, with a t-value of 13.29, significant at the 0.01 level. Consequently, the first hypothesis is accepted.

Table (6) below shows a summary of the analysis of data gained from the post testing of both groups (The treatment group and the non-treatment one) in the vocabulary learning test and its domains:

1. identifying the spoken and written form of vocabulary items.
2. identifying the part of speech of vocabulary items,
3. identifying the meaning of vocabulary items.

Table (6): Mean Scores, Standard Deviation and t-test values of the post Administration of the vocabulary Learning Test for Both Groups

Group	Dependent Variable	Mean	.D	t. value	.F	sig.	Effect Size (η^2)
Treatment	Spoken & Written Form of Vocabulary	.60	.66	**9.48	8	0.01	.60
Non-treatment		.83	.74				
Treatment	Part of Speech of Vocabulary item	.33	.62	**4.88	8	0.01	.29
Non-treatment		.50	.93				
Treatment	Meaning of Vocabulary items	.77	.06	**8.15	8	0.01	.54
Non-treatment		.43	.79				
Treatment	Relationship between vocabulary items	.55	.54	**11.06	8	0.01	.68
Non-treatment		.00	.41				

Group	Dependent Variable	Mean	.D	t. value	.F	sig.	Effect Size (η^2)
Treatment	Total	21.90	.98	**13.25	8	0.01	.75
Non-treatment		7.80	.25				

** Significant at (0.01) level

As a corresponding procedure to confirm the effect of the multimodal program on EFL fourth graders' vocabulary learning, the effect size of the program was measured using the Eta-Square formula (η^2). As shown in table (6) above, the (η^2) value is 0.75, which is considered highly effective. Nassar (2006) , stated that when Eta- squared value is less than 0.1 the effect size is used to be weak, when it is more than 0.1 and less than 0.6 the effect size is used to be medium, and when it is more than (0.6) the effect size is considered high. So, the effect size displayed that the program was actually efficient and improved pupils' vocabulary learning.

Lastly, there was a statistically significant difference between the participants of the treatment group and those of the non-treatment one in the post administration of all sub-domains of vocabulary learning test, favoring the treatment group, as shown in table (6). The total mean score for the treatment group researched 21.90 while it was 7.80 for the non-treatment one. This confirmed the improvement of vocabulary learning of the treatment due to the use of the multimodal program. Therefore, it can be concluded that the multimodal program positively influenced participants' vocabulary learning.

Hypothesis Two

The second hypothesis anticipated a statistically significant difference between the mean of scores of the treatment group and the non-treatment group in the post-test of vocabulary usage, favoring the treatment group.

The analysis of the collected data using t-test revealed that the treatment group showed a higher degree of improvement than the non-treatment one on the vocabulary use test as t-value is 10.181, which is significant at the 0.01 level. Thus, the second hypothesis is accepted.

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Table (7) below shows a summary of the analysis of the data gained from the post testing of both groups on the vocabulary use test and its sub-skills. They are:

1. Using the suitable words according to the context.
2. Using vocabulary items to form correct sentences.

Table (7): Mean Scores, Standard Deviation, and t-values of the Post Administration of the Vocabulary Use Test of Both Groups (N=30)

Group	Dependent Variable	Mean	SD	t-value	F	sig.	Effect Size (η^2)
Treatment	Using the suitable words according to the context	6	.19	*6.66	8	0.01	.43
Non-treatment		3	.06				
Treatment	Using Vocabulary items to form correct sentences	9	.97	*8.75	8	0.01	.57
Non-treatment		3	.13				
Treatment	Total	15.76	.82	*10.18	8	0.01	.64
Non-treatment		6.20	.43				

** Significant at (0.01) level

To further confirm the impact of the multimodal program on EFL fourth graders' vocabulary use, the program's effect size was measured using the Eta Square formula (η^2). As indicated in table (7), the (η^2) value is (0.64), signifying a considerable effect. This effectiveness is possibly due to the implementation of the multimodal program.

Finally, a statistically significant difference was detected between the treatment group and the non-treatment group in the post-test results for all sub-aspects of vocabulary usage test, favoring the treatment group. As shown in Table (7), the treatment group had a mean score of 15.76, while the non-treatment group had a mean score of 6.20. This indicated that the

multimodal program significantly improved vocabulary usage of the participants of the treatment group.

Discussion

Results obtained assured the study hypotheses. Participants of the treatment group surpassed their counterparts of the non-treatment one in the post testing of both the vocabulary learning test and the vocabulary use one. The application of the multimodal program had obviously affected participants' vocabulary learning and use.

Analyzing results gained by the treatment and the non-treatment groups using t-test confirmed that the participants of treatment group performed better than their peers of the non-treatment one. Consequently, the two hypotheses of the study were accepted. In addition, t-test results of the treatment group's vocabulary learning and vocabulary use posttests displayed how far the program was effective.

The features of multimodality helped to facilitate language learning in a non-threatening environment. This in turn helped to lower participants' affective filter and hence promoting language acquisition and learning. Using strategies and methods like mind mapping, comic strips, videos and KWL chart supported participants to link their previous knowledge of vocabulary items with new ones, organize them in their mental construction and then remember them easily.

Moreover, multimodal teaching, which includes hands-on and interactive experiences, offers learners with opportunities to actively engage with and construct their knowledge. This approach aligns with the principles of constructivism (Mogashoa, 2014). Multimodal teaching and constructivism theory are compatible approaches to education, as they both support the lively creation of knowledge by the learner.

The visual aids used in the program such as images, videos, flashcards helped in creating mental associations with words. Fostering pupils' pronunciations through songs, audio recordings helped to improve pupils' recall. Engaging pupils in hands on- activities using gestures helped to reinforce memory through physical actions.

