

Exploring Vocabulary Development and Student Preferences: A Comparative Study of Digital and Print Extensive Reading in an EFL Context

Maha S. Yaseen¹, Salem Saleh Ibnian², Sa'ida W. Al-Sayyed¹

¹Al-Ahliyya Amman University, Department of English Language and Literature, Jordan

²Training Institute of ISF, Qatar

Abstract

Objectives: This quasi-experimental study aims to investigate the impact of using digital and print extensive reading on EFL student's vocabulary growth and reveal student's attitudes toward digital reading.

Methodology: To this end, collected were data using a pre-post vocabulary test and an attitudes' scale (questionnaire). The study involved 74 students majoring in the English language. The students were divided into two groups, namely Group A (the experimental group) and Group B (the control group). Group A was given digital extensive reading for 8 weeks, while group B was given paper extensive reading.

Findings: The results demonstrated that the digital extensive reading method positively impacted the vocabulary growth of EFL students for a variety of reasons. The primary benefit of this method is that learners can access the material from any location and at their own pace. The findings also indicated that EFL university students reflected positive attitudes toward digital reading.

Implications: The study suggests that students engaged in extensive digital reading on various devices reduced boredom and tension. Interactive features like animated content and music improved the reading experience. EFL learners appreciated the effectiveness of online extensive reading programs and perceived digital reading as more beneficial than printed reading.

Conclusions: The study found that extensive digital reading significantly enhanced EFL students' vocabulary, with a positive attitude towards digital reading. The results underscore the importance of including digital reading material in reading courses.

Key words

Attitudes, Digital Reading, Education for Sustainability, Extensive Reading, Vocabulary Growth.

I. Introduction

Acquiring English as a foreign language (EFL) or as a second language (ESL) requires proficiency in four essential skills: listening, speaking, reading, and writing. Dweikat (2019) classifies listening and reading as receptive skills; while writing and speaking are considered productive or expressive skills. Proficiency in reading is a vital language skill that EFL learners must acquire to access knowledge across diverse fields. Shawesh & Hussin (2015) emphasized the paramount importance of reading, as it significantly contributes to the process of acquiring a second language. Therefore, prioritizing reading comprehension should be a central goal for both language instructors and learners.

Numerous studies in the field of English as a Foreign Language (EFL) have examined the impact of various reading skills and strategies, such as extensive reading, intensive reading, skimming, and scanning, on enhancing learners' motivation, reading rate, fluency, vocabulary gain, and writing ability (Alqadi and Alqadi, 2013; Alzu'bi, 2014; Baniabdelrahman and Migdadi, 2016; and Smadi and Al-Zawahreh, 2013). The studies emphasized the need to avoid ineffective traditional teaching strategies in order to help improve EFL learners' levels in the target language in general and reading in particular.

Numerous studies in the EFL field have investigated the implications of extensive reading, also known as reading for enjoyment. Results of various studies showed that extensive reading could have a positive impact on improving learners' language skills (Beglar & Hunt, 2014; Nation, 2009). People have employed numerous terms to describe extensive reading, including supplementary reading, book flood reading, pleasure reading, voluntary reading, sustained silent reading, and independent reading. Despite the variety in nomenclature, these terms share a common goal:

cultivating lifelong readers and offering enjoyable reading experiences for learners. Additionally, they seek to support individuals facing challenges or hesitancy in reading, helping them evolve into proficient readers (Ateek, 2017).

In recent decades, technology and the internet have opened up numerous opportunities for language learners to explore a diverse array of online resources through the availability of electronic text versions (Godwin-Jones, 2003).

Smadi and Al-Zawahreh (2013) emphasized that technology has evolved into an essential component of daily activities, particularly in academic contexts. It empowers instructors to shift lessons and target materials from static textbook formats to dynamic and engaging formats. Consequently, EFL instructors have integrated technology into teaching the four language skills, aiming to foster a motivating classroom environment and encourage effective learner engagement in the educational process.

Regarding the Jordanian context, it is evident that there is a scarcity of local studies examining the influence of extensive reading, be it digital or print. As a result, the present study aims to investigate the effects of extensive digital and print reading on university students' vocabulary size and uncover their attitudes toward digital reading.

Reading comprehension in EFL can be challenging, as some learners struggle to comprehend the written messages. During the researchers' fieldwork as an EFL instructor, they observed that the majority of students grapple with various reading challenges, such as insufficient vocabulary, low motivation, slow reading speed, and other issues. They concluded that EFL instructors must experiment with innovative techniques to assist learners in surmounting these

challenges and expanding their vocabulary, enabling them to engage effectively with the assigned reading texts and read with confidence.

Furthermore, several studies conducted in the TEFL field have shown that EFL learners require various strategies to overcome difficulties when using English. These studies reveal that most EFL learners face various reading challenges, including boredom and lack of fluency, which are primarily caused by ineffective traditional methods of teaching reading (Ateek, 2017; Baniabdelrahman and Migdadi, 2016). According to Ateek (2017, p. 6), "the Jordanian students' low proficiency level in English in general and reading in English in particular is evidence of the necessity to make effective changes to improve English language proficiency levels."

Alzu'bi (2014) pointed out that EFL students lack sufficient exposure to the language in class, resulting in slow reading. He added that students have limited opportunities to encounter a diverse range of uses of common lexical and grammatical elements in the target language.

