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Investigating the Effectiveness of Using Corpus-Based Developed Materials in Vocabulary Learning for Saudi EFL Students

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ABSTRACT

Many studies have employed corpus linguistics methodologies to gain insights into L2 learning and teaching. While these studies have contributed to a comprehensive theoretical understanding of corpus use in L2 instruction, particularly in vocabulary learning, there remains a gap in practical application, especially within the context of English as a Foreign/Second Language (EFL/ESL). Therefore, this paper empirically examined the effectiveness of using the corpus approach for EFL students' vocabulary development and explored students' attitudes toward using a corpus to develop their vocabulary. In a five-week experimental study, involving 24 Saudi EFL female students, participants were evenly divided into two groups: the control and experimental groups. These objectives were investigated using a mixed-method design, comprising both quantitative and qualitative approaches, which included pretests, posttests, questionnaires, and diaries for the experimental group only. Data were statistically analyzed using the SPSS program (v.25), incorporating *T-tests* and descriptive statistical analysis, alongside a descriptive analysis of learners' diaries to corroborate the questionnaire findings. The findings showed that both groups revealed improved vocabulary during the study period based on the post-test results, but favored the experimental group that received the corpus-based approach. Furthermore, the attitudes questionnaire's results showed most students held positive attitudes toward using the COCA corpus for vocabulary learning, despite facing some difficulties, which, as described in their weekly diaries, could be overcome over time through practice and training.

Keywords: Vocabulary learning; Corpus; Corpus-based approach; Traditional approach; Students attitudes

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1. Introduction

In the realm of language acquisition, the importance of vocabulary cannot be overstated. Researchers and instructors have long recognized the significance of vocabulary acquisition in foreign or second language (FL/L2) learning. Tiansoodeenon, et al., (2023), along with Nation (2001), have emphasized that vocabulary is a fundamental factor for proficiency in both first and second languages, as it forms the foundation of language abilities, including listening, speaking, reading, and writing. In addition to that vocabulary knowledge plays a significant role in various contexts, facilitating effective communication and enhancing comprehension. According to Woodeson, Limna, and Nga-Fa (2023), communication becomes challenging without a robust vocabulary, as expressing feelings and thoughts relies heavily on acquiring an adequate number of words.

Despite serving as the cornerstone of effective communication, facilitating the conveyance of ideas and concepts across linguistic boundaries (Awal et al., 2014), historical pedagogical approaches often relegated vocabulary instruction to the sidelines, prioritizing grammar teaching instead (Zimmerman, 1997; Allen, 1983). This traditional paradigm, rooted in the belief that vocabulary acquisition would naturally occur through exposure to grammatical structures, has undergone a significant transformation in recent years. Zhan (2008) emphasized the impact of adopting convenient teaching methods and materials on enabling learners to acquire a much deeper impression and richer information about target words, making it easier for them to be saved and retained in the long term.

Moreover, according to Hulstijn and Laufer (2001), the predominant method through which learners effectively acquire new vocabulary is exposure to language input, particularly through reading input, rather than the deliberate and complex process of memorization. It is widely believed that one of the crucial resources for delivering this language input, characterized by authenticity and abundance, is the corpus-based approach, which is considered a groundbreaking teaching method in EFL classrooms (Sinclair, 2004).

Accordingly, over time, scholars, researchers, and language educators have developed new perspectives on language exploration. This coincides with the advent of technology, particularly the invention and proliferation of electronic corpora, which have revolutionized language instruction by foregrounding vocabulary as a fundamental component of language learning (Youssef, 2020; Schmitt, 2000, 1997; Coady and Huckin, 1997; Huckin, Haynes, and Coady, 1995; Arnaud and Bejoint, 1992; Nation, 1990; Carter and McCarthy, 1988; Tongpoon, 2009; Al-Jarf, 2007). Most significantly, complex language analyses are now quicker and simpler than ever because of the availability of corpora to anyone with access to a computer (Idrizi, 2020).

In recent decades, corpus linguistics has emerged as a powerful tool in language education, offering valuable insights into language usage patterns and facilitating more effective vocabulary instruction (Boulton, 2020). These tools provide authentic language samples, empowering learners to explore vocabulary in context and enhancing their autonomy in learning (Fuyuno, 2013; Craig, 2011). Through corpus consultation, learners can also develop a more nuanced understanding of word meanings and usage patterns (Anthony, 2017). Additionally, corpus-based activities, such as concordance analysis and collocation exercises, provide learners with opportunities to engage actively with language data, leading to improved retention and application of vocabulary knowledge (Biber et al., 1999). As a result, educators are increasingly recognizing the value of integrating corpus-based approaches into vocabulary instruction to foster more immersive and dynamic learning experiences (Demirel and Semin, 2015), as well as to create more effective learning environments that cater to the diverse needs of language learners (Hunston, 2002).

Recently, language educators and researchers have shifted their focus towards learner-centered strategies that aim to enhance vocabulary acquisition as well as establish more dynamic approaches (Nazeer, Mukhtar, and Azhar, 2023; Schmitt, 2010;

Nation, 2001). Therefore, recent studies have shed new light on the potential of corpus-based learning to enhance vocabulary acquisition. In addition, For instance, research by Sibel and Sofu (2023) demonstrated that incorporating pedagogical corpora has significant potential in facilitating vocabulary learning of low-level learners. Similarly, Shah (2024) explored the effectiveness of corpus-driven learning in teaching lexical collocation, showing that corpus-based methods positively enhanced the knowledge of lexical collocations more than other strategies. Therefore, corpora methodologies have the potential to enhance vocabulary instruction by enabling learners to comprehend words within authentic contexts, thereby fostering improved retention of knowledge (Vieira, 2013; Abdulhaleem, 2011; Conrad, 2005).

Ultimately, this study aims to bridge the gap between theory and practice in corpus-based vocabulary instruction, contributing to the ongoing efforts to elevate English language proficiency levels in Saudi Arabia. By leveraging the power of technology-enhanced learning approaches, we can empower EFL learners to achieve greater linguistic competence.

1.1 Significance and Problem of the study

The burgeoning recognition of the pivotal role of vocabulary acquisition coupled with the integration of technology has catalyzed a paradigm shift in language instruction methodologies. This evolution has ushered in a new era characterized by a heightened emphasis on vocabulary teaching, fostering the adoption of more dynamic and immersive learning approaches (Demirel and Semin, 2015). However, despite these advancements, the utilization of corpora within Saudi EFL classrooms remains relatively unexplored, underscoring the imperative for further investigation into their potential impact on vocabulary acquisition within this specific context.

While a wealth of theoretical groundwork exists on the efficacy of corpus-based language teaching, particularly in terms of vocabulary acquisition, there persists a notable disparity between theoretical discourse and practical implementation, particularly

within the domain of English as a Foreign Language (EFL) education in Saudi Arabia. This gap underscores the pressing need for empirical research to bridge the divide between theory and practice, shedding light on the tangible benefits and challenges associated with integrating corpora into the Saudi EFL curriculum.

Moreover, it is crucial to emphasize the significance of conducting empirical studies within the Saudi EFL context to account for unique cultural, linguistic, and educational factors that may influence the effectiveness of corpus integration. By contextualizing research findings within the Saudi Arabian educational landscape, researchers and educators can gain invaluable insights into the nuanced dynamics at play, thereby informing more pedagogical approaches. Even learners can gain a deeper understanding of how corpus-based approaches align with their linguistic needs and cultural backgrounds, empowering them to take ownership of their language-learning journey.

