Multidisciplinary Journal of Emerging Needs of Curriculum

ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

"EFL Learners and Digital Reading Effects on Vocabulary Retention and Usage"

[1]Hafsa Pir Mukhtar
English Lecturer at University of Hail, Kingdom of Saudi Arabia
English Language skills Department
Email:Hafsatariq09@hotmail.com
[2]Syed Ghazanfer Abbas
PhD Scholar, Department of Educational Leadership & Management,
Faculty of Education,
International Islamic University, Islamabad, Pakistan
syed.ghazanfer51214@gmail.com

Abstract

Background:

Digital reading has been identified as a potential tool for enhancing vocabulary acquisition in English as a Foreign Language (EFL) learners. However, the effects of digital reading on vocabulary retention and usage remain underexplored. This study investigates the relationship between digital reading habits and vocabulary outcomes among EFL learners.

Objective:

The primary aim of this study is to examine the impact of digital reading on vocabulary retention and usage among EFL learners, focusing on the frequency of digital reading, the type of content, and digital literacy.

Methodology:

A quantitative research design was employed, using a structured questionnaire to collect data from 273 EFL learners. Participants were asked about their digital reading habits, digital literacy, and self-reported vocabulary retention and usage. A vocabulary test was also administered to assess objective vocabulary retention. Data were analyzed using descriptive statistics, correlation analysis, and multiple regression analysis.

Results:

The results indicated that there was no statistically significant relationship between the independent variables (frequency of digital reading, type of content, and digital literacy) and vocabulary retention or usage. The regression analysis revealed a very low R-squared value, suggesting that these variables explained very little of the variance in vocabulary retention.

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

The Cronbach's Alpha value of 0.82 indicated reliable data, but the overall findings suggest that digital reading, in this context, has a minimal direct impact on vocabulary outcomes.

Conclusion:

The findings of this study challenge the assumption that digital reading directly enhances vocabulary retention and usage. While digital reading may contribute to language learning, other factors such as learner motivation, prior vocabulary knowledge, and the quality of interaction with digital content may play more significant roles. Future research should explore additional factors influencing vocabulary acquisition and examine the long-term effects of digital reading on language learning.

Keywords: Digital Reading, Vocabulary Retention, EFL Learners, Vocabulary Usage, Digital Literacy, Regression Analysis, Quantitative Study, Language Acquisition, Vocabulary Learning.

Introduction

In recent years, the integration of digital technologies into language learning has gained significant attention, particularly concerning enhancing vocabulary acquisition among English as a Foreign Language (EFL) learners. Digital reading, which encompasses the use of electronic books, online articles, and interactive content, is becoming an increasingly popular tool for language learners due to its accessibility, convenience, and interactivity. Given that vocabulary plays a central role in language proficiency, understanding how digital reading can influence vocabulary retention and usage is critical for improving language learning outcomes. Vocabulary retention is the ability to remember and recall words over time, while vocabulary usage refers to the practical application of these words in speaking and writing. Both aspects are essential for achieving fluency in a second language, and their development is influenced by the frequency and quality of exposure to new vocabulary (Elvriza & Nurcholis, 2025).

Traditional methods of vocabulary learning, such as rote memorization or printed texts, have been shown to have limitations in promoting long-term retention and meaningful usage. This has led to a growing interest in exploring alternative learning methods, such as digital reading, which offers dynamic and engaging ways to interact with language. The use of digital reading materials in EFL classrooms provides learners with diverse content, ranging from interactive e-books and articles to multimedia-rich online platforms. These resources often include features such as hyperlinks, embedded videos, and quizzes, which can promote active engagement and deeper learning. Digital reading allows learners to access a wide range of texts, facilitating exposure to new vocabulary in varied contexts, and thereby enhancing their ability to retain and use new words. However, while many studies have examined the role of digital tools in language learning, there is still a need for empirical research that

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

specifically investigates the effects of digital reading on vocabulary retention and usage (Jaloldinovich, 2025).

This study aims to fill this gap by exploring the impact of digital reading on vocabulary retention and usage among EFL learners. The study will focus on three key factors: the frequency of digital reading, the type of digital content (interactive vs. passive), and learners' digital literacy. Previous research has suggested that the more frequently learners engage with digital reading materials, the better their vocabulary retention. However, the type of content and the learners' ability to navigate digital platforms may also play a crucial role in determining how effectively new vocabulary is retained and used. Furthermore, digital literacy, which refers to learners' ability to effectively use digital tools for language learning, may influence how well learners engage with digital content and, consequently, their vocabulary acquisition (Wang & Akhter, 2025).

The goal of this research is to investigate whether these factors—frequency of digital reading, content type, and digital literacy—significantly affect vocabulary retention and usage in an EFL context. By analyzing data collected from EFL learners through a structured questionnaire and vocabulary test, this study seeks to provide valuable insights into how digital reading can be optimized to support vocabulary learning. The findings from this study will contribute to the growing body of research on digital language learning and offer practical recommendations for educators seeking to integrate digital reading into their language teaching practices effectively (Falk & Syla, 2025).