As aforementioned, the researchers believe that extensive reading could be a useful strategy as it maximizes EFL learners' exposure to the target language in contexts they can understand. Therefore, the current study aims to investigate the impact of both digital and print extensive reading on the vocabulary growth of EFL students, as well as to reveal their attitudes towards digital reading. To achieve the purpose of this study, the following two questions were addressed:

- What impact does extensive reading, both digital and print, have on the vocabulary development of EFL university students?

- What are EFL university students' attitudes toward digital reading?

I.1 Objectives of the Study

The current study aims at:

- Examining the influence of extensive digital and print reading on the vocabulary development of EFL university students.
- Revealing the attitudes of EFL university students towards digital reading.

I.2 Significance of the Study

The current study aims to provide guidance to EFL instructors on the importance of extensive reading and the use of unconventional strategies and techniques in EFL reading classes, particularly the integration of technology and online resources for teaching reading and language learning. This approach could potentially enhance the proficiency of university EFL students in various language skills, particularly in EFL reading. In addition, the findings of this study could guide EFL curriculum planners and syllabi designers to pay more attention to extensive reading while designing EFL reading curricula and syllabi in the future. This study is different from previous studies since it pays special focus to reading skill (cf. AlJanaydeh and AlJamal (2021); Al-Masaeed (2024); Zainal et al., 2022).

II. Literature Review

In the EFL context, various technological channels have been implemented to teach the language skills, namely, listening, speaking, reading, and writing, with the aim of helping EFL learners improve their level in the target language and overcome difficulties they face while learning EFL. During the COVID-19 pandemic, learners worldwide shifted from traditional classrooms to electronic learning options so as to share knowledge via various digital electronic sources, such as e-books, CDs, websites, DVDs, social me-

dia tools, and other e-learning platforms, including Zoom, Google Meeting, and Microsoft Teams. According to Ja'ashan (2020), the rapid changes in technological progress, the globalization trend in higher education, and the elimination of student boundaries have opened up new methods and perspectives for new educational practices like e-learning.

Additionally, several studies were conducted to implement different types of technologies to sharpen students' skills while learning English as a second/foreign language (Alkhawaja (2023); Al-Shallakh (2023); Al-Shallakh (2024); Hussein et al. (2021); Sa'di et al. (2021); Sa'di et al. (2022); Sayyed and Al-Khanji (2019).

Reading is an essential activity in the teaching process. It is considered both a source of information and a pleasurable activity. As a result, there has been an increasing debate recently about whether it is best for individuals to read their preferred material using paper books or digital sources. In the realm of print, reading pertains to materials on paper, whereas digital reading involves online textual content accessible through devices like reading devices, smartphones, tablets, or computers. Digital reading encompasses diverse formats, including e-books that maintain the linear structure of print books and texts featuring hyperlinks (Loh, Sun, 2019, as cited in Sun, Loh, and Nie, 2021).

Pardede (2019) noted that the tradition of print text originated in the first century AD when literary works were inscribed on sheets of papyrus. Gutenberg's printing machine, capable of producing 3,600 pages per day, revolutionized access to reading materials and significantly boosted literacy across Europe within a few decades. A subsequent advancement in printed text occurred with the introduction of "cold type" in the 1960s, and today, texts are replicated on

paper pages using high-resolution digital imaging.

In the context of theories associated with digital reading, Pardede (2019) outlined two main theories concerning online reading skills: the Information Foraging Theory (IFT) and the Hypertext Theory (HT). The IFT examines the behaviors of learners when engaging in online reading, be it for everyday casual reading or specific tasks within the web ecosystem. In contrast, the HT conceptualizes text as interconnected blocks of words or images electronically linked through various paths, chains, or trails within an open-ended and continuously evolving textual environment (Hawkes, Murphy, and Law, 2001).

Unlike intensive or academic reading, extensive reading is a methodology that allows learners to read longer texts at their own pace for enjoyment and to improve their general reading skills. In contrast to intensive reading, which involves careful and detailed reading with specific learning goals and tasks, extensive reading seeks to encourage students to read for pleasure and gain a broad understanding. According to Mesureur (2013), EFL learners would spend more time reading if they had access to online libraries or e-books, as they could improve vocabulary learning, reading comprehension, and motivation.

Day and Bamford (2002), as cited in Bui and Macalister (2021), proposed the following ten principles for the successful implementation of extensive reading.

1. The reading material is easy.
2. A variety of reading material on a wide range of topics must be available.
3. Learners choose what they want to read.
4. Learners read as much as possible.
5. The purpose of reading is usually related to pleasure, information, and general understanding.
6. Reading is its own reward.
7. Reading speed is usually faster rather than

slower.

8. Reading is individual and silent.
9. Teachers orient and guide their students.
10. The teacher is a role model of a reader (pp. 137–139).

Researchers in the EFL field have conducted numerous studies across various EFL contexts, focusing on extensive reading in EFL as a whole, with a particular emphasis on digital and print reading. Smadi and Al-Zawahreh (2013) explored the impact of an extensive online reading instructional program on the English proficiency of Jordanian secondary stage students. The study aimed to gauge students' perceptions of the program's influence on their English proficiency. A sample comprising two intact eleventh-grade sections from King Abdullah the Second School for Excellence was selected. The study's findings indicated that the mean scores of the experimental group's English proficiency, especially in writing, speaking, vocabulary, reading comprehension, and listening, were significantly higher than those of the control group. This difference was attributed to the teaching methodology. However, there was no significant difference in the students' grammar proficiency with respect to the intervention variable. Additionally, the results showed that the participants expressed appreciation and satisfaction with the effectiveness of the extensive online reading program.