Furthermore, given the growing importance of English proficiency for academic and professional success in Saudi Arabia, there is a pressing need to enhance vocabulary knowledge among EFL learners. By elucidating the potential benefits of corpus integration in bolstering vocabulary acquisition, researchers can contribute to the ongoing efforts to elevate English language proficiency levels in the country. Ultimately, by bridging the gap between theory and practice and harnessing the power of technology-enhanced language learning methodologies, educators can empower EFL learners in Saudi Arabia to achieve greater linguistic competence and success in an increasingly globalized world.

Generally, this study is considered one of the few studies conducted using corpus-based approach for vocabulary learning in both the Saudi EFL and Arab world contexts. As a result, it has the potential to accomplish several objectives: (1) contribute to the expansion of corpus research in the Saudi-EFL/Arab-world contexts, (2) provide valuable evidence for researchers and EFL teachers questioning the effectiveness of corpus approach in learning and teaching

skills, (3) raise awareness among students, teachers, and material designers about the pedagogical implications of such an approach to education.

1.2 Study objective

Since this study applies a highly new learning approach, it intends to achieve the following objectives:

a. The study aims to assess the impact of implementing a corpus-based materials approach on the improvement of EFL students' vocabulary.

b. It seeks to explore the attitudes and opinions of EFL students regarding the use of a corpus-based materials approach in their vocabulary learning experience.

2. Literature review

2.1 Vocabular importance

Vocabulary plays a fundamental role in language learning, serving as a cornerstone for comprehension and effective communication. Numerous studies underscore the significance of vocabulary in language acquisition and teaching (Nation, 2001; Labrie, 2000; Coady and Huckin, 1997; Zimmerman, 1997). Candlin (1988, Yoshi and Flaitz, 2002) emphasizes the critical role of vocabulary in academic achievement among foreign language learners. Moreover, a robust vocabulary enhances language skills across reading, writing, speaking, and listening domains (McKeown, 2002; Widdowson, 1989). Hubbard et al. (1983) demonstrate a positive correlation between vocabulary size and the ability to articulate thoughts clearly. As Wilkins (1972) and McCarten (2007) aptly state, "Without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed."

It's essential to recognize that independent language learning success hinges on a solid vocabulary foundation, as learners with limited vocabulary are more likely to discontinue their language learning efforts (Min, 2008; Ordóñez et al., 2002). Moreover, lexical errors can significantly impact learners' language proficiency (Nemati, 2010). Extensive vocabulary has been shown to correlate positively with academic achievement, economic well-being, and overall success (Champion et al., 2003). Therefore, understanding the importance of vocabulary acquisition is crucial for effective language instruction and learner success.

As Candlin (1988) further elaborates, "The study of vocabulary is at the heart of language teaching in terms of the organization of syllabuses, the evaluation of learner performance, and the provision of learning resources." In other words, vocabulary instruction is central to language teaching practices, influencing curriculum design, assessment, and resource development.

2.2 Vocabulary learning for EFL students

The difficulty of teaching vocabulary for language proficiency is a critical concern in language learning (Mediha and Enisa, 2013). For some researchers, the significance of vocabulary acquisition seems very clear, yet it has received less emphasis in ESL/EFL classes, leading to challenges for EFL students (Croll, 1971; Hartwig, 1974; Lightbrown and Spada, 2006). Although various approaches have been proposed to teach vocabulary to EFL students, recent studies show the complexity teachers encounter in achieving this objective (Koumachi and En-nda, 2022; Siyanova-Chanturia and Webb, 2016; Alqahtani, 2015; Berne and Blachowicz, 2008). Accordingly, the most effective method to teach English vocabulary to L2 students remains unclear (Schmitt, 2008, 2010).

Generally speaking, the literature on EFL learning in Saudi Arabia and Arab countries suggests challenges in making significant progress in English language teaching, especially in vocabulary instruction (Alshammari, 2020). Consequently, Arab students generally face vocabulary-learning problems due to their lack of vocabulary knowledge, ineffective vocabulary instruction methods, and limited learning environment, which impedes their vocabulary acquisition and causes them to struggle with writing power, reading comprehension, and communication skills (Afzal; 2019; Rababah 2005).

One of the difficulties EFL students encounter in L2 vocabulary learning and acquisition is that they often face slower and more inconsistent progress than native speakers due to limited exposure to language, inappropriate instructional approaches, insufficient class time, and limited opportunities for language use beyond the classroom (Goulden-et et al., 1990). Accordingly, EFL classes must be multi-faceted, offering diverse teaching techniques tailored to individual learning styles to support them in acquiring vocabulary. Teachers also play a vital role in guiding students, creating a conducive learning environment, and selecting appropriate materials for vocabulary instruction. Thus, to overcome these challenges, EFL teachers should adopt dynamic vocabulary teaching methods guided by successful linguistic acquisition principles to enhance students' language proficiency and communication skills (Mediha and Enisa, 2013).

2.3 Traditional and modern approaches to L2 vocabulary teaching

Traditionally, in addition to research studies, various methods have been used to teach vocabulary in second language (L2) learning contexts. One common method is direct instruction, where teachers explicitly teach vocabulary items along with their meanings and usage in context. This method often involves activities such as vocabulary drills, word lists, and flashcards (Andriyani, 2015). Research by Schmitt and Schmitt (2014) found that direct vocabulary instruction significantly improved learners' vocabulary knowledge and retention. Another traditional approach is indirect instruction, where vocabulary is learned incidentally through exposure to language input, such as reading or listening to authentic texts (Anđić et al., 2024). Contextual guessing and inferencing are often used in this method, where learners deduce the meaning of unknown words based on the context in which they appear. Suk (2017) conducted a study that revealed that learners who engaged in extensive reading activities showed substantial gains in vocabulary knowledge. Additionally, vocabulary learning through repetition and memorization has been a longstanding practice in language teaching. Learners repeatedly encounter and practice using new vocabulary items until they are memorized and integrated into their active vocabulary. Research by Webb (2007) demonstrated that repetition significantly enhanced learners' vocabulary retention over time.

While these traditional methods have been widely used, recent research indicts that English language teachers have faced a significant challenge in recent years in effectively teaching language rules and vocabulary. Therefore, they suggest that incorporating technology, such as computer-assisted learning programs and online resources like corpora software, can enhance vocabulary acquisition by providing interactive and engaging learning experiences (Yilmaz and Zengin, 2021; Youssef, 2020; Sari and Wardani, 2019). Yilmaz and Zengin (2021) conducted a study and found that learners who used computer-assisted vocabulary learning programs showed significant improvements in vocabulary retention and production. Therefore, while traditional methods continue to be employed, there is a growing recognition of the benefits of integrating technology into vocabulary teaching to meet the evolving needs of language learners. Similarly, Chen (2019) highlighted the effectiveness of using corpora and concordances in vocabulary teaching, which led to significant improvements in vocabulary acquisition. Furthermore, A meta-analysis from 2012 to 2018 examined technology-assisted L2 vocabulary learning for EFL students, showing superior effectiveness compared to traditional methods, especially for the long-term retention. Variables like device type, game condition, and setting were highlighted in the moderator analysis. These findings stress the importance of considering these factors when planning technology-assisted L2 vocabulary instruction (Hao, Wang and Ardasheva, 2021). Sofu and Tosun (2023) conducted a recent study to assess the effectiveness of Data-Driven Learning (DDL) in enhancing the vocabulary acquisition of EFL students. Using a mixed-method research design, the study involved 58 low-level students at a state university in Turkey. Results showed that students

who practiced with DDL outperformed those who received traditional instruction. Additionally, participants displayed positive attitudes towards using concordancing. These findings suggest significant potential for pedagogical corpora in facilitating vocabulary learning, with valuable implications for classroom use. These studies in technology-assisted vocabulary learning has paved the way for integrating innovative approaches like DDL into language teaching, providing learners with effective tools to enhance their vocabulary skills.

