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| RESEARCH ARTICLE

Enhancing Technical Vocabulary Learning: A Comparative Study of Reading News Posts on X and a Word List Among EFL Learners

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| ABSTRACT

This study examined whether reading news posts on X, formerly Twitter, could improve EFL learners' technical vocabulary more effectively than a traditional word-list technique. A quasi-experimental mixed-methods design was used with 40 male Saudi undergraduate English-major students at Qassim University. The participants were divided into an X-based group and a word-list group. Both groups studied the same 20 technical vocabulary items and completed a pre-test and post-test, while ten students from the X-based group were interviewed. The results showed no significant difference between the groups before the treatment, $t(38) = 0.25$, $p = .804$. After the treatment, both groups improved, but the X-based group achieved higher gains. Its mean score increased from 18.10 to 33.70, compared with the word-list group, which increased from 17.85 to 26.80. The post-test difference was statistically significant, $t(38) = 5.12$, $p < .001$, Cohen's $d = 1.62$. Interview findings showed that students found X-based news posts engaging and helpful because the target words appeared in real contexts, although some posts were challenging due to unfamiliar topics and difficult vocabulary. The study concludes that carefully selected news posts on X can be a useful supplementary tool for teaching technical vocabulary in Saudi EFL classrooms.

| KEYWORDS

Technical vocabulary learning, X, Twitter, Saudi EFL learners, Qassim University, higher education, vocabulary instruction, social media, assisted learning, authentic materials, retention

| ARTICLE INFORMATION

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1. Introduction

Vocabulary is a key part of foreign language learning because it affects how well learners can read, communicate, and succeed in academic settings, especially because their exposure to English is limited to the classroom. Therefore in EFL contexts, vocabulary knowledge becomes even more and essential to bridge the gap of the lack of sufficient exposure. When learners develop lexical competence, they become better able to understand texts, discuss meaning, and express their ideas clearly and accurately. Grabe (2012) emphasized that vocabulary is significant for reading comprehension, while Nation (2022) argued that effective language use requires both broad and deep vocabulary knowledge.

Since technical vocabulary knowledge is connected to academic and disciplinary contexts, the challenge that EFL learners may face becomes greater. Technical vocabulary is required for reading subject-matter texts, understanding specialized concepts, and participating in academic or professional communication. Depending only on general vocabulary may not be sufficient for learners who need to engage with technology, science, business, and other specialized domains (Wanpen, 2013).

Since technical vocabulary knowledge is connected to academic and disciplinary contexts, the challenge that EFL learners may face becomes greater. Technical vocabulary is required for reading subject-matter texts, understanding specialized concepts, and participating in academic or professional communication. This issue becomes more significant because many technical terms are closely connected to the field, topic, or situation in which they appear. Therefore, learning technical words through meaningful contexts may help learners develop a clearer relationship between word form, meaning, and use (Nation, 2022; Schmitt, 2008).

Digital learning environments may offer useful opportunities for vocabulary development. Traditional vocabulary learning may give learners direct access to word meanings, but it does not always provide enough support for understanding how specialized words are used in meaningful situations. This has encouraged researchers to examine digital learning tools that can present vocabulary through richer and more interactive forms of input. When technology-based materials are carefully selected and linked to clear learning tasks, they may help learners notice technical words, understand their meanings, and remember them more effectively. For instance, Boroughani et al. (2023) found that a mobile multimedia application led to better technical vocabulary learning than a word-list method. This suggests that digital environments may offer useful alternatives to isolated vocabulary study and provides a reason to investigate whether platforms such as X can support technical vocabulary learning in similar ways.

Vocabulary development remains an important concern in Saudi EFL education. Recent research has examined vocabulary-teaching practices and vocabulary-learning strategies among Saudi teachers and learners (Alhatmi, 2022). However, there is still a need for more research on techniques that connect classroom vocabulary instruction and learning with authentic language use beyond traditional classroom practices, particularly in relation to technical vocabulary and digital tools.

Despite growing interest in social media-assisted language learning, limited research has compared the use of news posts on X with traditional word-list learning for developing technical vocabulary among Saudi EFL learners. Therefore, the present study examines whether reading news posts on X can support technical vocabulary development among Saudi EFL learners at Qassim University more effectively than a traditional word-list technique. It also explores learners' perceptions of using X-based news posts for technical vocabulary learning.

