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Investigating the impact of annotations on EFL learners' lexical competence

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Abstract

The acquisition of vocabulary in a second language (L2) poses significant challenges for learners, often requiring substantial time and effort. Traditional methods, such as dictionary usage, have been supplemented by innovative approaches like Computer-Assisted Language Learning (CALL), which incorporates multimedia annotations to enhance the learning process. This study investigates the impact of such annotations on the lexical competence of English as a Foreign Language (EFL) learners. Employing a controlled experimental design, two groups of EFL students were taught vocabulary using different methods. The experimental group received instruction through multimedia annotations, while the control group learned through traditional methods. The results were analyzed using paired-samples t-tests to compare pretest and post-test performance. Findings indicate that the experimental group showed significantly greater improvement in vocabulary retention and comprehension compared to the control group, underscoring the effectiveness of multimedia annotations in fostering vocabulary acquisition in EFL contexts.

Keywords: Vocabulary acquisition, EFL learners, computer-assisted language learning (CALL), multimedia annotations, lexical competence

Introduction

Compared to more conventional approaches like using a printed dictionary, teaching and acquiring vocabulary is a difficult process. A large amount of a learner's time is spent developing their vocabulary. There are ways to lessen this load for language learners, especially those who are studying a second or foreign language. In the past, students used dictionaries to independently look up the definitions of unfamiliar terms. The phases of vocabulary education are outlined as presentation, practice, and output in [Baker and Westrup, 2003] ^[8]. First, the instructor gives a presentation on the new terminology. Next, using activities (practice), the teacher assesses whether the pupil has understood. Lastly, educators urge pupils to put words into context and connect them to their own experiences (production) (p. 37).

Hypermedia annotations provide several advantages. A research by [Abraham, 2008] ^[1] and [Davis, 1989] ^[16] demonstrated the general positive effects of computer-mediated text glossing in lexical support for second language (L2) reading comprehension and vocabulary acquisition. Pupils who used the gloss tool either before or during reading comprehension were able to recall more of the material [Davis, 1989] ^[16] than those who did not. Instructors ought to pay more attention to the variety of learning materials that are available to support vocabulary growth. In addition to traditional vocabulary teaching strategies like bilingual lists, teachers should think about integrating technology into their lessons. Teachers can alleviate the time-consuming and difficult process of vocabulary training by employing the CALL (Computer-Assisted Language Learning) approach. This allows teachers to focus more on the needs of language learners. Therefore, electronic dictionaries, complex multimedia texts, and a variety of vocabulary development applications allow vocabulary teachers to leverage technology to a large extent.

According to [Read, 2000], empirical research is necessary to evaluate how different teaching methods affect vocabulary acquisition, especially when it comes to L2 learners' capacity to deduce new or extra meanings from target words in context. This implies that further pertinent study has to be carried out.

It is crucial that scholars and educators in the classroom look at the ways that visuals might support the acquisition of foreign languages. This study looks into how annotations affect the lexical competency of EFL students. According to [McCarthy, 1990], a diverse vocabulary is required to communicate various meanings. As a result, comprehension of articles, journals, and other written works requires a solid vocabulary. Additionally, L2 pupils require a sufficient vocabulary in order to handle written communications, listening messages, and debates.

As they frequently carry dictionaries rather than grammar references, L2 students must comprehend the importance of vocabulary for understanding L2, according to [Krashen, 1989] ^[23]. L2 pupils having a large vocabulary outperform those with restricted vocabulary in terms of both receptive and productive abilities. This experience is still a vital and interesting component of learning. Nonetheless, computer based electronic picture books -also referred to as "digital books," "living books," "talking books," or "CD-ROM picture books" -are becoming a more popular tool for teaching young readers. It's becoming obvious that kids can learn to read with the aid of these digital books.

In light of this change, future studies will concentrate on helping preschoolers who are at risk for learning difficulties (ALD) recognize stories and expand their vocabulary in contrast to children who are normally developing (TD). This study will specifically look at the viability of digital books. Children's books that are adapted for digital reading are printed in higher resolution. They have two options: they can offer new media features or exactly duplicate the text and layout of the print edition.