2.4 Corpora approach and data-driven learning for L2 vocabulary learning

In Data-Driven Learning (DDL), learners construct knowledge based on evidence derived from corpus data. Through processes such as observation, analysis, evaluation, hypothesis formulation, and testing, learners draw conclusions from their analysis of corpus data (Leech, 2014). Leech identified two distinct ways of utilizing corpora in language teaching: indirect and direct.

Indirect use, referred to as DDL hands-off, involves applying corpus data in reference publishing, materials development, and language testing. This includes creating dictionaries, syllabi, and teaching materials, as well as constructing, compiling, and selecting language tests. Direct use, known as DDL hands-on, involves integrating corpus data directly into the teaching process itself. This integration occurs through activities that encompass teaching about corpora, teaching to exploit them, and exploiting them to teach. In other words, teachers not only incorporate corpora into the curriculum but also educate students on how to use corpora effectively, guide them in analyzing corpus data, and utilize the findings to enhance their language learning experience. This approach emphasizes active engagement with corpus data, empowering students to explore language patterns and contexts independently. Studies have yielded mixed results regarding the effectiveness of indirect versus direct DDL. Some studies suggest that indirect DDL is more beneficial, while others find no significant difference (Pardede, 2019;

Alexander and Singer, 2017; Vyatkina, 2016; Vyatkina, 2015). However, they believe that an abundance of digital texts and rapid access may appeal to students, despite potential challenges in understanding and recall.

The corpus approach and DDL are closely related methods in language teaching and learning. DDL, which is first defined by Johns (1991), is a student-centered method where learners engage with authentic language data to identify rules and patterns autonomously (Johns, 1988). Similarly, the corpus approach involves using corpora to analyze language patterns, usage, and contexts (Cobb, 1999; Chen, 2019). In both approaches, learners interact with authentic language samples to identify patterns independently. Corpora provide rich language examples, allowing learners to explore language comprehensively (Boulton, 2010). This immersion in authentic language promotes a deeper understanding of language structure and usage, moving beyond rote memorization (Cobb, 1999; Chen, 2019). Furthermore, integrating corpora enhances vocabulary development by immersing students in authentic language (Cobb, 1999; Chen, 2019). Similarly, DDL encourages students to analyze term usage in various contexts, enhancing communication accuracy and efficacy (Kazaz, 2015). Both approaches facilitate vocabulary internalization in the realistic, context-rich environments, empowering students to tailor their learning (Tribble, 2012).

In conclusion, the corpus approach and DDL are complementary methods emphasizing authentic language data and learner autonomy. While DDL is not a communicative approach, its effectiveness in improving EFL students' vocabulary learning has been extensively recognized in several empirical studies (Chen, 2019; Amir et al., 2015; Tribble, 2012; Cobb, 2007, 1999). Through corpus-based activities integrated into DDL, students can develop improved language proficiency in a student-centered environment.

2.5 Teachers' and learners' role in corpus approach

Corpus-based approach alters the instructional

role between learners and teachers by shifting educational authority and control from teachers to learners, compared to their roles in conventional EFL classrooms. This approach favors learners' active participation, moving from a teacher-centered model to a learner-centered one. As Conrad (2005) concluded, fostering learners' autonomy by encouraging them to explore vocabulary items, analyze the language, and generate generalizations for learning independently, rather than relying on a teacher, promotes self-sufficiency as language researchers, problem solvers, meaning discoverers, etc.

On the other hand, teachers' role in corpus-based vocabulary learning includes monitoring, leading, supporting, organizing, and guiding learners in effective corpus search methods, encouraging active engagement with new words, and teaching them how to interpret, analyze, and use corpus data for building knowledge, facilitating discovery, and fostering vocabulary acquisition (Youssef, 2020).

2.6 The role of corpora in L2 vocabulary learning

Over the past ten years, corpora have achieved prominence in language instruction, notably in enhancing and developing L2 vocabulary (Kazaz, 2015; Frankenberg-Garcia, 2012a; Hulstijn and Laufer, 2001; Nation, 2001), because they offer contextual and meaningful language input, and provide common patterns of language use (Chambers, 2007; Chapelle, 2001).

Researchers and educators are increasingly interested in corpora use in L2 vocabulary due to several advantages. Firstly, corpora enable students to infer the meaning of new words through context (Fraser, 1999; Schmitt, 1997; Lee and Lee, 2017). Concordance analysis assists them in comprehending word usage, collocations, and syntax patterns (Nation, 2001). Secondly, corpus-based approach promotes student-centeredness, creating an authentic discovery-based learning environment for students, which makes them take the role of language detectives or language researchers to actively discover and analyze grammatical and lexical uses on their own (Frankenberg-Garcia, 2012). Lastly, corpora promote

students' active engagement, which enhances their ability for word retention, learning, and memorization (Hulstijn and Laufer, 2001). This also may improve their reading comprehension skills and linguistic knowledge.

While corpus linguistics has long been underappreciated, recent studies highlight its usefulness, particularly in various second language (SL) and foreign language (FL) contexts. Researchers in Saudi Arabia, Arabic-speaking countries, and SL/FL environments have extensively explored diverse applications of corpora in language teaching and learning, providing valuable insights into its effectiveness. For example, Youssef (2020) conducted an empirical study with two different vocabulary learning conditions, conventional vocabulary teaching (the control group) and corpus-based vocabulary teaching (the experimental group)—to investigate the influence of using corpus on vocabulary learning and retention, and to know EFL students' attitudes toward using corpus approach in their vocabulary learning classrooms. The result of 54 EFL Saudi students indicated significant discrepancies between the two groups in favor of students subjected to corpus approach, demonstrating the effectiveness of corpus-based instruction for vocabulary teaching. Furthermore, the analysis revealed that students had positive attitudes toward using corpus approach, although some challenges were encountered, which could be overcome with training. With a similar research objective, Ergül (2014) divided 34 participants who had the same language proficiency into two groups, the control and experimental groups, to compare the efficacy of corpus approach in vocabulary teaching with the conventional textbooks methods. The findings distinguished the two teaching approaches, as corpus-based activities effectively and significantly enhanced students' vocabulary learning performance compared to textbook activities. Additionally, students had positive attitudes toward corpus use and generally recognized it as a beneficial and valuable resource for L2 vocabulary learning.

Similarly, et al. (2015) examined the impact of DDL on two groups of 60 female students in Yemen

to comprehend which teaching approach (traditional vs. corpus) could enhance students' receptive knowledge of lexical items and collocations. The experimental group utilized printout activities during the study period due to limited technology and internet access, while the control group utilized dictionaries and textbooks. The findings revealed that the experimental group had better receptive lexical and collocational knowledge than the control group, indicating that corpus approach led to more effective vocabulary improvements and retention. Kocak (2020) explored the influence of using Corpus of Contemporary American English (COCA) on the vocabulary development of EFL students. The study included one group; thus, their perceptions about using corpus approach were examined for vocabulary learning. Over four weeks, the participants were exposed to COCA-based instruction for three hours per week, completing corpus activities after each session. The results indicated that most participants agreed on the usefulness of using COCA for improving their English vocabulary. Additionally, they considered corpora as practical and helpful tools for language improvement.

2.7 Questions of the study

The study seeks to address the following questions:

a. To what extent does the corpus-based materials approach influence the growth of EFL students' vocabulary?
b. How do EFL students perceive the use of the corpus-based materials approach for vocabulary learning?

3. Materials and methods

3.1 Design

The study used a mixed-method design and a true-experimental design to explore the causal relationship between the independent variable (corpus-based materials) and the dependent variable (learning vocabulary).