Research Questions

1. To what extent does reading news posts on X support the development of technical vocabulary among Saudi EFL learners at Qassim University compared with a traditional word-list technique?
2. Is there a statistically significant difference between the X-based group and the word-list group in technical vocabulary development after the treatment?
3. What are Saudi EFL learners' perceptions of learning technical vocabulary through news posts on X?

2. Literature Review

2.1 EFL Vocabulary Learning

Vocabulary learning plays a central role in English as a Foreign Language (EFL) development because it strongly influences reading comprehension, academic performance, and communicative ability. Learners need sufficient vocabulary knowledge to recognize words, understand meanings, and process texts efficiently. Previous research has consistently identified vocabulary knowledge as a major predictor of reading comprehension (Grabe, 2012; Schmitt, 2000).

Vocabulary knowledge includes more than knowing dictionary meanings. It also involves knowledge of grammatical behavior, collocations, word forms, register, and appropriate use (Nation, 2022; Schmitt, 2008). This makes vocabulary learning a gradual process that requires repeated exposure and meaningful use. Nation (2022) argued that vocabulary learning is most effective when learners encounter words through meaning-focused input, language-focused learning, fluency development, and repeated practice.

Explicit and implicit vocabulary learning are two factors that are commonly discussed in EFL Vocabulary learning. Explicit learning includes direct attention to vocabulary, such as memorizing word lists, using flashcards, or studying definitions. Implicit or incidental learning occurs when learners acquire vocabulary while focusing on the language skills, such as reading or listening. Both types of learning can be useful. However EFL vocabulary learning requires repeated and deep language processing in meaningful context so that vocabulary retrieval is stronger and long-term retention is reinforced (Laufer & Hulstijn, 2001; Schmitt, 2008).

In EFL settings, mostly English exposure is limited to the classroom. Therefore, learners need to have opportunities for both direct learning and contextualized exposure. While word lists can support intentional learning and review, contextualized texts provide learners with words functionally used in communication. This issue is particularly relevant for technical vocabulary, which often depends on disciplinary or topic-specific contexts.

2.2 Theoretical Framework: The Involvement Load Hypothesis

The present study draws on Laufer and Hulstijn's (2001) Involvement Load Hypothesis, which argues that the success of vocabulary learning is influenced by the degree of cognitive effort made for a required task. According to this hypothesis, three elements play an important role in vocabulary retention: need, search, and evaluation. Need means that learners have a reason, or motivation to understand a word, search involves looking for or figuring out its meaning, and evaluation requires learners to compare a word with other equivalent words and examine if the it is appropriately used in context.

This framework is relevant to the present study because the two vocabulary-learning groups involved different levels of cognitive engagement. In the traditional word-list group, learners were given the vocabulary items and definitions directly, so the task mainly and explicitly depended on recognition and memorization. However, because the words are presented separately from meaningful discourse, learners may not engage deeply with how they function in real communication. In contrast, the X-based condition

required learners to read short authentic news posts, notice the target words, infer their meanings from context, and connect them with real-world topics .This makes the learning process more cognitively engaging and may lead to stronger vocabulary involvement.

In the context of this study, the Involvement Load Hypothesis is useful because it helps explain why the two techniques may lead to different vocabulary-learning outcomes. It shows that learners may remember words better when learners are engaged with the target words by combining need, search, and evaluation within short, authentic news contexts.

2.3 Vocabulary and Technical Vocabulary Learning in the Saudi EFL Context

Vocabulary learning has received considerable attention in Saudi EFL education because lexical knowledge plays a vital role in reading comprehension, academic achievement, and overall English language development (Al Qunayeer, 2021; Afzal, 2019). In Saudi university contexts, learners usually study English in formal classroom environments, while their chances to use English in daily communication outside the classroom are often limited (Mohammed, 2021). As a result, vocabulary development can become challenging, especially when students are expected to understand academic or discipline-related texts in English (Afzal, 2019; Al Qunayeer, 2021).