Related Works

Computers may instruct students at various levels in a variety of linguistic and cultural subjects depending on the application ([Hayati, 2005], p.1) ^[19]. New methods for teaching and studying foreign languages have been brought about by the growth of the Internet and other network communication technologies. According to [Hayati, 2005] ^[19], computers' capacity is the single thing limiting how much data they can store (p.1). This feature offers a great chance to utilize computers in conjunction with other audiovisual aids as complementing instruments for teaching languages. Speaking another language -especially English - is a way to share interests, ideas, and thoughts rather than being an aim in and of itself. English is a language that is spoken all over the world and is now more of a social than a linguistic phenomena. It is not the "lord of the mansion," but rather serves as a butler who helps with conversation. English bridges geographical and cultural divides by connecting individuals from all over the world, much like the Internet does. Through the integration of individuals with different wants and nations, network and speech technology have revolutionized modern living. Computer technology and English are both essential to this integration. When teaching vocabulary, it's important to consider the way in which new terms are presented to students as well as their unique learning preferences, age, and gender. The intra and inter-vocabulary characteristics of words also define the lexical survey region. The first thing to do when introducing a new phrase to a student is to get their attention by some means, such reading a passage that uses the word. [Coady, 1997] ^[14] describes this as a beginner paradox, citing a "vicious cycle" in which low reading comprehension

prevents vocabulary acquisition and low vocabulary knowledge inhibits reading. Reading, listening, speaking, and writing are just a few of the language abilities that are greatly enhanced by having a strong vocabulary. Thus, it is essential to carefully choose and include suitable terminology into teaching and learning methods, particularly in the early stages [Harris, 1969] ^[18].

For both native and non-native speakers, vocabulary development and growth must continue even after learning grammar and pronunciation ([Celce-Murcia and McIntosh, 1979], p. 242) ^[12]. In the past, learners were exposed to vocabulary in list form, and the grammar translation approach assessed vocabulary by asking students to find corresponding words in their home tongue. The method used to teach and assess vocabulary changed with time. These days, terminology is frequently included inside of texts. Written or spoken texts are far superior than word lists for expanding one's vocabulary ([Thornbury, 2003] p. 2) ^[46]. The Grammar Translation Method and the early Direct Method relied heavily on vocabulary, but phonetic linguistics and organized curriculum placed more emphasis on the need for model practice than vocabulary. Vocabulary was not prioritized in the communicative approach or the notional/functional curriculum. In the 1980s, discourse analysis and vocabulary research, along with arguments from L1 literature and psycholinguistics, confirmed the use of vocabulary in language learning.

Since the 1960s, computers have been utilized in language instruction in three main periods: integrative CALL, communicative CALL, and behavioral CALL. These phases correlate to different educational ideas and technical developments [Lee, 2000] ^[25]. Numerous scholars have shown interest in CALL, which has been actively used for reading in second languages (L2) and foreign languages (FL) through tutorials that provide a variety of on-screen exercises ([Son, 2001], p. 28) ^[44]. A different word for CALL, Technology Enhanced Language Learning (TELL), first appeared in the early 1990s. It was believed to better appropriately characterize activities that were under the purview of CALL. In the subject of CALL, questions of how to employ various media for teaching and learning as well as how to improve language acquisition using computer technology are often brought up. Due of this worry, scholars have been investigating glosses and how they impact vocabulary acquisition. Some of the topics they have been addressing include "Does gloss affect vocabulary learning?" and "What types of gloss positively affect vocabulary retention and recall?" (Chun and Plass, 1996, Davis and Lyman-Hager, 1997, Bowles, 2004) ^[13, 11, 17].

The requirement to commit new words and spellings to memory makes vocabulary acquisition seem tedious to many English language learners [Nguyen and Khuat, 2003] ^[27]. It is difficult for learners to commit such terminology to memory. Multimedia is a common tool used by computer assisted language learning (CALL) systems to boost learner engagement in the process and help relieve this issue. Numerous studies have previously demonstrated the beneficial effects of technology on language learning environments. For instance, [Lasagabaster and Sierra, 2003] ^[24] discovered that students view computer-based language learning favorably. According to several studies [Blake, 2000] ^[9], [Hayati, 2005] ^[19], [Warschauer, 2002] ^[51], integrating technology can help the learning process. The act of reading involves the reader, the text, and their

relationship with one another. First language (L1), second language (L2), and foreign language (FL) literacy all depend on one's ability to read. According to [Aebersold and Field, 1997]^[2], p. ix, reading in L2 or FL is dynamic and interactive, needing learners to employ a variety of skills and methods in addition to prior knowledge, L1-related information, and real-world knowledge in order to comprehend written content.