3.2 Sitting and participants of the study

The study, conducted at a language center in Jazan, Saudi Arabia, over five weeks (One month and a week) during the 2022–2023 academic year, involved twenty-four intermediate-level EFL female learners. These participants were specifically selected from the intermediate to upper-intermediate levels. The decision to exclusively include female participants was influenced by the researcher's gender and limited access to male participants, facilitating a more focused approach during the treatment phase.

Moreover, the reason for the small sample size is attributed to the fact that the participants before the experiment numbered 46, and after undergoing the level placement test, those participants whose level did not match the training course and who would not be able to handle the words to be taught were excluded. This is an essential factor for obtaining realistic and practical outcomes that indicate the benefit of corpora in vocabulary instruction. Additionally, by excluding participants whose proficiency levels did not align with the course objectives, the study ensured a more homogeneous group, minimizing the potential for confounding variables and enhancing the internal validity of the results.

Furthermore, the capacity of the laboratory where the study was conducted was limited to 15 students, which further contributed to the small sample size. Another reason for the small sample size is to avoid potential biases that may arise from including participants with vastly different language proficiency levels. This strategic approach allowed for a more accurate assessment of the impact of corpora integration on vocabulary learning outcomes.

3.3 Instruments

Placement test

The Cambridge General Placement Test (CPT), adopted from Cambridge English (part of the University of Cambridge), was used as a placement test before starting the experiment because the initial sample comprised 46 participants with different language levels. For this study, only students with

intermediate language proficiency were required to participate in the study's experiment. Therefore, CPT assisted in including students with intermediate language proficiency and excluding those with lower language proficiency based on Cambridge's recommended level outcomes.

Pre and Post Test

The pre- and post-tests, adapted from Ahmed Youssef (2020), comprised two main categories: receptive and productive knowledge questions, each worth 25 points out of a total of 50. These test categories were based on vocabulary covered and taught in the textbook throughout the treatment period. Both tests were utilized twice, first as a pre-test and then as a post-test, to assess the participants' acquisition of receptive and productive vocabulary after the treatment period. Both tests were paper-based. The pre-test was administered at the beginning of the treatment, while the post-test was conducted on the final day of the treatment period.

The questionnaire

The questionnaire used in this study was adapted from the work of Ergül (2014), who had gathered it from research by other scholars (Farr, 2008; Vannestal and Lindquist, 2007; Yoon and Hirvela, 2004). Ergül's version was chosen for its robust reliability and validity. The survey underwent several modifications to enhance its suitability for the study's objectives. Firstly, it was divided into four sections to comprehensively explore various aspects related to teaching vocabulary using corpora and to gain accurate insights into learners' perceptions regarding corpora utilization. Secondly, some items were simplified to ensure clarity and conciseness, matching participants' comprehension levels and facilitating easy answering without encountering difficulties.

Accordingly, this questionnaire comprised 18 items covering four constructs: 1. Students' general views on vocabulary learning, 2. Advantages of using COCA corpus for learning English vocabulary, 3. Difficulties of using COCA corpus for teaching English vocabulary, and 4. Students' overall evaluation of corpus-based experience. It was structured as a grounded survey based on a five-point Likert Scale format. To ensure participants' understanding and collect reliable data, the questionnaire was available in both Arabic and English, with the Arabic version distributed to participants. A rigorous translation process was applied to the translated version. Initially, it was translated from English into Arabic by a second translator. Subsequently, the researcher independently back-translated and reviewed each item to ensure consistency and accuracy. Any discrepancies between the original English and back-translated versions were discussed between the researcher and the translator, leading to necessary adjustments to enhance accuracy.

These modifications were made to improve the questionnaire's effectiveness in gathering relevant and reliable data on learners' perceptions and experiences with corpus-based vocabulary learning. By dividing the questionnaire into sections and simplifying items, the researcher aimed to enhance its usability and ensure that participants could provide clear and accurate responses, thereby strengthening the overall validity of the study's findings.

Diaries

Participants diaries, serving as supplementary tools, were used alongside questionnaire data in this study to provide valuable insights into the complex dynamics of classroom experiences from the student's perspective (Takako, 2009). Specifically, only participants in the experimental group were directed to maintain diaries throughout the treatment period. To ensure consistency, participants were instructed to write in either English or Arabic, aiming to facilitate the writing process and gather reliable data on their perspectives regarding corpus utilization in L2 vocabulary learning classes. Consequently, four participants were assigned to write their diaries weekly, resulting in an average of five diaries per participant by the study's conclusion. From these, a total of 20 diaries were collected, with the most relevant ones selected for correlation with the survey questions. These diaries documented students' challenges, difficulties, opinions on the corpus method, vocabulary changes, insights into vocabulary learning via cor-

pus, corpus activities, and experiences with the corpus method over time..etc.

3.4 The reliability and validity of the study tools

In a pilot study, the validity and reliability of two tests were evaluated. The findings revealed a reliability coefficient of 0.828, showing a satisfactory level of reliability. Additionally, the Pearson inter-rater reliability between the tests was 0.906, indicating a relatively high level of agreement between different raters.

To assess the survey's reliability following the modifications, it underwent further examination. Initially, it was submitted to a reviewer for evaluation to ensure alignment with the study's objectives. The reviewer provided suggestions and feedback for adjustments to ensure the inclusion of appropriate items for the study. Subsequently, Pearson's coefficient (r) was utilized to determine internal validity, indicating strong internal validity as all questionnaire items were consistent with their respective constructs. Additionally, Cronbach's alpha coefficient was calculated to evaluate the internal consistency and reliability of the survey items for each construct, confirming good internal consistency and reliability (The results of reliability can be found in Appendix one).

3.5 Teaching materials

In this study, two groups were formed, each with a different teaching approach to achieve the study's objectives. The experimental group utilized Corpus of Contemporary American English (COCA) as their major resource for learning and designing corpus-based vocabulary activities. COCA was selected due to its comprehensive collection of authentic English texts, amounting to over one billion words, with new terms added annually across eight genres. Additionally, COCA provides different research tools that are publicly and freely available to users, like concordance lines, word clusters, synonyms, etc. The teaching process followed corpus approach at an English lab within the study site to facilitate learners' instant access to the assigned online corpus for

participation in corpora activities. Participants in this group received training sessions on effective corpus usage prior to commencing the treatment period. The training aimed to offer participants a concise overview of corpus linguistics, including explanations of what a corpus is and how concordance lines function. Additionally, it aimed to familiarize them with essential tools for word acquisition, such as identifying definitions, synonyms, antonyms, collocations, among others. The objective of these sessions was to empower participants with the requisite skills to effectively navigate corpora and enhance their ability to complete homework assignments without encountering difficulty. It is noteworthy that none of the participants had prior exposure to corpus linguistics or engaged in corpus-based activities before this experiment.

The control group in the study was provided the same target vocabulary using the Interactions Access (reading and writing) textbook by Pamela Hartmann, James Mentel, and Ahmed Motala (2012). This textbook was selected for its comprehensive vocabulary activities, such as multiple-choice, fill-in-the-blanks, matching, etc. The teaching process followed a traditional classroom approach, using a whiteboard and some pictures to assist students in guessing and predicting the meaning of the target words. Participants in this group did not undergo any training before commencing the treatment period, as they followed traditional teaching methods in the classroom. However, they were briefed on the contents of the books and informed about the activities they would engage in during the treatment phase.