Vocabulary learning and teaching in Saudi EFL contexts have received considerable attention in EFL research. For example, Alhatmi (2022) found that Saudi EFL teachers use a range of vocabulary-instruction techniques and emphasized the importance of classroom support for lexical development. He also reported that learners' proficiency level influences the strategies they use with vocabulary learning. Similarly, Alshammari (2020) listed the different vocabulary-learning strategies that Saudi EFL learners use, including memory-based, cognitive, and discovery-oriented strategies. These studies indicate that EFL teachers and researchers believe that vocabulary and vocabulary learning remain an important area of investigation in Saudi EFL education.

The importance of vocabulary becomes even greater when learners need to deal with academic and technical texts different academic purposes in different courses. In Saudi higher education, English is increasingly used in academic, professional, and specialized contexts. Many university students are expected to understand English texts related to technology, science, business, engineering, and other fields. As a result, technical vocabulary has become important for students' academic development and future professional communication. Studies have shown that Saudi EFL learners may face difficulties with vocabulary knowledge, reading comprehension, and English language proficiency, which can affect their ability to understand specialized texts (Altalhab, 2019; Al Qunayeer, 2021).

The importance of vocabulary becomes even greater when learners need to deal with academic and technical texts for different academic purposes across various courses. In Saudi higher education, English is increasingly used in academic, professional, and specialized contexts. Many university students are expected to understand English texts related to technology, science, business, engineering, and other fields. As a result, technical vocabulary has become important for students' academic development and future professional communication. Altalhab (2019) and Al Qunayeer (2021) investigated the difficulties Saudi EFL learners face and reported that they have problems with in-depth vocabulary knowledge, reading comprehension, and English language proficiency, which can affect their ability to understand specialized texts (Altalhab, 2019; Al Qunayeer, 2021).

Despite the importance of vocabulary learning in Saudi EFL contexts, research has focused more on general vocabulary learning strategies, classroom practices, and broad language development than on technical vocabulary learning through authentic digital materials. This suggests a need for further studies that examine how Saudi EFL learners can develop technical vocabulary through contextualized and technology-supported learning. In this regard, authentic news posts on X may provide a useful learning environment because they expose learners to short, current, and meaningful texts containing technical vocabulary in real-world contexts.

2.4 Technical Vocabulary as a Specialized Lexical Domain

Technical vocabulary is associated with particular subject-matters and fields such as technology, science, business, engineering, medicine, and finance (Chung & Nation, 2004; Liu & Lei, 2019). Technical vocabulary items are not as frequent as general vocabulary that can be used in different and broader domains, rather, vocabulary items are specific words used in specific domains of knowledge. According to Chung and Nation (2003), technical vocabulary operates as part of a broader system of specific vocabulary knowledge and carries conceptual meanings that depend on disciplinary context. Technical vocabulary can be challenging for EFL learners, because many technical words are less frequent in daily communication and may carry meanings that depend on disciplinary context (Nation, 2022; Wanpen, 2013).

In the present study, the target vocabulary items were selected from technology, science, and business-related news discourse. The selected words included algorithm, innovation, cybersecurity, automation, startup, bandwidth, platform, database, analytics, encryption, infrastructure, sustainability, investment, productivity, ecosystem, robotics, software, transaction, network, and digitalization. These words were chosen because they commonly appear in contemporary news posts related to digital transformation, business development, science, and technology. They are also relevant to Saudi EFL learners because such terms are increasingly used in academic, professional, and media contexts (Wanpen, 2013).

The selected words were considered suitable for pre-intermediate English-major students because they represent technical or semi-technical vocabulary that learners may encounter in authentic reading materials, but they are not so specialized that they

become inaccessible to learners at this level. Therefore, the vocabulary items allowed the study to examine whether contextualized exposure through X-based news posts could support learners' understanding of technical vocabulary more effectively than traditional word-list learning.

2.5 Social Media-Assisted Vocabulary Learning

Technology-based learning techniques are increasingly being used in educational settings. Social media platforms are receiving the most attention of students among many other technological channels because they are easily accessed, interactive, and authentic (Alharthi, Bown, & Pullen, 2020). Their short and current content may increase learners' exposure to vocabulary and motivate them to engage with language beyond textbook materials. Also their awareness about technical vocabulary arises and consequently learning uptake and autonomy increase.