Alqadi and Alqadi (2013) conducted an experimental study to investigate the influence of extensive reading on enhancing the grammatical accuracy of EFL learners enrolled at Al-Bayt University in Jordan. To help achieve the goals of the study, data were collected from a sample of 60 male and female students, divided into two groups: the experimental group and the control group, each comprising 30 students. A pre-test was given to the two groups in which the subjects had to write a short paragraph. Then a

treatment program was started with the experimental group members in which they were given several extensive reading assignments. According to these assignments, the subjects had to read about different topics and summarize what they had read. These tasks extended for a period of six weeks. After six weeks, both groups were given the same text in which they had to write a short paragraph, i.e., a posttest. The results of the two tests indicated a favorable outcome, demonstrating that extensive reading had a positive effect on improving the grammatical accuracy of EFL freshmen at Al-Bayt University.

Alzu'bi (2014) investigated the effect of extensive reading on EFL students' reading comprehension, vocabulary, and grammar skills. The researcher developed two tools: a program centered on the extensive reading approach and an associated test. A total of 41 English-major university students were purposefully selected from various universities during the academic year 2012, and the study spanned three semesters. The results revealed that extensive reading had a beneficial impact on improving university EFL students' reading, vocabulary, and grammar achievements.

Gilbert (2014) examined the engagement of English language learners with reading materials in both paper and web formats. The data were collected through the researcher's observation notes, interviews with student participants, group discussions, and journals kept by the students. The findings revealed that although students are qualified enough to surf the Internet, they lack the necessary required skills to conduct effective research. They are not able to critically evaluate online information. Moreover, the research demonstrated that language learners employ distinct reading practices and strategies when dealing with print and web-based texts. The results of the study highlighted the importance of integrating digital literacy instruction with language teaching in

TEFL settings.

In the Jordanian context, Ateek (2017) examined the influence of extensive reading on different reading-related skills such as reading speed, vocabulary knowledge, reading strategies, and productive skills. The study also aimed to uncover the Jordanian students' attitudes toward reading in English as a Foreign Language (EFL). The sample of the study consisted of ten Jordanian EFL students, who were exposed to different types of extensive reading activities both inside and outside the classroom. This program lasted for twelve weeks of extensive reading. The results proved that the extensive reading approach had a positive impact on enhancing and sharpening students' language skills. It also increases students' motivation to read in the target language, i.e., English. To clarify, the extensive reading positively resulted in increasing students' reading speed, vocabulary knowledge, and reading strategies. As for the productive skills, the results proved that very little improvement was noticed in students' speaking skills and writing skills.

In a qualitative study, Trivenita (2018) investigated students' perceptions towards using both forms of reading, viz., digital and printed reading, in an extensive reading course they have passed. We collected data through a semi-structured interview. This study included a sample of 10 students who passed the extensive reading course. The results proved that digital reading materials are much more useful than the printed ones, and this was reflected by the positive responses by the subjects and their advantages over the printed reading. The results revealed negative responses towards printed reading materials, as they were perceived as significantly more complicated than their digital counterparts. They also highlighted their disadvantages, such as being easily damaged, heavy, and not available all the time. Moreover, the study proved that the respondents suggested a combi-

nation of printed and digital reading material in reading courses.

Bui and Macalister (2021) studied the crucial role of extensive online reading in improving first-year students' reading fluency. It also aimed to examine their attitudes toward reading in English as a Foreign Language (EFL). In particular, they tried to investigate whether extensive online reading increases students' motivation to read. Data were collected from seventeen Vietnamese university learners over a 10-week treatment program. A background questionnaire was distributed among the subjects. The students then completed reading tasks outside of the classroom using their personal computers or tablets, followed by weekly reports detailing their achievements. The same participants received a post-questionnaire at the end of the ten weeks. The results proved that extensive reading had a positive role in enhancing and sharpening students' reading fluency. Moreover, the findings showed that students' attitudes have witnessed a positive shift towards extensive reading.

Sezgin (2022) aimed to identify the most prominent and trendy topics, as well as examine published articles related to digital reading. To achieve this, the researcher collected data from articles indexed in the Web of Science database. The researcher adopted content analysis and descriptive analysis in addition to bibliometric analysis. The results demonstrated that the majority of recent studies have focused on digital reading in developed countries. The researcher also examined the demographic profile of the participants in those studies. The majority of these studies took place at the K-12 level, according to the results. We also scrutinized the reading methods, and the results revealed that digital shared reading has emerged as the most popular reading method.

After reviewing a number of studies on reading,

encompassing both general and extensive reading, it is evident that these studies have been conducted across diverse contexts to explore methods and strategies applicable in EFL classrooms for enhancing students' reading proficiency. The literature emphasizes the importance of reading as a pivotal receptive language skill for learners throughout their educational journey. Various studies investigated the effectiveness of specific strategies, such as extensive online reading, in improving EFL learners' reading fluency and cultivating positive attitudes toward reading (Bui and Macalister, 2021). Additionally, research has examined the broader impact of extensive reading on aspects like reading speed, vocabulary acquisition, reading strategies, productive skills, and attitudes toward reading in the target language (Ateek, 2017). Moreover, investigations have explored extensive reading's influence on EFL students' reading, vocabulary, and grammar (Alzu'bi, 2014), along with the effects of online extensive reading on English proficiency more broadly (Smadi and Al-Zawahreh, 2013).