3.6 Data collection and analysis

The study used several procedures to achieve its objectives. Firstly, a placement test was used to measure participants' proficiency levels in the control and experimental groups. Secondly, a pre test was used to assess both groups' target vocabulary planned for use during the experiment. Thirdly, both groups underwent a five-week vocabulary teaching phase with daily two-hour sessions (one hour per group). The experimental group utilized corpus-based ap-

proach, while the control group utilized a textbook. Throughout the experiment, both groups attended 25 sessions. Fourthly, a posttest was performed after the treatment period to assess the vocabulary development size each group achieved. Fifthly, an attitude questionnaire was given exclusively to the experimental group to comprehend their attitude toward the new corpus-based learning approach. Additionally, experimental students' diaries were gathered to complement their questionnaire responses. Finally, the collected data were statistically analyzed using the Statistical Package for the Social Sciences program (SPSS, v.25), with the learners' diaries analyzed descriptively.

3.7 Ethical considerations of the study

The study adhered to ethical guidelines established by Majmmah University. Participants were informed of the study's objectives and procedures, and their confidentiality was ensured. Participation was voluntary, and participants had the right to withdraw without facing any consequences or harm. These measures were implemented to protect participants' privacy and uphold ethical standards.

4. Results

The results section presents a thorough data analysis in two parts. The first part employs t test models to analyze vocabulary test outcomes, investigating significant differences between experimental and control groups in vocabulary acquisition post-treatment. The second part utilizes descriptive statistics to explain questionnaire findings, exploring participant attitudes towards corpus-based approach in English vocabulary classrooms. Moreover, detailed scrutiny of participants' diaries will be undertaken to corroborate the responses garnered from the questionnaire, offering a robust and holistic comprehension of responses.

4.1 The comparability of randomized groups

The initial sample of 46 students was divided into two groups: the control group *(n = 23)* and the experiment group *(n = 23)*. Participation in this study was restricted to learners with an intermediate level of English proficiency. Before the treatment period began, all participants were queried about their English language learning history to estimate their proficiency level. As most of them had reported substantial exposure to English language, an intermediate to upper-intermediate proficiency level was expected. To verify this assumption, both the CPT and pretest (vocabulary achievement test) were administered to assess their English ability, as well as to ensure equivalence and eliminate differences in English proficiency and vocabulary knowledge before the experiment commenced. This process was used to obtain a robust foundation for the experiment's findings.

4.2 Placement test

Following manual analysis, 22 participants were excluded based on their scores, leaving only learners who scored between 26–32 or 33–39 out of 50, which were deemed indicative of intermediate to upper-intermediate proficiency levels, and thereby eligible for the experiment. Thus, 24 out of 46 participants (12 in each group) remained to participate in the experiment. To ensure the homogeneity between the remaining participants, an independent sample t test was used.

As indicated in **Table 1**, the assumption of homogeneity of variances between the two groups was met, $F(22) = 0.224$, $p = 0.640$ along with $t(22) = 0.146$ with a probability $p = 0.885$, which is greater than the significance level of 0.05. Though there is a slight difference between the two groups' mean scores, as the experimental group has a higher mean English proficiency level ($M = 34.17$) than the control group ($M = 33.92$), the findings showed no significant differences in language proficiency between the control and experimental groups. Therefore, the comparability between the two groups is confirmed, suggesting any potential influence of the slight difference in participants' scores on vocabulary learning in the post-test can be disregarded.

Table 1. Test mean scores for both groups in placement test.

Groups	M	SD	F	Sig.	df	t	Sig. (2-tailed)	Mean Difference
Experimental	34.16	4.44	0.224	0.640	22	0.146	0.885	0.25000
Control	33.91	3.89						

4.3 Question 1

In addressing the first question, "To what extent does corpus-based materials approach influence the growth of EFL students' vocabulary?", *t* tests were conducted to assess the impact of implementing corpus-based materials approach on expanding EFL students' vocabulary before and after the treatment period (**Table 2** and **Table 3**).

Description of vocabulary learning outcomes before treatment period (pre-test)

The pretest was administered to assess the ho-mogeneity of the experimental and control groups regarding their background knowledge of the target vocabulary. The experimental group, which used corpus-based approach in vocabulary learning, exhibited a higher mean score of 30.083 out of 50 (*SD* = 6.185). In contrast, the control group, which was exposed to traditional teaching method, yielded a mean score of 29.500 out of 50 (*SD* = 5.916). As indicated in **Table 2,** the *t*-test results revealed no statistically significant differences between the mean scores of the two groups, $t(22) = 0.236$, $p = 0.816$, indicating that both groups had similar levels of vocabulary knowledge before the treatment period.

Table 2. Descriptive statistics and t test for pre test vocabulary scores.

Test	Group	N	Mean	Success%	95% Confidence Interval		SD	t	Sig
					L	U			
Pre Test	Experimental	12	30.083	30%	4.54	5.70	6.185	0.236	0.816
	Control	12	29.500	29.5%	4.54	5.70	5.916		

Note: % success was calculated by dividing the group means by the total score of 100.

Description of vocabulary learning outcomes after treatment period (post-test)

The study aimed to investigate the effectiveness of corpus-based materials on EFL students' vocabulary learning. The analysis of posttest scores, as in **Table 3**, revealed significant findings. Specifically, that the experimental group, using corpus-based material, exhibited a mean posttest vocabulary score of 40.416 (*SD* = 4.010), while the control group had a 35.00 (*SD* = 4.954), demonstrating a mean difference of 5.416 in favor of the experimental group.

An Independent *t* test was conducted, showing a result of $t(22) = 2.944$, $p = 0.008$, which indicates a highly statistically significant difference in vocabulary learning between the control and experimental groups in favor of the experimental group that used corpus-based materials. Furthermore, the effect size, as measured by Cohen *d*, was notably large at $d= 1.20$, further accentuating the large impact of corpus-based approach on vocabulary learning among Saudi EFL students.

Table 3. Descriptive statistics and t test for posttest vocabulary scores.

Test	Group	M	SD	F	Sig.	df	t	95% Confidence Interval		Sig. (2-tailed)	Mean Difference	D size
								L	U			
Post test	Experi	40.41	4.01	.355	.557	22	2.94			0.008	5.416	1.20
	Cont	35.00	4.95					1.60	9.23			

Description of vocabulary learning outcome for each group after the treatment period (pre- and post- tests)

Based on the previous statistical analysis, the pretest mean scores were similar for the experimental group (*M* = 30.083) and the control group *(M* = 29.500), with a non-significant *p* > .816, indicating no substantial difference in their vocabulary backgrounds before the treatment period. However, the posttest mean scores showed a significant difference between the experimental group (*M* = 40.41) and the control group (*M* = 35.00) with a *p* < .008, favoring the experimental group. Therefore, the subsequent analysis of the participants' vocabulary development in each group was conducted separately using posttest scores, compared with their pretest scores

using Paired Sample *t* test to measure the effect of the experimental period on their vocabulary development (See **Tables 4** and **Table 5**).

Table 4 showed a significant improvement in the mean scores of the experimental group between the pretest and posttest scores. The mean score for the pretest was (30.08), while the mean score for the posttest was 40.41, indicating an average improvement of 10.33 points in the participants' vocabulary. A Paired Samples *t* test was conducted to determine the significance of the improvement, revealing a statistically significant difference between both test scores $t(11) = 3.956$, $p = .002$, indicating that the improvement in scores was not due to chance. These findings may suggest that using corpus-based activities approach significantly enhanced the vocabulary development of the experimental group.

Table 4. Descriptive analysis and t test of experimental group's pre and posttests scores.