Empirical research comparing between traditional vocabulary learning methods with social-media-based techniques shows positive effects of vocabulary development and related incidental outcomes (Aloraini, 2018). Similarly, recent studies on the Saudi context suggest that Saudi EFL learners may benefit from similar platforms, such as Instagram- and mobile-assisted vocabulary learning applications (Alotaibi, 2023; Alqarni, 2024).

However, the Literature does not claim that using social media directly leads to success in language learning. In fact, there are other factors, such as selected content, structure organization, and connection to the learning tasks that influence its effectiveness. Social media, though, may assist vocabulary learning by providing authentic content and frequent opportunities for language exposure (Alharthi et al., 2020). However, this align with the above noted literature that additional research is still needed to examine the effectiveness of the use of a particular social media platform on vocabulary learning in Saudi EFL contexts, as recommended by previous researchers (Alotaibi, 2023)**.**

2.6 Learning Technical Vocabulary Through Reading News Posts on X

X, formerly Twitter, offers brief, current, and authentic texts that may support vocabulary learning when used in structured classroom activities. The use of X for vocabulary learning can be linked to contextualized exposure and cognitive involvement. Unlike traditional word lists, which usually present words in isolation, X-based news posts place target vocabulary in meaningful discourse. This may help learners connect word meaning with use, topic, and real-world relevance. It may also increase motivation because learners encounter vocabulary in texts that resemble the language they may see outside the classroom.

Previous research related to Twitter and vocabulary learning supports the educational potential of the platform. Alshalan (2016) found that using Twitter in teaching vocabulary at Qassim University had positive effects on students' English vocabulary learning. However, that study did not focus specifically on technical vocabulary or on reading news posts from established accounts. Therefore, further research is needed to examine whether X-based news posts can support technical vocabulary development in the Saudi EFL context.

2.7 Research Gap

Although previous research has examined vocabulary learning through social media and digital tools (Alharthi et al., 2020; Alotaibi, 2023; Alqarni, 2024), fewer studies have focused specifically on technical vocabulary learning through authentic news posts on X in the Saudi EFL context. Previous Saudi studies have addressed vocabulary teaching practices, vocabulary-learning strategies, and Twitter-based vocabulary learning more generally, but they have not directly compared X-based news-post learning with traditional word-list learning for technical vocabulary development (Alhatmi, 2022; Alshalan, 2016). In addition, recent research on technology-supported technical vocabulary learning suggests the value of comparing digital, context-rich learning environments with traditional word-list approaches **(**Boroughani et al. (2023). The present study addresses this gap by examining whether short, authentic, and current news posts on X can support Saudi EFL learners' technical vocabulary development more effectively than a traditional list-based technique.

3. Methodology

3.1 Research Design

This study employed a quasi-experimental mixed-methods design to examine the effectiveness of reading news posts on X in developing technical vocabulary among Saudi EFL learners compared with a traditional word-list technique. The participants were divided into two separate groups: an X-based vocabulary-learning group and a traditional word-list group. The X-based group learned the target technical vocabulary through selected news posts on X, whereas the word-list group studied the same target vocabulary through a traditional word list. This separation was used to avoid repeated exposure to the same vocabulary items across two instructional conditions and to reduce the possibility of practice-effect bias.

Both groups studied the same 20 target technical vocabulary items and completed the same vocabulary pre-test and post-test. The vocabulary test consisted of 40 items: 20 items assessing meaning recognition and 20 items assessing contextual use of the target vocabulary. The maximum score was 40. The pre-test was administered before the instructional treatment to measure participants' knowledge of the target words, while the post-test was administered after the treatment to measure vocabulary gains for both groups.

The vocabulary treatment lasted two weeks and included four instructional sessions, each lasting 30 minutes. Both groups received the same total amount of teaching time but different ways of presenting the vocabulary. The X-based group was instructed to study the target words through short and authentic posts taken from well-known news accounts, while the word-list group traditionally used word lists to study the same words through reading their definitions. As part of the study, the qualitative part, however, used semi-structured interviews with randomly selected ten participants from the X-based group to explore learners' perceptions of reading news posts on X as a technique for learning technical vocabulary and to provide further interpretation of the quantitative findings.

3.2 Participants

The participants were 40 male Saudi EFL undergraduate learners enrolled in a reading course in the English Department at Qassim University. Their ages ranged from 19 to 26 years. All participants were English-major students in Level 2 of an eight-level undergraduate English program. At the time of the study, they had completed approximately two years of formal English learning and were considered pre-intermediate learners.