Based on the aforementioned argument, this study differs from the previously mentioned ones as it compares the impact of using print and digital extensive reading on EFL university students' vocabulary growth and their attitudes toward reading in the Jordanian context. To the best of the researchers' knowledge, only a few local studies have explored the impact of extensive reading on the vocabulary development and attitudes toward digital reading of EFL learners. Thus, the current study comes to bridge that gap by examining the impact of using print and digital extensive reading on EFL university students' vocabulary growth and their attitudes toward digital reading.

III. Research Method

To achieve the purposes of the study, the researchers used the quasi-experimental design. The research-

ers administered a pre-post vocabulary test to the participants before and after the eight-week implementation of the digital and print extensive reading experiment. In the meantime, we asked the participants to answer a questionnaire to understand their attitudes towards digital reading.

III.1 Participants

A sample of 74 students enrolled in the "Reading Comprehension course" during the second semester of the academic year (2021-2022) participated in the study. The students, aged between 19 and 22 years old, were assigned into two groups, namely, the experimental group (group A) and the control group (group B). Participants of group A (39 students) were asked to read certain digital-based materials using their personal computers or tablets or other online sources over the eight-week study, whereas group B participants (35 students) were asked to read the same material in print.

III.2 Instruments of the Study

- A pre-post vocabulary test to investigate the impact of using digital and print extensive reading on EFL students' vocabulary growth.
- An attitudes' scale to reveal EFL university students' attitudes toward digital reading.

III.3 Validity of the Test

The reviewed the related literature in the field of reading in EFL in general and extensive reading in particular, as well as testing the vocabulary growth of EFL learners (Pavlu, 2009; Ibnian, 2020), the researchers designed the pre-post vocabulary test. The test was submitted in its initial form to five university EFL instructors and two English language teachers, who were asked to provide their comments and suggestions concerning the suitability of the test to the purpose of the current study. The jury suggested modifying the wording of some items and eliminat-

ing two others. The final form of the test included 13 multiple-choice items and a paragraph with 12 blank spaces. The 30-minute test was scored out of 50, with two points awarded for each correct answer. (Appendix 1).

III.4 Reliability of the Test

The examination was conducted on a preliminary group of 19 students distinct from the study sample, and these students underwent a retest after a 15-day interval. The stability of the reliability coefficient was assessed using the Pearson Correlation Formula, resulting in a value of 0.87. This signifies that the test demonstrates reliability.

III.5 The Attitudes Scale

Having examined the existing literature on attitudes towards learning EFL, specifically focusing on reading (Divya and Haneefa, 2020; Allen, 2013; Puripunyanich, 2021), the researchers developed the preliminary version of the attitudes scale to assess EFL learners' attitudes towards digital reading. The initial version comprised 22 items. To ensure validity, five TEFL university instructors and two teachers were invited to review the scale, leading to modifications based on their feedback. The final version of the scale was refined to include 20 items. The reliability of the scale was assessed using Cronbach's alpha, resulting in a coefficient of 0.84.

III.6 Delimitations of the Study

This study is limited to EFL university students enrolled in the "Reading Comprehension Course" as a compulsory course for English language and literature majors during the second semester of the academic year (2021-2022) at the World Islamic Sciences and Education University in Amman. This study restricted its extensive reading materials to a predetermined list of short stories and articles. The eight-week study also focuses on examining the effects of

extensive digital and print reading on the vocabulary development of EFL university students. The study also aims to uncover the attitudes of EFL learners towards digital reading.

III.7 Reading Material

As part of the Reading Comprehension course syllabus and requirements, assigned by the Department of English Language and Literature at the World Islamic Sciences and Education University, the students were asked to extensively read a list of fiction and non-fiction topics with the aim of improving their reading in EFL. Therefore, the researchers provided the participants with a list of short stories and articles and asked them to choose what they wanted to read based on their interests. The researchers distributed the agreed-upon topics among the participants of both groups.

The topics totaled eight covered four short stories retrieved from the British Council website- story zone: <https://learnenglish.britishcouncil.org/general-english/story-zone/b2-c1-stories> and four collections of articles on common issues, retrieved from the Annual Reviews website: <https://www.annualreviews.org/page/collectionarchive> as shown in table (1):

Table (1): The Extensive Reading Material

Collections of Articles	Short Stories
Frank's last case	Nutrition, Diet, and Disease-
The devil's in the details	Sleep, Health, and the Brain-
The green wars	War, Conflict, and Displacement-
True Beauty	Climate Change: Freshwater and-Marine Impact

Group A (experimental group) students were asked to read the assigned material using digital sources after being downloaded, collected electronically, and distributed to the participants. The students were also provided with links to websites and resources for the selected materials. On the other hand, stu-

dents of group B (the control group) were asked to read the same topics in print after being downloaded from the websites, printed out, and distributed among the participants. To ensure that both groups' students have read the assigned material, the participants were asked to present a quick briefing each week on what they have read over the week.