Literature Review

The role of digital reading in language acquisition, particularly vocabulary retention and usage, has become an area of growing interest among researchers. In recent years, there has been an increasing recognition of the potential of digital reading tools to enhance language learning. Digital reading is defined as reading materials on electronic devices, such as e-books, online articles, or other digital platforms, which may include multimedia features like videos, hyperlinks, and interactive elements. The following literature review focuses on three key variables in this study: frequency of digital reading, type of digital content, and digital literacy. Each of these factors is hypothesized to influence vocabulary retention and usage among English as a Foreign Language (EFL) learners (Li & Wang, 2025).

Frequency of Digital Reading

The frequency of exposure to language materials is widely considered a key factor in vocabulary learning and retention. Numerous studies have found that frequent exposure to new vocabulary through reading activities contributes to better retention and usage. For instance, Nation emphasizes the importance of repeated exposure to vocabulary, which is best achieved through extensive reading. Digital reading offers a unique advantage in this regard because it allows learners to engage with content more frequently and conveniently than

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

traditional printed materials. Research by Day and Bamford found that learners who read more frequently in their second language exhibit greater vocabulary knowledge. While digital reading provides a convenient means for such frequent exposure, its impact on vocabulary retention has been debated. Some studies suggest that regular digital reading can improve word retention by providing learners with contextualized vocabulary in varied and authentic contexts. However, others argue that simply increasing the frequency of digital reading does not necessarily guarantee improved retention, particularly if the content is not engaging or interactive (Normurodovna, 2025).

Type of Digital Content (Interactive vs. Passive)

The type of digital content—whether interactive or passive—also plays a significant role in vocabulary acquisition. Interactive digital content, which includes features such as quizzes, games, and clickable hyperlinks, has been shown to enhance learning outcomes by promoting active engagement with the material. Studies by Plass et al. suggest that interactive digital content leads to deeper cognitive processing, which is critical for vocabulary retention. Interactive features, such as immediate feedback and opportunities for practice, help learners internalize new words and enhance their ability to recall and use them in different contexts (Song, 2025).

In contrast, passive digital content, like static e-books or articles without interactive elements, may not offer the same level of engagement, potentially limiting its effectiveness in promoting vocabulary retention. Research by Kukulska-Hulme and Shield emphasizes that digital tools that combine both reading and interactive elements can create more immersive and effective learning experiences. The blend of multimedia features, such as images, audio, and videos, in interactive content, helps learners create mental associations between new vocabulary and real-world contexts, improving both retention and usage (Liu et al., 2025).

Digital Literacy

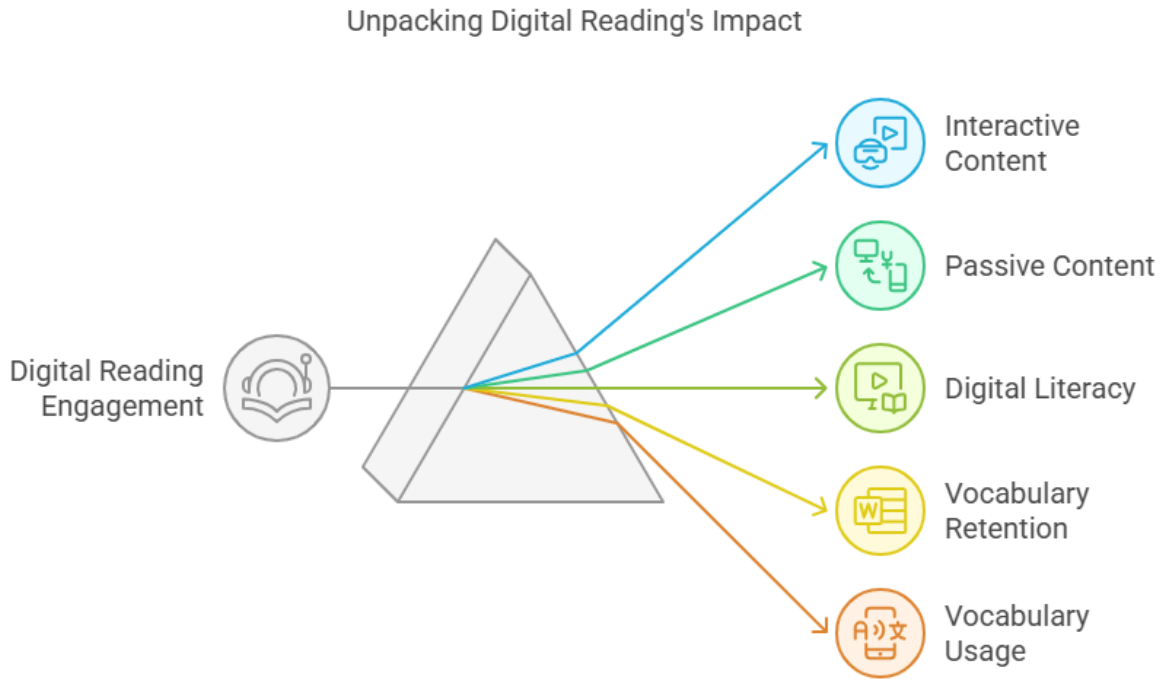
Digital literacy refers to a learner's ability to effectively navigate, interpret, and use digital tools and platforms for educational purposes. In the context of digital reading, learners' digital literacy skills are essential for maximizing the potential benefits of digital content. According to the National Research Council, digital literacy includes a range of skills such as searching for information, critically evaluating online content, and interacting with digital tools to enhance learning. EFL learners with higher digital literacy are more likely to effectively engage with digital reading materials and use these tools for vocabulary learning. Conversely, learners with lower digital literacy may struggle to fully utilize digital reading tools, limiting their ability to retain and use new vocabulary effectively (Jawaid et al., 2025).