The participants were selected through convenience sampling because they were available to the researcher and were enrolled in a course directly related to the focus of the study. They were also considered suitable for the study because they shared a similar academic background, studying in the same department, finishing the same intensive English qualifying course, were enrolled at the same academic level, and were taking the same reading course. These characteristics helped reduce major differences in learning context and English proficiency.

The 40 participants were divided into two separate instructional groups. To reduce possible bias or comparison between the two techniques, the two groups were selected from different sections of the same reading course. This helped prevent participants in one group from knowing about the treatment used with the other group and were less likely to develop preferences or assumptions about which technique was better. The first group consisted of 20 students who received the X-based vocabulary-learning treatment. The second group consisted of 20 students who received the traditional word-list treatment. Both groups studied the same 20 target technical vocabulary items and completed the same pre-test and post-test. The X-based group did not receive the word-list treatment, and the word-list group did not receive the X-based treatment.

The sample size of 40 participants was considered appropriate for the quasi-experimental and classroom-based nature of the study. Since the study was conducted in an authentic university reading-course setting, the sample reflected the number of students available in the selected classes. Although the sample size limits the generalizability of the findings, it was sufficient to provide initial comparative evidence on the effectiveness of two vocabulary-learning techniques among Saudi EFL learners.

Table 1: Participant Profile

Variable	Description
Total participants	40 male Saudi undergraduate EFL learners
Group distribution	20 in the X-based group; 20 in the word-list group
Age range	19-26 years
Academic level	Level 2 of an eight-level English program
English learning background	Approximately two years of formal English learning
Proficiency level	Pre-intermediate
Course context	Reading course in the English Department at Qassim University

3.3 Ethical Considerations

The study took into account the ethical issue seriously. The researcher informed the participants about the purpose of the study and explained to them that their participation was voluntary their identity was anonymous, and all data were confidential. They also knew that their performance in the two learning conditions was not marked for the course grading.

3.4 Materials

The study used two types of instructional materials: selected news posts from X and a traditional technical vocabulary word list. Both materials were designed around the same commonly used 20 target technical vocabulary items: algorithm, innovation, cybersecurity, automation, startup, bandwidth, platform, database, analytics, encryption, infrastructure, sustainability, investment, productivity, ecosystem, robotics, software, transaction, network, and digitalization. The words were also considered suitable for pre-intermediate English-major students because they were specialized enough to represent technical vocabulary but not too advanced for learners at this level.

For the X-based group, 20 news posts were chosen from official news accounts. Each post contained at least one of the target vocabulary items used in a meaningful context. The posts were carefully selected ad reviewed to make sure they were clear, up to date, appropriate for undergraduate EFL learners, and free from unsuitable content for pre-intermediate Saudi EFL learners. The aim was to help students encounter the target words in short, authentic, and contextualized texts.

For the word-list group, the same 20 target vocabulary items were presented in a traditional word-list. The list included simple English definition for each word, and a short example. This condition represented a common vocabulary-learning technique in which words are studied directly and explicitly without being embedded in extended authentic news discourse.

Using the same target vocabulary in both conditions ensured comparability between the two groups. The difference between the groups was not the vocabulary content but the method of word presentation: contextualized exposure through news posts on X versus direct study through a traditional vocabulary list.

The 20 target vocabulary items were selected based on corpus-informed principles from research on technical and academic vocabulary. Previous studies on technical and academic vocabulary selection also guided the process, especially studies that highlight the need to choose words that are field-related, context-based, and useful for learners' academic or professional goals.

3.5 Instruments and Procedures

The study used three main instruments: a vocabulary pre-test, a vocabulary post-test, and semi-structured interviews. The purpose of the pre-test aimed to measure participants' current knowledge of the selected technical vocabulary, the post-test measured performance after the instructional treatment. The third instrument, interviews were used to describe the participants perceptions and attitudes towards using X-based news posts for technical vocabulary learning.

The pre-test and post-test had the same design and contained 40 items. The first 20 items assessed students' recognition of word meanings through multiple-choice questions. The second 20 items measured their ability to use the target words in context through sentence-completion questions. Each correct answer received one point, so the total possible score was 40. Vocabulary items were used two times. The purpose of using two question types was to make the assessment of vocabulary knowledge more fully than relying on a single question for each word.