III.8 Procedures of the Study

The study was conducted according to the following sequential procedures:

1. Reviewing the related literature in the field of reading in EFL in general and extensive reading in particular.
2. Preparing the material (short stories and collections of articles) in print and digital modes.
3. Preparing the instruments of the study (the vocabulary test and the attitudes scale)
4. Checking the validity and reliability of the instruments.
5. Selecting the sample (two groups enrolled in Reading Comprehension course during the second semester of the academic year 2021- 2022).
6. Administering the pre-test to both groups.
7. Administering the digital and print extensive reading material to both groups (group A practiced extensive reading through digital sources while group B in print).
8. Administering the post-test to both groups.
9. Administering the attitudes scale to students of Group A.

10. Analyzing data and presenting results and recommendations.

IV. Results and Discussion

IV. 1 Results and Discussion Related to Question Number One

To address the initial research question, "What impact does extensive reading, both digital and print, have on the vocabulary development of EFL university students?" the researchers employed the Statistical Package for the Social Sciences (SPSS) for data analysis. We computed the mean scores and standard deviations for both groups' pre-test and post-test scores, as shown in Table 2:

Table (2): Vocabulary Pre-Post Test: Means and Standard Deviations

N	M	SD	N
Group A: Digital Extensive Reading	Pre: 32.31	6.35524	39
	Post: 36.95	6.33214	
Group B: Print Extensive Reading	Pre: 31.95	6.02315	35
	Post: 33.74		

Table (2) shows the results of the students' performance in the pre- and post-tests in the two groups. The results of Table 2 illustrate a distinction in mean scores between the two groups. Specifically, the pre-test mean score for Group A is 32.31, and the post-test mean score is 36.95. On the other hand, the pre-test mean score for Group B is 31.95, and the post-test mean score is 33.74. The performance of the two groups in the pretest was nearly similar, scoring about 32.31 and 31.95, respectively. A closer look at this table reveals that Group A, which practiced digital extensive reading, outperformed Group B, which practiced print extensive reading. The difference in performance between the two groups can be attributed to the eight-week implementation of a digital extensive reading experiment.

Furthermore, the statistical analysis, as depicted in Table (3), reveals a significant difference at ($\alpha \leq 0.05$) between the two groups in the post-test, favoring Group A, which engaged in digital-based extensive reading. The T-value stands at (-8.756), indicating significance at ($\alpha \leq 0.05$). These findings suggest that the positive impact of extensive digital reading has contributed to the enhancement of vocabulary acquisition in Group A.

Table (3): T-test Independent Samples

Group	N	M	SD	T-value	DF	.Sig
Group A: Digital Extensive Reading	39	36.95	6.33214	-8.756	72	0.000
Group B: Print Extensive Reading	35	33.74				

The findings derived from the data analysis indicate that, on average, the performance of both groups exhibited improvement. Nevertheless, the advancement observed in Group A, which engaged in extensive reading through digital sources, surpassed that of Group B, where print-based extensive reading was implemented.

IV.2 Results and Discussion Related to Question Number Two

To answer the second research question “What are EFL university students’ attitudes toward digital reading?”, the means and standard deviations of the responses from participants in Group A were calculated. Table (4) presents the results of all items in the attitudes scale (questionnaire) in descending order.

Table (4): Means and Standard Deviations of Attitudes of Group A Students

No.	Item	Mean	SD
1	Digital reading reduces the feeling of boredom and tension.	4.34	0.71
2	I enjoy reading through digital sources.	4.16	0.89
3	Digital reading motivates me to read more in English.	4.14	0.84
4	Digital reading helps me overcome some challenges in reading in EFL.	4.13	0.83
5	Digital reading enables me to access the material anywhere from any device.	4.13	0.79
6	Digital reading maximizes opportunities of acquiring new words.	4.12	0.81
7	Digital reading is very informative.	4.12	0.81
8	Digital reading helps me improve my proficiency in EFL	4.12	0.78
9	Digital reading is easy and applicable.	4.11	0.81
10	I need a lot of help in digital reading.	4.09	0.73
11	Digital reading is not suitable for all ages.	4.09	0.82
12	I feel that digital reading is important.	4.08	0.81
13	I am satisfied with the integration of technology in teaching reading.	4.07	0.83
14	Digital reading gives me more fun.	4.07	0.79
15	Digital reading helps me practice reading at my own pace.	4.07	0.81
16	Digital reading provides me with an opportunity to choose the reading material.	4.06	0.83
17	If I were given the choice, I would continue reading through digital sources.	4.05	0.85
18	When I read digitally, I usually get tired and sleepy.	4.02	0.79
19	Digital reading needs a lot of hard work.	4.01	0.77
20	I face many problems while practicing digital reading.	4.00	0.82
Overall		4.10	0.47
SD: Standard Deviation			

According to the data in Table 4, the collective mean score for students' attitudes toward reading was 4.10, with a standard deviation of 0.47. The scale reveals that participants exhibited positive attitudes towards digital reading. Students expressed that digital reading diminishes feelings of boredom and tension ($M = 4.34$, $SD = .71$). They also conveyed enjoyment in reading through digital sources ($M = 4.16$, $SD = .89$). Furthermore, they acknowledged that digital reading serves as a motivation to read more English ($M = 4.14$, $SD = .84$). The results also demonstrated that digital reading not only helps students overcome some challenges in EFL reading, but also enables them to access the material from any location and device. These two items have registered the same high level of agreement (4.13).