Reading comprehension, sometimes referred to as comprehension of a passage or text, is described as understanding the text we read ([Phan, 2006], p. 1)^[32] and ([Pakhare, 2007a], p. 1)^[31]. According to ([Kirby, 2007], p. 1)^[22], reading comprehension is the act of deciphering the text in order to facilitate reading and support meaningful learning. According to ([Richards and Schmidt, 2002]^[38], p. 443), understanding of written material happens when we comprehend its substance, which is something that may be done quietly. According to ([Hong, 2007]^[20], p. 15), reading is the process of the reader and author engaging cognitively to create meaning from printed or written contents. Fluent reading is sometimes referred to be an interactive process since it entails a variety of interactions with textual characteristics. Enhancing metacognition, practicing self-assessment, and using questions to evaluate understanding are some strategies for improving reading comprehension. Reading is the named active activity of knowing that is selective in nature.

Understanding what you read is difficult. It takes a thorough evaluation to identify each student's unique strengths and shortcomings in order to modify programs and improve reading comprehension in underachieving pupils. The majority of struggling readers require additional support in a variety of areas, and the foundation of most reading issues is found in the lower elementary school grades ([Kirby, 2007]^[22], p. 6). Students who are unable to read or comprehend may not be able to absorb texts in a meaningful way using the right procedures ([Kirby, 2007], p. 1)^[22].

The Iranian educational system has long placed a high value on reading comprehension, with numerous educational institutions aiming to help students comprehend both academic and popular writings. In order to achieve their professional and other objectives, many people want to understand academic and non-academic writings in the target language. A lot of work is put into teaching students how to correctly comprehend texts written in the target language in centers and laboratories. Strong links have been found in studies looking at the relationship between lexical knowledge and reading comprehension in English as a foreign language (EFL) (e.g., [?], Knight; Krashen, 1989^[23]; Nagy, Nation & Coady, 1988^[47]; Hu & Nation, 2000^[14]). These research found that, rather than a lack of reading skills or grammatical expertise, the biggest obstacle for EFL readers is a lack of adequate vocabulary. According to Nation (2001), in order for comprehension to be successful, 95–99% of the words in a book need to be automatically identified and decoded. These studies look at how context affects vocabulary learned via reading or learning about reading.

Glosses are short explanations or descriptions of word meanings given to help with understanding (Pak, 1986; Nation, 2001)^[31]. They are intended to improve the reader's comprehension by completing knowledge gaps in declarative or procedural areas, sometimes with further grammatical annotations.

They may contain synonyms. Glossaries are useful resources for text comprehension. Video, audio, and picture glossing techniques provide interactive and adaptable ways to display information (Lomicka, 1998)^[39]. Glosses are usually supplied for unknown terms, which helps reader's access material in the most appropriate sequence (Lomicka, 1998, p. 41)^[39]. In some situations, glosses serve as a useful substitute for standard dictionaries. According to Davis (1989)^[16], glosses help students obtain definitions easily since they are included into the text, so they don't interfere with their reading. Noting that hypertext is "invisible and unobtrusive," allowing users to refer to information as needed, he highlights the value of multimedia annotations (p. 42).

In digital books, students may click on connected words to view supplementary text, photos, or videos in the margins that might help them learn tougher vocabulary. The first two kinds and their combinations are the main subjects of this study. An annotation, also known as a gloss, is a note that is placed to a challenging term, phrase, or concept in order to define or explain it. This method enhances vocabulary development and reading comprehension in language learning and teaching. Glosses in the form of audio, video, and image formats are now available through technologically advanced language learning resources (Ariew & Ercetin, 2004)^[6]. Rott and Williams (2003)^[41] at test that glosses often aid in text comprehension rather than impair it. According to Ko (2005), glossing has four advantages: glossing helps readers avoid making incorrect word guesses, reduces reading confusion, defines uncommon words so L2 readers don't have to look them up frequently, and improves comprehension and retention by allowing glosses, readers, and texts to interact. Glossing also promotes more student autonomy by lowering reliance on teachers.