During the treatment stage, the X-based group received 20 vocabulary items taken from news posts on X. In each 30-minute session, students read a number of short news posts that included the target vocabulary. The instructor helped them notice the target words, guess their meanings from context, discuss how they were used in the posts, and complete brief comprehension and vocabulary activities. The main focus was to help students understand the words through authentic, meaningful, and up-to-date contexts.

The participants in word-list group learned the same 20 target vocabulary items through a traditional word-list approach. In every session, students studied the words with definitions and example sentences. The instructor provided explanations of the meanings, and students practiced the vocabulary through matching activities, multiple-choice meaning tasks, and short sentence writing. The word-list group received the same amount of instructional time as the X-based group.

After the two-week treatment, both groups completed the vocabulary post-test under the same classroom conditions. The post-test measured vocabulary gains after the instructional treatment and allowed comparison between the X-based and word-list groups. Following the quantitative phase, semi-structured interviews were conducted with ten students from the X-based group. The interviews focused on students' perceptions of learning technical vocabulary through news posts on X, including perceived usefulness, engagement, contextual understanding, motivation, and difficulties.

3.6 Data Analysis

The pre-test and post-test data were analyzed to compare vocabulary learning before and after the treatment. The study administered Descriptive statistics, including means and standard deviations to summarize the performance of the X-based group and the word-list group before and after the treatment.

The normality of the pre-test and post-test scores was examined using the Shapiro-Wilk test before conducting inferential statistical analysis in order to determine whether the data were suitable for parametric statistical procedures. Since the assumptions for parametric testing were met, t-tests were used to compare the results.

First, an independent-samples t-test was used to analyze the pre-test scores in order to examine whether the two groups had similar baseline knowledge of the target technical vocabulary before the intervention. Next, paired-samples t-tests were conducted within each group to examine whether participants showed significant improvement from the pre-test to the post-test. Third, an independent-samples t-test was conducted on the post-test scores to compare the performance of the X-based group and the word-list group after the treatment.

Cohen's d was calculated to add more depth to the statistical findings. While the t-tests showed whether the differences were significant, the effect size helped explain how strong those differences were, beyond p-values alone.

The semi-structured interview data were analyzed thematically. First, the responses were reviewed several times to gain a general understanding of the learners' views on X-based vocabulary learning. Then, repeated ideas and patterns were coded and organized into key themes, including contextual understanding, engagement, motivation, retention, and perceived difficulty. Interview excerpts were included to support the themes and enhance interpretation of these themes.

After coding procedures, the interview responses were reviewed carefully again to reiterate that the identified themes reflected the participants' answers. This phase was conducted enhance the trustworthiness of the qualitative analysis. The quantitative and qualitative data were integrated to determine whether the interview data supported, extended, or clarified the test results.

4. Results

4.1 Normality Testing

Before conducting t-tests, the normality of the pre-test and post-test scores was examined using the Shapiro-Wilk test. All Shapiro-Wilk p values were greater than .05.

Table 2: Shapiro-Wilk Normality Test Results

Group	Test	W	p
X-based group	Pre-test	0.96	.542
X-based group	Post-test	0.95	.386
Word-list group	Pre-test	0.97	.681
Word-list group	Post-test	0.96	.448

4.2 Pre-test Results

A vocabulary pre-test consisting of 40 items was used before the treatment to measure the learners' initial vocabulary knowledge. The mean score for the X-based group was 18.10 (SD = 3.21), while the mean score for the word-list group was 17.85 (SD = 3.04). An independent-samples t-test showed no statistically significant difference between the groups, $t(38) = 0.25$, $p = .804$.

4.3 Post-test Results

At the end of the two-week treatment, the two groups were compared using the vocabulary post-test. The X-based group obtained a higher mean score of 33.70 (SD = 3.88), whereas the word-list group obtained a mean score of 26.80 (SD = 4.62). The difference between the groups was statistically significant, $t(38) = 5.12$, $p < .001$, Cohen's $d = 1.62$.