Mid maps represent an idea and task with a minimum of words; this means that the brain is used to relate images with vocabulary items. The colors and images used in mind maps help participants to make association, create connections between words and remember them for future purposes. For example Energy Resources were classified into non-renewable (gas, oil,

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coal) and renewable energy resources (wave energy, solar energy, and wind energy). This classification helped students to remember them easily.

A KWL table is separated into three pillars; the first pillar, 'K', is for what the students already know about the topic. The second pillar, 'W', is for participants to list what they want to know about the topic. These two steps are completed before reading. The third pillar, 'L', is for what the participants learned from reading. This last step is done after concluding the reading. KWL chart helped participants to build new information based on their prior knowledge.

Most students enjoy puzzles. The process of using word puzzles in the classroom activates the memory and help students to retain the largest potential number of vocabulary items associated to the topic. For example, when the lesson was about food, they remembered all kind of food that they learned such as fish, chicken, rice, onion, watermelon, sugarcane, mango, grapes, banana..etc.

When it comes to vocabulary, video represents an effective media that can assist in improving vocabulary learning and teaching. Thus, it is often preferred as a multimedia learning device. Videos today are not only essential to everyday life but also perceived as an effective method for teaching English as a foreign language to learners both inside and outside the classroom.

During the implementation, it was observed that using the multimodal program helped all participants especially shy ones to share with their friends to complete the tasks. All groups had friendly competition in using vocabulary in sentences. They read vocabulary with correct pronunciation, solve word puzzles, use vocabulary orally and in writing as well such as writing the life cycle of a sunflower. They wrote a short article about their city and what they expected to be in the future.

In short, multimodality proved to enhance vocabulary learning, use, comprehension and engagement by catering for various learning styles and providing contextual and interactive experiences. Therefore, by integrating visual, auditory, kinesthetic and textual methods, teachers can create a rich and effective learning environment that supports the diverse needs of learners.

It is proved from the study findings that the multimodal program managed to enhance EFL fourth graders' vocabulary learning and use . This conclusion comes in accordance with Bansong, Poopatwibsoon and

Sukyng (2023); Hariyono (2020); Mohammad , Abdel-Haq and Al-Hadi (2018); Aghaei and Goughlani (2016); Tabar and Khodareza (2012) ;Shao (2012) and Zarei and khazaei (2011). The program also managed to enhance fourth graders' vocabulary use this conclusion comes in accordance with Kessler (2022).

Implications

The discussion above attempted to demonstrate the value of using multimodality in the elementary EFL classroom. However, the next step is for the teacher to successfully integrate multimodal strategies into a language lesson. EFL teachers have to use different methods to meet an individual's area of strength in order to be more successful.

The EFL teacher is advised to take into consideration the following points when planning activities to young learner:

1. The developmental stage of learners.
2. Keep activities simple, achievable but stimulating
3. Focus on the oral with lots of listening.
4. Use written activities sparingly.
5. Use lots of games, songs, jazz chants with actions, videos, audio and visual aids, TPR activities, coloring, cutting, sticking activities, simple repetitive stories, and simple repetitive speaking activities with communicative value.
6. Develop the four language skills
7. Use wide range of topics
8. Encourage learners' vocabulary learning and use whether in oral or written activities.
9. Focus on communicative aspects.
10. Strive to promote a relaxed atmosphere inside the classroom to lower learners' affective filter.

Challenges

Despite the positive results of this study, several challenges have to be mentioned:

1. The use of multimodality inside the classroom requires much time to plan as to cater for pupils' preferences and learning styles.
2. It may consume classroom time as some pupils may get out of order unless they are oriented at the very beginning with the different modes they are supposed to encounter.

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3. Enough instruction has to be given to pupils before each intervention.
4. Constructive feedback has to be given to pupils after each activity to foster pupils' vocabulary learning and use.

Recommendations

The following recommendations were presented:

1. Attention should be focused on the use of vocabulary strategies.
2. More attention should be directed to the use of multimodalities in order to meet all learning styles.
3. Vocabulary use activities in the elementary stage should be conducted throughout the term.
4. EFL Fourth graders have to obtain more semantic and directed training in language learning.
5. More emphasis has to be given to multi-sensory learning for the purpose of longer learning of vocabulary.
6. EFL learners have to be given actual opportunities for enhancing their vocabulary.
7. EFL teachers have to encourage learners to perform and use vocabulary in interactive activities such as role-playing, storytelling ...etc.
8. EFL teachers have to encourage inspiring learners to make vocabulary galleries.
9. Using computer technologies, real objects and realia is highly recommended.
10. Learning vocabulary has to be conducted in many different contexts and through a variety of exposures by providing learners with situations to use words repeatedly and in more than one context.
11. EFL teachers should encourage learners to read, watch films and note the useful words.

Suggestions for further Research

In the light of the results of the present study, the following topics are suggested areas that need further investigation:

1. The current study can be replicated with a large group of EFL fourth graders.

2. A study to examine the impact of using multimodality on developing language skills e.g. listening, speaking, reading, writing.
3. A study to explore the effect of utilizing multimodality on EFL primary school pupils with special needs is needed.
4. A study to examine the effect of utilizing Multimodality on developing EFL elementary school pupils' self-esteem and motivation.
5. A study to explore the effect of using Multimodality on developing EFL elementary school pupils' learning engagement.
6. A study to explore the effect of using Multimodality on enhancing EFL elementary school pupils' cultural awareness.
7. More studies have to be directed to issues like retaining information

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