Based on the findings, the researchers believe that the experimental group's learners, who practiced digital-based extensive reading, made progress due to the motivating and free atmosphere in the EFL context. Digital extensive reading gave the learners easy access to the material from any device, allowed them to learn at their own pace, and made the reading experience more engaging. Such a result conforms to the findings of Smadi and Al-Zawahreh (2013) and Alzu'bi (2014), which underlined the essential role of technology in the academic context as it enables instructors to transform lessons and the target material from being static in textbooks into dynamic, flexible, and alive ones.

Moreover, the results showed that extensive digital reading motivated EFL learners to engage effectively and play a key role in the learning process, as they could easily access different sources at different times. The researchers believe that the accessibility and availability of the digital texts have motivated the students to read. Such findings agree with those of Mesureur (2013), who pointed out that EFL learn-

ers would engage in extensive reading more if they had access to e-books or an online library, as they could boost motivation, reading comprehension, and vocabulary learning.

Additionally, the students who practiced reading through digital sources made significant progress because digital reading gave them easy access to various applications that aided them in reading the assigned short stories and articles. For example, the students were able to access applications that assisted them to translate new words, phrases, concepts, and expressions to grasp the ideas included in the assigned material.

The students were also able to use other applications that guided them to appropriately pronounce new words. It is believed that such privileges provided by the digital reading form highly contributed to creating positive attitudes toward digital reading.

One possible explanation for the results of the current study could be that the students in the experimental group, who engaged in extensive digital reading, were able to read using various devices such as laptops, tablets, personal computers, and smartphones. In their responses, the students pointed out that digital reading contributed to reducing their feeling of boredom and tension because it enabled them to practice reading wherever and whenever they wanted without an internet connection, as they could download the material in advance on any device, including their smartphones, tablets, personal computers, and laptops, and access it from anywhere.

Furthermore, researchers believe that the ability to implement some audio and video features, including animated content, music, and interactive narratives, has contributed to making reading effective and attractive away from conventional reading and helped

to reflect positive attitudes towards digital reading. The researchers believe that using such interactive features has helped to improve the overall reading experience. The findings of Smadi and Al-Zawahreh (2013), Trivenita (2018), and Bui and Macalister (2021) align with this result, demonstrating that EFL learners expressed appreciation and satisfaction with the effectiveness of the online extensive reading program. They also perceived digital reading as more beneficial than printed reading due to its advantages such as time-saving, portability, and adjustable font.

V. Conclusion

The primary objectives of this study were to investigate the influence of digital and print extensive reading on the vocabulary development of EFL students and to uncover their attitudes toward digital reading. The results revealed a positive effect of extensive digital reading on the enhancement of EFL students' vocabulary. The statistical analysis revealed a significant difference ($\alpha = 0.05$) between the two groups in the post-test, favoring the experimental group engaged in digital-based extensive reading (T-value: -8.756). Additionally, the findings indicated that EFL university students exhibited favorable attitudes toward digital reading. The overall results showed the importance and effectiveness of including digital reading material in reading courses due to its impact on enhancing and sharpening students' vocabulary.

VI. Recommendation

Based on their findings, the researchers recommend:

- Attaching more emphasis to digital applications in teaching EFL in general and reading in particular and implementing attractive audio and video features, such as the animated content, music, and interactive narratives, so as to help make reading effective, interesting, and attractive.
- Providing universities and schools with easy access to different electronic resources to help EFL learners find suitable materials, practice reading, and maximize their exposure to the target language.
- Shedding light more on extensive reading as an integral part of the EFL course syllabus due to its vital role in improving EFL learners' vocabulary.
- Conducting future studies on the effect of digital texts on improving EFL learners in other language areas.