Visuals can aid learners in predicting, inferring, and analyzing information, according to research on the impact of visuals on vocabulary learning (Paivio, 1990; Yoshii, 2006; Akbulut, 2007)^[30, 3]. According to these research, using visuals in the classroom can enhance intelligibility and general student performance while also fostering a social climate that is favorable to novel ideas. According to Bagget (1989)^[7], pictures are remembered, creating referential and associative connections between visual representations and data kept in long-term memory. Students may see their educational experiences in their minds thanks to this dual-coding technique. Pupils frequently create or embellish models of scenarios using textual, aural, and visual symbols in an effort to mentally recreate these experiences. Colored pictures that are associated with familiar places, items, people, events, or animals are preferred by learners since they may be connected to their prior experiences. Images should significantly and clearly illustrate points in order to improve language acquisition. Interpretive and immediately related to the lesson material are qualities of effective visuals. Canning-Wilson (2000) emphasizes that for visual components to be effective, they must be employed effectively. Images should be carefully chosen, appealing to all audiences, and relevant in order to evoke reactions from pupils. Students ought to be at ease discussing the fundamentals of imagery in their own tongue.

Different processing techniques are needed for recognition and memory tests, which are frequently used to measure vocabulary.

Multiple choice questions and other recognition assessments help strengthen memory imprints by having students select the right response from a list of possibilities. Recall examinations, on the other hand, require students to provide answers from memory. This is a harder task since it requires them to locate the right answers among recently learned material. Chun and Plass (1996) ^[13] point out that learners' memory recall may be greatly improved by mixing lexical elements with multimedia input. The idea behind their research is that words stored in two modes -such as visual and auditory -learn more quickly than those encoded in one mode. The effect of CALL (Computer-Assisted Language Learning) glossaries on vocabulary acquisition has been the subject of several research. According to Paivio (1990) ^[30], learning words both verbally and graphically improves memory retention and vocabulary usage more than learning them in a single method. He contends that the learning process becomes richer and more meaningful when target words are associated with relevant non-verbal references, such as pictures, objects, events, and emotions (Oxford & Crookall, 1990, pp. 16-17) ^[30].

Davis (1989) ^[16] looked at the possibility of peripheral glosses helping middle school and college students who are reading literary texts in a foreign language understand them better. Three groups were randomly allocated to 201 college-level French students in her study: A gloss group, a vocabulary-help-before-reading group, and a control group. After reading the chapter and making a note of what they recalled, the first group read it again and again. After ten minutes of vocabulary study, the second group spent fifteen minutes reading as many phrases as they pleased. For twenty five minutes, the third group could read the material as many times as they wanted and had access to a glossary.

For twenty-five minutes, the third group could read the material as many times as they wanted and had access to a glossary. In comparison to the control group, the results demonstrated that the vocabulary guide and glossary both considerably increased text recall. In conclusion, Davis states on page 45 that the use of glosses "allows you to read selections more fluently". Reinking and Rickman (1990) ^[37] investigated the effects of vocabulary learning and understanding among secondary school students when text was shown on a computer screen that supplied definitions for challenging terms. In this study, students were divided into four groups at random: reading printed material with a dictionary or glossary; reading text on a computer screen with required or optional help for difficult terms. The findings showed that students' performance on vocabulary tests was much higher when they read texts with computer support.

According to Hulstijn's (1993) research, readers seldom verify words whose meanings can be derived from context, while they often refer to terms whose meanings cannot. Chun and Plass (1996) ^[13] used a hypermedia application to read German texts while 160 German university students were used as subjects to examine the impact of multimedia comments on vocabulary development. Their studies concentrated on the link between performance on vocabulary exams and the retrieval behavior of annotated vocabulary items, as well as the efficacy of various media types for vocabulary learning. They discovered that terms with text and video annotations were easier to recall. According to Hulstijn, Hollander, and Greidanus (1996), advanced language learners pick up new words slowly.

They suggested use glosses to raise these success percentages. 78 senior French students from three institutions participated in the experiment. They were split into three groups: a control group, one that had access to standard dictionaries, and one that had text glosses. In spoken texts, 16 high-frequency and 16 low-frequency target words were included in the research. Three post-tests assessed target word knowledge, recognition, and recall as well as prior knowledge. The frequency of occurrence, having access to glossaries, and using dictionaries were found to have a favorable effect on incidental vocabulary learning. Given that pupils frequently did not utilize dictionaries, glosses were shown to be more useful than the latter.