	N	Test	Mean	SD	Success%	95% Confidence Interval		df	t	Sig (2-tailed)
						L	U			
Experimental group	12	Pre Test	30.08	6.185	30%	4.58	16.08	11	3.956	0.002
		Post Test	40.41	4.010	40.4%					

In the same way, the performance of the control group on pre and posttests is analyzed using a Paired Sample *t* test. The descriptive statistics indicate that the control group's mean score in the posttest (*M* = 35.00) is higher than in the pretest (*M* = 29.50), illustrating an average improvement of 5.5 points (See **Table 5**). The findings unveil a statistically significant difference between pretest and posttest scores $t(11) = 3.030$, $p < .005$, showing that traditional teaching has contributed to an increase in the control group's vocabulary learning scores. The observed improvement in the control group performance may be attributed to their participation in the study itself, which likely led to increased vocabulary knowledge

(Becker, Roberts and Voelmeck, 2003). Furthermore, the use of textbook-based activities in both tests might have also played a role; yet, the experimental group, exposed to corpus-based methods, showed greater vocabulary learning gains, underscoring the efficacy of this approach.

These results suggested that both teaching approaches appear to improve students' vocabulary acquisition, with signs that corpus-based vocabulary activities may play a significant role in enhancing students' vocabulary knowledge. This tendency is evident from the experimental students' posttest scores as well as the significant differences observed ($p = 0.008$).

Table 5. Descriptive analysis and t test of control group's pre- and post- tests scores.

	N	Test	Mean	SD	Success%	95% Confidence Interval		df	t	Sig (2-tailed)
						L	U			
Control group	12	Pre Test	29.50	4.95	29.5%	1.50	9.49	11	3.030	0.011
		Post Test	35.00	4.010	35%					

4.5 Question 2

To answer the second question, "How do EFL students perceive using corpus-based materials approach for vocabulary learning?" descriptive analysis was conducted to explore EFL students' opinions regarding using corpus approach in their vocabulary learning experience. The following **Tables 6–10** present EFL students' overall opinions regarding English vocabulary learning, the benefits and challenges of corpus-based vocabulary learning, and a comprehensive evaluation of corpus experience.

Description of vocabulary learning outcomes before treatment period (pre-test)

The study using corpus approach to teach English vocabulary to experimental students revealed that 83.33% of participants had engaged in English learning for five months, with a minor portion (16.76%) having studied for five to six months (See first chart in **Figure 1**). The second pie chart in **Figure 1** indicates none of the participants had prior knowledge of corpora software, perhaps due to its absence in their EFL classrooms and their educators not recognizing its value. Notably, despite age variations, all participants owned the needed technology and language background for the experiment.

Students Attitudes Toward Corpus-based Developed Materials in Vocabulary Learning

The **Table 6** presents descriptive analysis results for all constructs in the questionnaire. The first and fourth constructs showed the highest statistical significance, with mean scores of 4.016 and 3.888, respectively. These constructs were significant due to their focus on general views on vocabulary learning and overall evaluation of corpus-based experience. The fourth construct indicated a highly positive attitude toward corpus-based approach. The construct related to the benefits of using corpus in vocabulary learning also had a high mean score of 3.375. On the other hand, the third construct, focusing on difficulties of using COCA corpus, had the least statistical significance, with a mean score of 2.708. However, it highlighted potential challenges students faced while using corpus-based approach.

The findings of Constructs 2 and 4 suggested that EFL students had positive attitudes toward using corpus-based materials in their vocabulary learning classroom. The mean scores for each item in the questionnaire are further analyzed and discussed separately, based on the mean scores underpinned by Jenkins (2007) and Suwannasri (2016), in the following section.
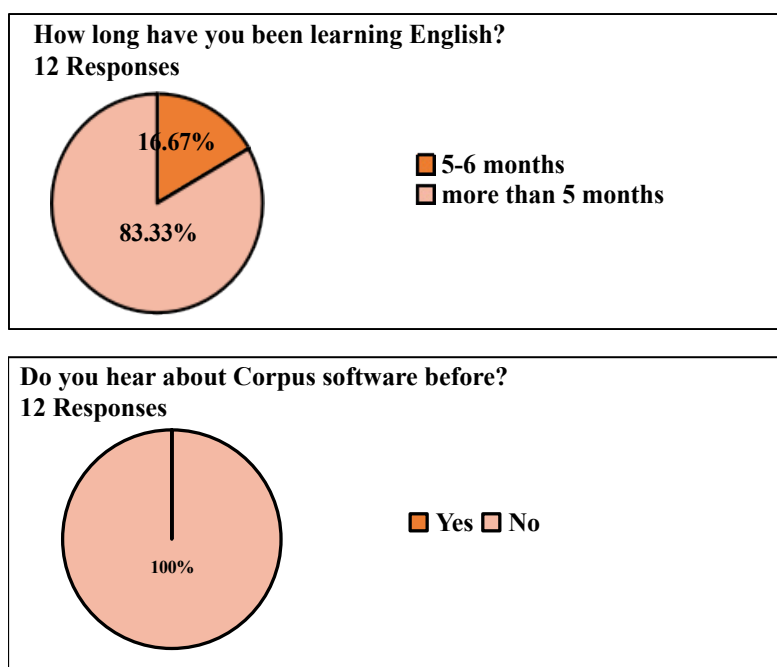

Figure 1. Respondents' demographic data.

Table 6 . Descriptive statistics for constructs.

Constructs	N. of items	Mean	SD
Students' general views on vocabulary learning	*5*	*4.016*	*0.395*
Advantages of using COCA corpus for learning English vocabulary	*4*	*3.375*	*0.882*
Difficulties of using COCA corpus for teaching English vocabulary	*4*	*2.708*	*0.572*
Students' general views on vocabulary learning	*5*	*3.888*	*0.620*
Total Responses	*Items = 18 items* *N. of Participants = 12 out of 12*		

Construct 1: Students' general views on vocabulary learning

The mean score for Construct 1 was 4.016, denoting a remarkably high positive mean based on the five-point Likert scale. This observation highlights the significance of English vocabulary learning for effective use of language.

Participants showed a high level of agreement (52.16%) on the importance of English vocabulary learning in item 1 (mean score: 4.92). Items 2 and 3 were contradictory, with item 2 showing 13.03% agreement that vocabulary learning in English is easy, while 30.06% agreed that it's not easy in item 3. The mean scores for these were lower (3.17 and 3.67, respectively). Item 4 received a mean score of 3.92, with 39.12% agreeing that learning vocabulary with context enhances communication skills. Item 5 had

a positive response rate of 47.82%, indicating that modern technology like COCA corpus makes learning English vocabulary more enjoyable (mean score: 4.58). During the study, one participant expressed enthusiasm toward the newly discovered program:

"This week, we learned about a new program called corpus, and this was the first time I knew about this program, which could provide us with all information related to a single word (its definition, example, type of word, and so on). So, I think corpus program could help me learn English in the future."

Construct 2: Advantages of using COCA corpus for learning english vocabulary

The second construct of the questionnaire received an average score of 3.375, which indicated positive opinions about the effectiveness of using corpus-based materials for vocabulary learning.

Table 7. Descriptive statistics for the items of construct 1.

N.	Statements	Percentages of Ratings					Mean	SD
		1	2	3	4	5		
1	I think it is essential to learn English vocabulary	0%	0%	0%	4.34%	47.82%	4.92	0.289
2	I think that learning English vocabulary is an easy and simple task for me	0%	8.69%	30.43%	8.69%	4.34%	3.17	0.835
3	I feel that Learning English vocabulary is a difficult and challenging task for me.	0%	4.34%	17.39%	21.37%	8.69%	3.67	0.888
4	I feel that learning English vocabulary with its contexts enhances my communication skills with others	0%	0%	8.69%	30.43%	8.69%	3.92	0.669
5	I think that learning English vocabulary through the use of modern technology (e.g., COCA corpus) is more delightful and effortless	0%	0%	4.34%	13.04%	34.78%	4.58	0.669

Note: Responses were rated on a five-point Likert scale, where 1= strongly disagree and 5= strongly agree.