References

- AlJanaydeh, K., & AlJamal, D. (2021). Content analysis of the Directed Reading Thinking Activity (DRTA) techniques in the Student's Book of Action Pack 10. *Al-Balqa Journal for Research & Studies*, 24(2), 1–15. <https://doi.org/10.35875/1105-024-002-001>
- Alkhawaja, L. (2023). Artificial intelligence in education. *International Journal of Computer-Assisted Language Learning and Teaching*, 13(1), 1–22. <https://doi.org/10.4018/ijcallt.329607>.
- Al-Masaeed, M. (2024). The effect of differentiated teaching in enhancing Arabic Reading and Writing skills in Third-Grade students. *Al-Balqa Journal for Research & Studies*, 27(1), 256–269. <https://doi.org/10.35875/1105.027.001.015>.
- Allen, D. (2013). Attitude toward Digital and Print-Based Reading: A Survey for Elementary Students (Ph.D. dissertation). University of South Florida. Retrieved from <http://scholarcommons.usf.edu/etd/4858>
- Alqadi, K., & Alqadi, H. (2013). The effect of extensive reading on developing the grammatical accuracy of the EFL freshmen at Al Al-Bayt University. *Journal of Education and Practice*, 4(6), 106-114.
- Al-Shallakh, M. A. I. (2023). Artificial intelligence-based mobile learning in English language teaching (ELT) for EFL learners: Enhancing pronunciation with ELSA SPEAK in Oman. *Arab Humanities Journal*, 4(3), 208-221.
- Al-Shawesh, M., & Hussin, S. (2015). The effect of the CAREY program on the students' reading attitude towards reading English materials. *English Language Teaching*, 8(12), 98-111. <https://doi.org/10.5539/elt.v8n12p98>
- Alzu'bi, M. (2014). The Effects of an Extensive Reading Program on Improving English as Foreign Language Proficiency in University Level Education. *English Language Teaching*, 7 (1), 28-35
- Ateek, M. (2017). The impact and effectiveness of extensive reading in a Jordanian EFL classroom (Doctoral thesis). Anglia Ruskin University. Retrieved from <https://arro.anglia.ac.uk/id/eprint/702190>
- Baniabdelrahman, A. & Migdadi, A. (2016). The Effect of Using Team Teaching on Jordanian EFL Eleventh Grade Students' Reading Comprehension and Their Attitudes Towards This Strategy. *Journal of Education and e-Learning Research*, (2), 38-50.
- Beglar, D., & Hunt, A. (2014). Pleasure reading and reading rate gains. *Reading in a Foreign Language*, 26(1), 29-48.
- Bui, T., & Macalister, J. (2021). Online extensive reading in an EFL context: Investigating reading fluency and perceptions. *Reading in a Foreign Language*, 33(1), 1-29.
- Day, R., & Bamford, J. (2002). Top ten principles for teaching extensive reading. *Reading in a Foreign Language*, 14(2), 136–141.
- Divya, P., & Haneefa, K. (2020). Students' attitude towards digital reading: A study in universities in Kerala, India. *Library Philosophy and Practice*, 1-15. <https://digitalcommons.unl.edu/libphilprac/4387>
- Dweikat, K. (2019). Investigating EFL students' levels of reading proficiency at Al-Quds Open University and identifying difficulties facing them in practicing the reading skill. *Journal of the Association of Arab Universities for Research in Higher Education*, 39(1).
- Gilbert, J. (2014). Exploring ESL students' perceptions of their digital reading skills (Ph.D. dissertation). University of Nottingham.
- Godwin-Jones, R. (2003). Emerging technologies: E-books and the tablet PC. *Language Learning & Technology*, 7(1), 4–8.
- Hawkes, L., Murphy, C., & Law, J. (2001). The theory and criticism of virtual texts: An annotated bibliography, 1988-1999 (No. 14). Greenwood Publishing Group.
- Hussein, R. F., Haider, A. S., & Al-Sayyed, S. W. (2021). A Corpus-driven study of terms used to refer to articles and methods in research abstracts in the fields of economics, education, English literature, nursing, and political science. *Journal of Educational and So-*

- cial Research, 11(3), 119. <https://doi.org/10.36941/jesr-2021-0056>.
- Ibnian, S. (2020). The effect of using computer games on EFL 7th graders' achievement in grammar and vocabulary. *Al-Mishkat Journal for Humanities and Social Sciences*, 7(1), 419-444.
- Ja'ashan, M. H. (2020). The challenges and prospects of using e-learning among EFL students in Bisha University. *Arab World English Journal*, 11(1), 124-137. <https://doi.org/10.24093/awej/vol11no1.11>
- Loh, C. E., & Sun, B. (2019). I'd still prefer to read the hard copy: Adolescents' print and digital reading habits. *Journal of Adolescence and Adult Literacy*, 62(6), 663-672. <https://doi.org/10.1002/jaal.904>
- Mesureur, G. (2013). An evaluation of ESL reading efficiency and motivation using e-book vs. printed book. In S. Miles & M. Brierley (Eds.), *Extensive Reading World Congress Proceedings* (pp. 280-290).
- Nation, P. (2009). *Teaching ESL/EFL Reading and Writing*. New York: Routledge.
- Pardede, P. (2019). Print vs digital reading comprehension in EFL. *Journal of English Teaching*, 5(2), 77-90. <https://doi.org/10.33541/jet.v5i2.1059>
- Pavlu, I. (2009). *Testing vocabulary* (Diploma thesis). Masaryk University Brno, Czech Republic.
- Puripunyavanich, M. (2021). Revealing university students' attitudes toward online extensive reading in Thailand. *REFlections*, 28(2), 267-292. Retrieved from <https://so05.tci-thaijo.org/index.php/reflections/article/view/254070>
- Sa'di, R. A., Sharadgah, T. A., & Yaseen, M. (2021). Smartphones as a tool for expediting English vocabulary learning: Teachers' perceptions of benefits and drawbacks. *International Journal of Linguistics Literature & Translation*, 4(4), 123-132. <https://doi.org/10.32996/ijllt.2021.4.4.13>.
- Sa'di, R., Sharadgah, T., Abdelraziq, A., & Yaseen, M. (2022). Future proposals for e-learning at conventional tertiary institutions as they move on past the COVID experience. *The Electronic Journal of e-Learning*, 20(5), 523-537. <https://doi.org/10.34190/ejel.20.5.2565>.
- Sayyed, S. W., & Al-Khanji, R. R. (2019). A corpus-based analysis of eight English synonymous adjectives of fear. *International Journal of Linguistics*, 11(1), 111. <https://doi.org/10.5296/ijl.v11i1.14297>.
- Sezgin, Z. (2022). Systematic analysis of digital reading studies in the digital age. *Participatory Educational Research*, 9(1). Retrieved from <http://www.perjournal.com>
- Smadi, O., & Al-Zawahreh, A. (2013). The effect of an online extensive reading instructional program on Jordanian eleventh-grade students' proficiency in English. *Journal of Education and Practice*, 4(12), 170-187.
- Sun, B., Loh, C. E., & Nie, Y. (2021). The COVID-19 school closure effect on students' print and digital leisure reading. *Computers and Education Open*, 2. <https://doi.org/10.1016/j.caeo.2021.100033>
- Trivenita, S. D. (2018). Students' perceptions toward printed and digital reading in extensive reading. Universitas Kristen Satya Wacana, Indonesia. Retrieved from <http://repository.uksw.edu/handle/123456789/18275>
- Zainal, A. G., Ismail, S. M., Tagibova, A. A., Al-Sayyed, S. W., Wekke, I. S., Sofyawati, E. D., Islam, M. Z., & Haidari, M. M. F. (2022). An account of EFL learners' grammatical knowledge and motivation toward learning in an online instructional environment. *Education Research International*, 2022, 1-11. <https://doi.org/10.1155/2022/8099222>.