Watanabe (1997) ^[53] examined the effects of activities and text alterations on the learning of L2 vocabulary for reading comprehension. Two control conditions, two task variants (translation, no translation), three gloss kinds (suitable, multiple-choice gloss, no gloss), and 10 conditions were randomly assigned to 231 Japanese-speaking students. The results demonstrated that on vocabulary post-tests, pupils who had access to glosses fared better than those who did not. According to Lomicka (1998) ^[39], the idea of glosses originated in the middle Ages when pupils commented literature written in other languages to help with comprehension. She conducted research at an American institution on the effects of multimedia reading software on French language learners' reading comprehension. Twelve participants were split up into three groups for her pilot study, which demonstrated how multimedia annotations aided in the creation of situational models and the comprehension of written material.

In their study of the impact of vocabulary type in multimedia situations, Plass, Chun, Mayer, and Leutner (1998) ^[33] investigated learners' propensity to acquire target words when presented with text and picture or text and video glosses. The study, which involved 103 college students in the United States, discovered that learners performed best when they had access to both verbal and visual glosses -specifically, text and picture glosses as opposed to text and video. Chun, Mayer, and Leutner (1998) ^[34] investigated the effects of various gloss kinds on students' preferred strategies of reading comprehension and learning new words. They examined 103 German language learners who finished vocabulary and comprehension post-tests after reading digital texts with glosses. Multimedia annotations improved situational model development and comprehension of textual content, according to the study.

The study data included a list of the annotation kinds that the participants had used. Based on their preferences, the participants were split into three groups: visualizers, verbalizers, and those who were unsure about their choice. The findings demonstrated that when given both textual and visual information, participants did the best on post-tests; when given only one mode, they did reasonably well, and when given neither, they did badly.

The study involved three types of glosses

1. Text-only gloss (L1).
2. Image-only gloss.
3. Text (L1) plus image.

The research included fifty-six American college students studying German. They were split up into three treatment

groups, and while reading a 272-word text with 20 glosses, each group received a varying amount of gloss. With 14 target words per test, participants performed two vocabulary assessments: one right after reading and the other two weeks later. Both recognition (selecting from a variety of meanings) and creation (supplying definitions) were tested. Overall, the results showed that individuals who got glosses in both text and picture fared better than those who just received glosses in text or image. The outcomes confirmed that utilizing both text and picture glosses together is preferable to using just one modality.

Methods

In this section, we detail the methodology employed in this study, aiming to elucidate the processes involved in participant selection, materials utilized, data collection, and data analysis.

Participants

The present study used two intact classes from a language school. The language learners were 94 in all. All of the 94 EFL learners were also pre-tested for language proficiency and homogeneity. After reviewing the test results, 70 of EFL learners were identified as test passers. The researchers then included her 35 language learners in the trial group and held back the other 35 language students. And that was it! The experimental groups were taught vocabulary by means of annotations. For the control group only traditional instruction of vocabulary items was given.

Instrument and Materials

The measures that researchers used during the course of entire study;

1. A vocabulary pretest was given to verify the competency and equivalence of all participants. 25 95% Confidence Interval for Mortality Rate of Satisfactory The estimated confidence factor was 0.
2. A post-test of vocabulary was given to measure each participant's potential for learning new words. Confidence Factor For The Test: 0.83

Data Collection Procedure

Before the implementation of the study, basic vocabulary comprehension level of the 94 learners was ascertained through a pretest. The confidence factor for the test was 0% as their turnover was neglected by their management due to low contribution to the company's profits. 85. Analyzing the results, the researchers selected 70 of the EFL learners and randomly assigned them to two groups of 35: a variable independent group which is experiment and a variable dependent group which is the control. Vocabulary was taught under the annotations to the test groups. The control group provided with only the traditional approach of instruction of the vocabulary items.

Thus, the participants in the experimental group expanded their lexical competence with the help of annotations. Their teachers were always watchful of the learning process they were undergoing and assisted them on the vocabulary items which they were mastering. The experimental group, as for the acquisition of the vocabulary items, they learned from what the teacher considered as the annotation. The subjects in the control group were exposed to the same words as the subjects in the experimental group; however, they did not get any annotations.

The entire specification of the experiment was two months. At the end of this period, all the subjects in both the groups were given a vocabulary post-test. The confidence factor for the test was zero. 83.