4.4 Pre-test and Post-test Gains

Paired-samples t-tests were conducted to closely compare pre-test and post-test scores within each group. The X-based group scores increased from a pre-test mean of 18.10 (SD = 3.21) to a post-test mean of 33.70 (SD = 3.88), with a mean gain of 15.60 points. The difference was statistically significant, $t(19) = 15.42$, $p < .001$, Cohen's $d = 3.45$. Whereas, the word-list group scores increased from a pre-test mean of 17.85 (SD = 3.04) to a post-test mean of 26.80 (SD = 4.62), with a mean gain of 8.95 points. The difference was statistically significant, $t(19) = 8.37$, $p < .001$, Cohen's $d = 1.87$.

Table 3: Descriptive Statistics for Pre-test and Post-test Scores

Group	N	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Gain
X-based group	20	18.10	3.21	33.70	3.88	15.60
Word-list group	20	17.85	3.04	26.80	4.62	8.95

Table 4: Inferential Statistical Results

Comparison	Test	t	df	p	Cohen's d
X group vs. word-list group pre-test	Independent-samples t-test	0.25	38	.804	0.08
X group pre-test vs. post-test	Paired-samples t-test	15.42	19	< .001	3.45
Word-list group pre-test vs. post-test	Paired-samples t-test	8.37	19	< .001	1.87
X group vs. word-list group post-test	Independent-samples t-test	5.12	38	< .001	1.62

4.5 Learners' Perceptions of X-Based Vocabulary Learning

The qualitative findings were drawn from interview responses of ten participants from the X-based group. Four main analytical themes emerged from the analysis of the interviews: contextual understanding, engagement and motivation, authenticity of language, and learning difficulties.

The first theme was contextual understanding. Most interviewees reported that reading the target words inside short news posts helped them understand the meanings clearly. They explained that the surrounding words, topic, and real-world situation helped them infer meaning. One participant stated, 'When I read the word inside a post, I can understand how it is used in the sentence and not only its translation.' Another participant put it, 'The situation helped me remember the word because I connected it with a real situation that I know about.'

The second theme was engagement and motivation. Several participants indicated that learning vocabulary through X posts was interesting. They felt that the posts were short, current, and connected to topics they already see online. One student said, 'I felt interested because the posts were about real things happening now and this makes me read more.' Another participant noted, 'I felt like reading something useful.' Another interviewee said, " and sometimes encourages me to study the words more because I will use them."

The third theme was authenticity of language. Participants believed that the X posts exposed them to vocabulary as it is used in real communication. They stated that this helped them understand not only the meaning of the words but also their practical use in technology, business, and science-related topics. One participant commented, 'The words were used in real news, so I understood why these words are important.' Another said, 'I liked that the vocabulary was not separate from life. It was connected to news and technology.' Another said, " I feel happy when I see the class words in the real use."

The fourth theme was learning difficulties students faced while learning through X-based posts. Overall, students had a positive view of the technique, but they also pointed out some challenges. A number of participants reported that some posts included additional difficult vocabulary that made reading posts more complex. Technical topics such as cybersecurity, analytics, and infrastructure were also mentioned as challenging. One participants said, "these topics need more explanation from the teacher." Another explained, 'Some topics were new to me, so I understood the word better after discussion.'

5. Discussion

The present study examined whether reading news posts on X could support technical vocabulary learning among Saudi EFL learners more effectively than a traditional word-list technique. The findings showed that both groups improved from pre-test to post-test, which indicates that both instructional techniques supported vocabulary learning. However, the X-based group achieved higher post-test scores and greater gains than the word-list group. This suggests that learning technical vocabulary through authentic and contextualized news posts on X may provide stronger support for vocabulary development under the conditions of this study.

One possible explanation is that X posts presented the target vocabulary in short, meaningful, authentic discourse. Rather than studying words in isolation, learners are exposed to language in contextualized environment. This may have helped learners link word form, meaning, and use. This interpretation is consistent with vocabulary-learning research showing that repeated and contextualized exposure can support deeper lexical knowledge (Nation, 2022; Schmitt, 2008).

The findings of this study can also be interpreted through the Involvement Load Hypothesis (Laufer & Hulstijn, 2001). The X-based treatment required learners to notice the target words, infer meanings from context, discuss usage, and connect the words with real-world topics. These activities may have created a higher level of cognitive involvement than studying definitions in a word list. In contrast, the word-list group received explicit definitions and examples, which supported learning but may have less contextual involvement and weaker engagement than than X-based group.