Table 8. Descriptive statistics for the items of construct 2.

| N. | Statements | Percentages of Ratings | | | | | Mean | SD |
		1	2	3	4	5		
6	I think that corpus is more helpful than a dictionary for my vocabulary learning.	8.69%	8.69%	17.39%	13.04%	4.34%	2.91	1.240
7	I generally feel that corpus-based activities are helpful for learning vocabulary's meaning.	8.69%	4.34%	21.73%	13.04%	4.34%	3.00	1.206
8	I feel that using (COCA corpus) supported my learning of English vocabulary as it was offered in numerous forms (Synonym, Definition, Collocation, Concordance line, etc.)	0%	13.04%	4.34%	26.08%	8.69%	3.58	1.083
9	I think that the context strategy using corpus-based activities has increased my guessing of the word's meaning.	0%	13.04%	4.34%	26.08%	8.69%	3.58	1.083

In item 6, 17.38% preferred using corpus, 17.39% were neutral, and 17.38% opposed. The mean score of 2.91 showed similar responses with slight differences in neutrality. For item 7, 21.73% were neutral and 17.38% stressed the effectiveness of corpus-based activities. The mean of 3.00 showed slight agreement. Hesitation may be due to familiarity with textbooks. In item 8, 39.12% highly agreed with using corpus, with a mean score of 4.00 indicating positive attitudes. One participant's diary supports this, which reads:

"During the learning, I found the employed [sic] of corpus program was beneficial, as such program facilitated my searching and made it easy for me to find what I needed quickly. Also, I could see pictures, examples, definitions, and synonyms and even I could hear the word's pronunciation, or everything related to the word we studied from one search list."

For item 9, 34.77% strongly agreed, 4.34% hesitated, and 13.04% opposed the context strategy. One student's diary entry supports its effectiveness as follows:

"In fact, the center also followed the method of

guessing the meaning of some unknown words from the context, as we studied this week; although of context strategy difficulty [sic], still I found its activities were beneficial for me in increasing my knowledge of how words could use in different contexts."

Construct 3: Difficulties of using COCA corpus for teaching english vocabulary

The overall results of this construct (*M*: 2.708) showed that all the surveyed challenges received positive responses, indicating that participants faced potential difficulties while dealing with this learning approach. However, one participant mentioned that they were able to overcome these difficulties with more time and training and her narrative reads as follows:

"I had trouble at first in dealing with COCA corpus and its activities. Still, the daily exposure to the program assisted me in distinguishing between each search tool and understanding what I could find in each one to solve the activities the teacher gave to us. Also, I can better comprehend and deal with the program with more time and training."

Table 9. Descriptive statistics for the items of construct 3.

| N. | Statements | Percentages of Ratings | | | | | Mean | SD |
		1	2	3	4	5		
10	I had some difficulties in understanding the concordance lines due to the limited number of sentences	4.34%	13.04%	26.08%	8.69%	0%	2.75	0.866
11	I had difficulty in understanding the concordance line in COCA corpus program that was used during the training period due to the cut-off in some concordance outputs.	4.34%	13.04%	21.73%	8.69%	4.34%	2.92	1.084
12	I had some difficulty in comprehending the search tools available in COCA corpus because of their different functions.	4.34%	26.08%	21.73%	0%	0%	2.33	0.651
13	I faced difficulty dealing with corpus-based activities used during the course due to the limited time and effort required to analyze the data.	4.34%	17.39%	17.39%	8.69%	4.34%	2.83	1.115

On item 10, 17.38% found using a limited number of sentences adequate, 26.08% hesitated, and 8.69% agreed on its difficulty, which correlated with Ergül's study (2014) where limited sentences posed challenges to participants. For item 11, 21.73% were neutral, 17.38% disagreed, and 12.82% strongly agreed that sentence cutoffs hindered comprehension. This aligned with Youssef's findings (2020), which described that 52% of participants concurred that cut-off in sentences was a highly challenging factor. Concerning item 12, 30.42% had no confusion using COCA tools, while 21.73% were somewhat confused, and none fully agreed. The abundance of research tools caused issues for some, making them take longer to complete corpus activities. However, they expected to become more proficient with practice and more time for activities. In item 13, 17.39% were neutral; 13.3% agreed that corpus analysis demanded time and effort; and 21.73% disagreed, finding allocated time sufficient. Overall, these results contrast Koçak's (2020) study, which stated that participants had no problem using the online corpus (COCA).

Construct 4: Students' overall evaluation of corpus-based experience

The final part of the questionnaire exhibited an average mean score of 3.888, indicating a generally positive satisfaction of such an approach to learning.

Table 10. Descriptive statistics for the items of construct 4.

N.	Statements	Percentages of Ratings					Mean	SD
		1	2	3	4	5		
14	I recommend using corpus-based activities in the same course in the future.	0%	0%	13.04%	0%	0%	4.17	0.835
15	I understood the purpose of using corpus-based vocabulary activities in this course.	0%	0%	13.04%	0%	0%	4.08	0.793
16	I actively participated in corpus-based activities during the sessions, which helped me to accept it more and understand its search functions.	0%	0%	17.39%	0%	0%	3.92	0.793
17	I feel that corpus-based activities are helpful for learning the usage of vocabulary.	4.34%	8.69%	17.39%	13.04%	8.69%	3.25	1.21
18	I feel that involvement in the corpus experimental group expanded my knowledge about available resources to develop my English language skills.	0%	0%	13.04%	17.39%	21.73%	4.17	0.835

Item 14 showed a significant pattern, with a substantial proportion of participants (39.12%) positively endorsing the use of corpus-based activities for vocabulary learning in future courses. Only 13.04% maintained a neutral and reluctant stance, while no respondents disagreed. Additionally, items 15 and 16 displayed interesting results, showing that a considerable portion of participants (34.77% and 39.12%) understood the rationale of using corpus-based approach for vocabulary learning and were actively engaged in corpus sessions daily to enhance their learning experience. One student, citing a quote by Robert Collier, said, "Success is the sum of small efforts, repeated day in and day out." Item 15, however, depicted unanimous endorsement (0%) with minimal neutrality (13.04%), while item 16 exhibited no objections and 17.39% neutral response. The finding of item 17 indicated that 12.73% of participants considered corpus-based activities effective for vocabulary acquisition. Meanwhile, 17.39% were neutral in their response. The analysis of the final item 18 showed a notable shift, with 38.76% of subjects reporting an increased awareness of advanced resources for language learning. The participants' responses were predominantly positive, with only a relatively small percentage (13.04%). expressing neutrality or reluctance in their opinions.

5. Discussion

The current study aligns with previous research

investigating the effectiveness of corpus-based developed materials in vocabulary learning. This section will discuss the study's two main objectives in relation to past research: participants' vocabulary improvement and their attitudes toward using corpus-based materials in vocabulary learning.

5.1 The effectiveness of corpus-based materials on vocabulary learning

The primary aim of this study was to investigate the significant impact of a corpus-based approach on EFL students' linguistic vocabulary inventory. Our findings clearly demonstrate that the experimental group achieved higher mean scores in both the pre-test and post-test compared to the control group. This suggests that incorporating corpus-based approaches into vocabulary learning in EFL language classrooms is highly effective. Moreover, our analysis revealed that the experimental group outperformed the control group specifically in the productive part of the test, indicating that the use of the corpus-based approach enhances students' linguistic knowledge. This improvement enables students to not only acquire new vocabulary but also to transfer and use it effectively in various language contexts.

These findings are consistent with numerous studies that have investigated the effectiveness of the corpus approach in vocabulary learning (Yussef, 2020; Kocak, 2020; Elsherbini and Ali, 2017; Amir et al., 2015; Ergul, 2014; Cobb, 1999). These studies have consistently shown that using corpus-based approaches expands students' vocabulary background, retention, and awareness. The results of our study are in line with these findings, providing further evidence that the corpus approach significantly improves learners' vocabulary skills.