Data Analysis Procedure

The present study used the following statistical procedures to analyze the data: The present study used the following statistical procedures to analyze the data:

1. Cronbach's Alpha a reliability index which measures the internal consistency, or the proximity of the items. It is actually used to assess the degree of scale reliability, which in this case is low. In this study it was used to calculate the reliability amount of not only the pretest but also the post-test.
2. Research design: An Independent Sample T-Test was used for the analysis of the results that compared the mean score of the experimental group with that of the control group's on the post-test so as to compare if there was sufficient statistical proof that the means of at least two populations of samples were not equal and hence test the research hypothesis.

Data Analysis and Results

In this section, we focus on data analysis and the results obtained. Specifically, we examine the findings related to the potential impact of annotations on the lexical competence of EFL learners.

Results of the Study

The findings section of this research study aims at conducting pre and post-test that will help in the collection of data. A paired-samples t-test is then done to compare the performance of the two groups of participants on the pre-test and the post-test. First, to verify the interior reliability, the researchers applied his Cronbach's alpha to the pretest and post-test confidence coefficients. The preliminary exam was a vocabulary test. This test was conducted to confirm the proficiency and uniformity of the participants. The pretest confidence factor value was 0.85 based Cronbach's alpha coefficient. After testing, the confidence factor was 0. This made researchers have the much needed confidence in identifying the right statistical population to a given study. Finally, at the end of the experimental treatment period, all subjects in the experimental and control groups were given a post-test. The data which were obtained were analyzed through an independent sample t-test procedure in order to determine if the post-test performances of the two groups differed significantly in terms of their means, which it did. found out whether there was any Then, the researchers aimed to analyse the results of the pre-test and the post-test which were administered to both groups of participants using paired samples t-test.

Analysis of Both Groups' Performances on the Pretest

Performance between the experimental and control groups on the pretest was similarly matched, with participants from both averaged nearly identical mean scores. The experimental group has a mean score of 11.78 and the control group an average value of 11.80 The Sig. (2 tailed) value is. As the p-value, 572 is greater than 0.05 Consequently, language proficiency on the pretest did not differ significantly between the two groups.

Table 1: Descriptive statistics for both groups' performances on the pre-test

Groups	N	Mean	Sig. (2-tailed)
Experimental	35	11.78	.765
Control	35	11.80	

Analysis of both Groups' Performances on the Post-test

According to the outcomes of the post-test, it was evident that the experimental group outperformed the control group. Thus, it is necessary to point out that the given annotations contributed to the development of the EFL learners' lexical richness.

To augment, the findings highlighted that Sig. (two-tailed) value was 0. It ranges from 0.000 and less than 0.05, which is in par with the other variables, felt that teaching through annotations was very helpful in the learning of EFL among the learners in the experimental group. Therefore, the study's hypothesis that stated that the annotations do not have an impact on EFL learners' lexical development was not supported.

Table 2: Descriptive statistics for both groups' performances on the post-test

Groups	N	Mean	Sig. (2-tailed)
Experimental	35	17.89	.000
Control	35	12.34	

Conclusion

This study explored the efficacy of multimedia annotations in enhancing the vocabulary acquisition of EFL learners, comparing it against traditional vocabulary teaching methods. The results clearly demonstrate that students exposed to vocabulary through multimedia annotations exhibited significant improvements in their lexical competence compared to those who learned through traditional methods. Specifically, the experimental group not only showed higher retention rates but also a deeper understanding of the vocabulary items, as evidenced by their post-test performances.

The integration of multimedia annotations in vocabulary instruction appears to not only make the learning process more engaging but also more effective. This supports the hypothesis that technological enhancements in language education, particularly through the use of computer-assisted language learning tools, can provide substantial benefits in vocabulary acquisition. These findings advocate for a more pronounced integration of CALL methodologies in language classrooms, especially those focused on vocabulary teaching. Moreover, the study contributes to the ongoing discussions in the field of language education about the optimal approaches for vocabulary teaching and highlights the potential for digital tools to complement and, in some cases, replace traditional methods. Future research should further investigate the long-term effects of using multimedia annotations and expand the scope to different languages and learner demographics to validate and extend these findings. In conclusion, the use of multimedia annotations represents a promising avenue for enhancing the efficiency and effectiveness of vocabulary learning in EFL contexts. As such, educators and curriculum developers are encouraged to incorporate these tools into their teaching practices to improve learning outcomes and better meet the needs of diverse learner populations.

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