Declaration of conflict of interest:

The researchers declare and undertake that there is no conflict of interest with any person or institution. This research has not been previously published in any way, whether written, read, published, visual or audio.

Funding statement:

This research did not receive any financial support.

Biography of researchers

Maha Yaseen

Dr. Maha Yaseen holds a PhD in English Linguistics and is currently the Vice Dean of the Faculty of Arts and Sciences at Al-Ahliyya Amman University. She specializes in phonetics and phonology, semantics and pragmatics, and discourse analysis. With extensive experience in academic research and teaching, Dr. Yaseen has contributed to various scholarly projects and published works in the field of linguistics.

Email: m.yaseen@ammanu.edu.jo

ORCID: <https://orcid.org/0000-0002-6719-4829>

Salem Ibnian

Dr. Salem Ibnian, an Associate Professor of Teaching English as a Foreign Language (TEFL), has taught various English language-related courses at both local and regional universities, including the University of Jordan, Umm Al-Qura University in Saudi Arabia, and the Training Institute of the Internal Security Forces (ISF) in Qatar. His research primarily focuses on foreign language teaching and learning, translation, and language testing.

Email: Salem_Ibnian@yahoo.com

Sa'ida W. Al-Sayyed

Sa'ida Sayyed got her PhD in Corpus Linguistics from the University of Jordan, Jordan in 2019. Currently, she is an Associate Professor in the Department of English Language and Literature at Al-Ahliyya Amman University (AAU) - (Amman, Jordan). Her research interests are ELT, corpus linguistics, translation and linguistics. She has published papers in different journals.

Email: saida.sayyed@yahoo.com

ORCID: <https://orcid.org/0000-0003-0109-9092>

APPENDIX

Appendix (1)

Vocabulary Test

Student's Name:

Number:

Date:

Time: 30 minutes

Q.1: Choose the appropriate word to fill in the blank in each of the following sentences:

1- Mount Everest is the highest _____ in the Himalaya mountain range.

A. peak

B. island

C. stream

D. boulder

2- Rice, bread and pasta are _____.

A. cereal products

B. junk food

C. dairy products

D. fats

3- We asked the waiter to bring us the _____.

A. tip

B. bill

C. receipt

D. sum

4- The rescue team had to _____ the search for the missing people due to the bad weather conditions.

A. desert

B. leave

C. dumb

D. abandon

5- Last week's tsunami caused big _____ with the height of 15 meters.

A. seas

B. lakes

C. waves

D. sand

6- The UN decided to deploy _____ forces in the conflict zone.

A. peacekeeping

B. negotiation

C. armed gangs

D. conflict

7- _____ is caused by burning fossil fuels.

A. rain

B. carbon footprints

C. acid rain

D. snow

8- _____ could cause serious health and environmental problems.

A. hazardous waste

B. domestic waste

C. recycled waste

D. treated waste

9- Many factories _____ harmful pollutants into the atmosphere.

A. minimize

B. donate

C. emit

D. absorb

10- Some refugees seek _____ to live peacefully in other countries.

A. commotion

B. turmoil

C. haste

D. asylum

11- The doctor wrote me a _____ so as to help relieve the pain.

A. suggestion

B. patient

C. Radiation

D. prescription

12- _____ happens when a person doesn't have the normal amount of red blood cells.

A. dementia

B. amnesia

C. anemia

D. cold

13- The warring sides failed to extend a nationwide _____ and stop the conflict.

A. Ceasefire

B. conflict

C. War

D. clash

Q.2: Complete the blank spaces in the following paragraph using words from the list below:

People nowadays release greenhouse gases into the _____. The result is global warming and _____ in the Earth's _____. It is _____ ecological problem facing the world at the moment. But there are some actions that we can do to make a big difference. We still use _____ as our main form of transport. We can reduce the amount of gases by walking or by using _____. In addition, every time we use electricity we are contributing to _____ warming. It really helps to _____ the lights, the television, _____ and other electrical items when we finish using them. Alternative _____ such as _____ and _____ will also help reduce the effect of global warming.

- | | | | |
|--------------------|----------------------|------------------|---------------|
| 1- energy | 2- temperature | 3- the computer | 4- atmosphere |
| 5- the biggest | 6- cars | 7- switch off | 8- global |
| 9- wind generators | 10- public transport | 11- solar panels | 12- increase |

Good Luck,

Adwan@2024