However, it is important to acknowledge that some studies have reported contradictory findings (Braun, 2007; Çelik, 2011), indicating that the corpus approach did not significantly impact vocabulary acquisition. Nonetheless, these studies still recognize the value of corpus activities over conventional methods. It's possible that differences in study design, participant characteristics, or implementation methods may have contributed to these conflicting results. Therefore, while our study adds to the body of evidence supporting the effectiveness of corpus-based approaches, further research is warranted to explore the factors that may influence the outcomes of such approaches in vocabulary learning contexts.

5.2 Participants' attitudes toward using corpus-based in vocabulary learning

The results of the second research question revealed a significant positive attitude among learners towards incorporating the corpus approach in vocabulary learning classrooms, despite encountering some difficulties. This finding is consistent with previous studies (Youssef, 2020; Koçak, 2020; Elsherbini and Ali, 2017; Amir et al., 2015; Chao, 2010; Cobb, 2007, 1999), which have also reported favorable attitudes toward corpus-based approaches. Analysis of construct 1 showed that students were aware of the importance of vocabulary learning for language acquisition and communication, as indicated by the high mean score (4.016). This awareness is consistent with findings from previous research (McKeown, 2002; Read and Chapelle, 2001; Widdowson, 1989; Candlin, 1988; Wilkins, 1972).

The positive attitudes observed in this study can be attributed to Conrad's (2005) idea of autonomous learning, which suggests that the use of corpora in language classes may facilitate independent learning. By allowing students to explore language autonomously, generate generalizations, and act as language researchers, problem solvers, and pattern discoverers, the corpus approach promotes autonomy and independence in learning. This independence can authenticate students' learning experiences, making them more engaging and stimulating. Moreover, it fosters optimism as students transition from passive recipients to active knowledge explorers, increasing their involvement and motivation in classroom activities. This sense of achievement strengthens self-confidence and enhances enthusiasm for learning.

6. Conclusion

This study aimed to investigate the effectiveness of using corpus-based materials in vocabulary learning for Saudi EFL students and explore their attitudes toward this pedagogical approach. The goal was to assess the potential advantages of utilizing corpus tools in the Saudi EFL context, where awareness of this resource may be limited compared to traditional learning methods. Twenty-four participants at the intermediate level were recruited for the study, which followed an experimental design incorporating both quantitative and qualitative research instruments. These included statistical analyses of test scores and questionnaire responses, as well as manual examination and description of participants' diaries to provide a deeper understanding of their experiences.

Analysis of the placement test and pretest results revealed similar levels of vocabulary knowledge among participants in both the control and experimental groups. However, the post-test scores showed a statistically significant difference (p = 0.008) between the two groups, with the experimental group outperforming the control group, achieving a higher average mean score of 40.416 compared to 35.00. These results suggest that the corpus-based approach to vocabulary learning was successful within the Saudi EFL context.

Data collected from the attitude questionnaire indicated that students recognized the importance of acquiring and using language vocabulary, with the majority holding positive attitudes toward corpus-based learning. Despite this positivity, participants reported encountering challenges during the implementation of this approach, as reflected in the challenges and difficulties construct. However, these challenges were deemed surmountable with more training and time as identified in their diaries. Overall, students evaluated the corpus-based learning experience positively, indicating satisfaction with this approach.

To address corpus-related challenges and facilitate effective L2 vocabulary teaching and learning, instructors and researchers in EFL contexts should incorporate corpus software alongside conventional methods. This integration offers diverse learning materials and real-life examples, enhancing vocabulary understanding. Additionally, utilizing authentic materials in corpora provides exposure to vocabulary in context, while active learning strategies such as concordance analysis and discussions related to these lines engage learners and improve retention of words. Opportunities for practice, contextualized learning wherein vocabulary is presented in meaningful contexts such as authentic texts and real-life scenarios, facilitate deeper understanding and usage of words, and learner autonomy further enhances vocabulary acquisition, creating an enriching learning environment supporting language proficiency development.

Generally speaking, these findings also indicate that using the COCA corpus with students in the Saudi EFL context serves as a valuable resource for their vocabulary learning. The COCA corpus provides students with insights into common word usage, collocation patterns, synonyms, antonyms, meanings, and more. Another significant outcome was that the experience with the COCA corpus promoted learners' autonomous learning, as they took responsibility for conducting their activities. To illustrate, in our experiment, the corpus-based approach was initially introduced and integrated into students' vocabulary learning processes. Subsequently, through daily activities, students evolved into more independent researchers by gaining increased access to COCA corpus resources to address their assigned tasks. Consequently, learners progressively familiarized themselves with the COCA corpus, leading to an expansion of their overall vocabulary size through repeated exposure to target words. Therefore, both the current study and previous research confirm the effectiveness of utilizing corpus-based materials for vocabulary learning.

7. Pedagogical implication for incorporating corpora in Saudi EFL context

The study holds both theoretical and practical implications for corpus-based vocabulary teaching in EFL contexts. Theoretically, it contributes to the

advancement of corpus-based theory, particularly in expanding the understanding of vocabulary learning through corpus approaches, thus enriching corpus linguistics research in Saudi Arabia.

From a pedagogical perspective, the findings present practical insights for EFL language teachers, research designers, and learners alike. EFL instructors can leverage corpus-based materials to enhance their teaching methods, identify relevant vocabulary, and cater to students' specific learning needs. Moreover, material designers can develop training programs to prepare teachers with the essential skills to integrate corpus-based approaches into their pedagogy effectively.

Furthermore, EFL learners stand to benefit from recognizing the value of online corpora as helpful resources for grammar and vocabulary studies. By using these resources, they can personalize their vocabulary lists and develop their language skills more effectively.

8. Limitation

Although the study has presented more empirical evidence of corpus-based approach's effectiveness in enhancing vocabulary learning among EFL learners in Saudi Arabia, the results should not be generalized over all EFL learners due to some limitations, including a small participant sample, proficiency levels, study duration, and a lack of gender diversity. Accordingly, future research on L2 vocabulary teaching in the Saudi EFL context should consider these limitations to understand corpus approach effects comprehensively.

9. Recommendations for further research

This study gave helpful information on using corpus approach for vocabulary teaching, providing new insights for future research. For instance: (1) investigating the efficacy of combining both corpora and traditional approaches to comprehend their benefits on students' language progress, (2) examining whether acquired knowledge (receptive) from corpus

can be used as productive skills, and (3) investigating teachers' attitudes towards integrating corpus approach in EFL classrooms. Additionally, researchers can investigate how corpus-based activities can contribute to enhancing traditional learning methods.

Acknowledgments

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Appendices

Appendix One

Cronbach's Alpha coefficient (reliability of the questionnaire)

Construct	Statements	N. of items	Cronbach's Alpha
1	Students' general views on vocabulary learning	5	0.632
2	Advantages of using COCA corpus for learning English vocabulary	4	0.897
3	Difficulties of using COCA corpus for teaching English vocabulary	4	0.652
4	Students' overall evaluation of corpus-based experience	5	0.838

As evident from the table above, Cronbach's Alpha coefficients were notably high for the second and fourth constructs, indicating excellent internal consistency. However, for the first and third constructs, the coefficients showed moderate acceptability. Specifically, the stability coefficient for the second construct was 0.897, and for the fourth construct, it was 0.838. Conversely, the stability coefficients for the third and first constructs were 0.652 and 0.632, respectively. According to Sekaran (2011), these results suggest that the questionnaire demonstrates good and acceptable internal consistency (reliability), thereby making it a dependable tool for the study's application.