The qualitative findings support this interpretation. The majority of the participants felt that the X-based treatment was more motivating, more interesting, and more memorable than the vocabulary list treatment. These attitudes indicate the extent of learners' high level of motivation and engagement regardless of the test score. Involvement in Language learning is correlated to success of language learning. This is in line with the Involvement Load Hypothesis (Laufer and Hulstijn's (2001).

Earlier studies have shown that digital platforms can support vocabulary development when materials are suitable and tasks are pedagogically structured (Alharthi et al., 2020; Alotaibi, 2023; Alqarni, 2024). The results of this study also extend and support previous research on social media-assisted and technology-supported vocabulary learning through short news posts on X as the source of contextualized input.

However, the findings need to be viewed carefully as news-based platforms may be useful for EFL learners, yet they should not be viewed as an alternative to teacher instruction. This interpretation is drown from the interviewees' responses as some participants reported that they needed teacher assistance when dealing with difficult posts, technical topics, unfamiliar ideas, informal technical expressions, dense language, or additional vocabulary items that are used in on the posts

Thus, the usefulness of X for learning purposes requires careful post selection and clear classroom instruction and guidance. For example, teachers need to select posts that suit students' language abilities, highlight the target words clearly, offer pre-reading guidance, and prepare activities that help learners understand, discuss, and apply new vocabulary. With these supports, X-based news posts may contribute effectively as a supplementary technique for technical vocabulary development in Saudi EFL settings.

5.1 Limitations and Future Research

Certain limitation should be considered when dealing with the findings of this study. First, the sample size was rather small, with only 40 students enrolled in one department, in one college, and at one university. Second, only a limited number of technical vocabulary items were analyzed in connection with just several posts published on X. Further investigation could be conducted on the same topic using a larger number of students and wider variety of academic fields.

Second, the short duration of the intervention limits the strength of the findings. Since the study lasted only two weeks and included 20 technical vocabulary items, it may not fully show how effective X-based vocabulary learning can be over a longer period. Future research may apply a longer intervention and delayed post-tests to examine whether students can retain the vocabulary after some time.

Third, the study focused on technology, science, and business-related news discourse. Although these areas are useful, they do not represent all types of technical vocabulary. Future research could expand the scope to fields such as engineering, medicine, finance, or environmental studies to explore whether X-based vocabulary learning is effective to determine whether X-based vocabulary learning improves vocabulary development.

Fourth, the qualitative phase included interviews with ten students from the X-based group only. This limits the comparison of learners' perceptions because the views of students in the word-list group were not explored. Although the word-list group achieved a higher score in the post-test compared with the pre-test, their learning experience was not examined qualitatively. Therefore, future studies may include interviews with participants from both the X-based and word-list groups to provide a more balanced comparison of learners' perceptions of the two techniques and to better understand the factors that contributed to vocabulary improvement in each group.

6. Conclusion

This study investigated whether reading news posts on X could support the development of technical vocabulary among Saudi EFL learners at Qassim University compared with a traditional word-list technique. The findings showed that both the X-based group and the word-list group improved from pre-test to post-test. However, the X-based group achieved higher post-test scores and greater vocabulary gains, suggesting that learning technical vocabulary through short, authentic, and contextualized news posts may be more beneficial than studying the same words through a traditional list under the conditions of this study.

The interview findings added further support to the usefulness of the X-based technique. Students said that learning words through posts helped them understand vocabulary more clearly because the words appeared in meaningful contexts. They also felt more connected to real-life topics and more engaged in the learning process. Still, not all posts were easy to understand, as some included unfamiliar topics or additional difficult vocabulary. Therefore, teacher support, careful material selection, and organized classroom activities are important for making this technique more effective.

The study contributes to research on Saudi EFL vocabulary learning by examining technical vocabulary development through authentic news posts on X. However, the findings should be interpreted cautiously because the study involved a small sample of male English-major students from one university and was conducted over a short treatment period. Future studies may examine X-based technical vocabulary learning with larger samples, female learners, different proficiency levels, longer interventions, and a wider range of technical vocabulary items. Further research may also compare different types of social media content and investigate long-term vocabulary retention.

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