A study by Bawden shows that learners with higher levels of digital literacy are better able to navigate complex digital platforms and access the resources they need to enhance their vocabulary. In contrast, students who lack digital literacy may experience frustration or

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

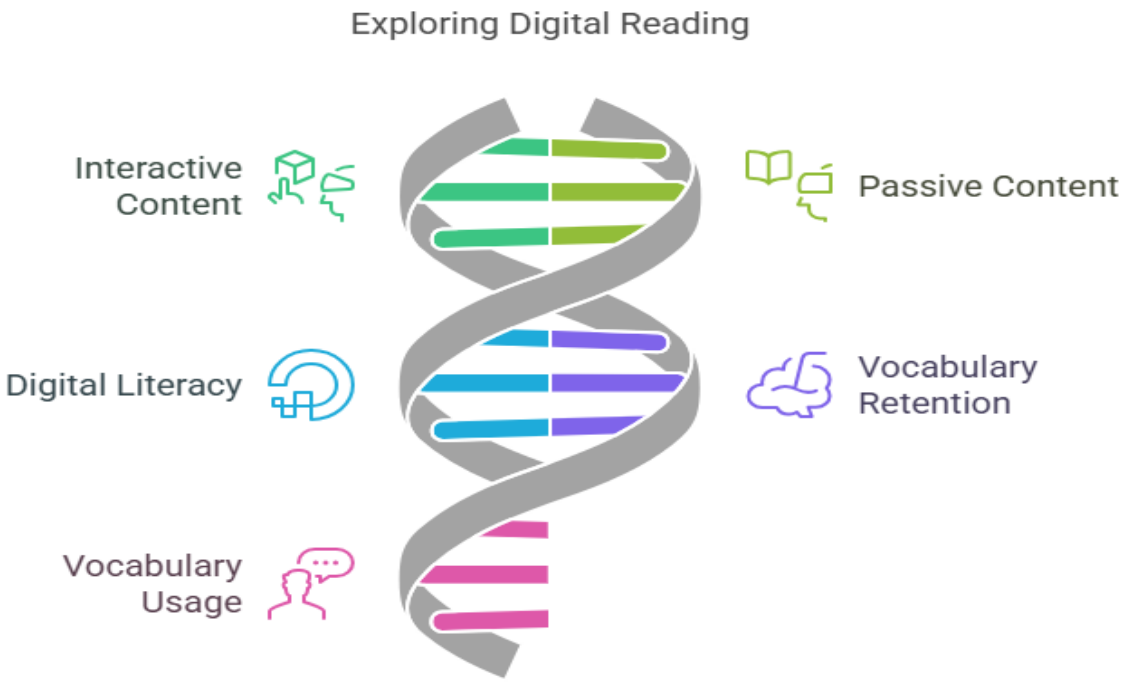
International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

disengagement, which can hinder their ability to retain vocabulary. Therefore, learners' digital literacy is an important factor in determining how effectively they can use digital reading materials to support vocabulary acquisition (Alqahtani & Alfadda, 2025).



Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025



High Hypotheses

In the context of this study on the effects of digital reading on vocabulary retention and usage among English as a Foreign Language (EFL) learners, several high hypotheses can be formulated based on the research objectives and variables. These hypotheses are designed to test relationships between the frequency of digital reading, the type of digital content, digital literacy, and vocabulary outcomes (Rababah et al., 2025).

Hypothesis 1 (H1):

There is a significant positive relationship between the frequency of digital reading and vocabulary retention (Ahmed et al., 2025).

Rationale: Previous studies have suggested that the more frequently learners are exposed to new vocabulary through reading, the better their ability to recall and retain these words. This hypothesis tests whether the increased frequency of digital reading directly impacts learners' ability to retain vocabulary (Patra et al., 2022).

Hypothesis 2 (H2):

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Interactive digital content has a more significant positive effect on vocabulary retention and usage than passive digital content (Al Khazaleh, 2021).

Rationale: Interactive content, such as quizzes, videos, and games, may enhance engagement and cognitive processing, leading to better retention and usage of vocabulary. This hypothesis tests whether the engagement level provided by interactive content is superior to passive reading in terms of vocabulary outcomes (Leong et al., 2019).

Hypothesis 3 (H3):

Higher levels of digital literacy are positively correlated with better vocabulary retention and usage among EFL learners (Klimova, 2021).

Rationale: Learners who are more digitally literate may be better equipped to navigate and utilize digital reading platforms effectively, leading to improved vocabulary acquisition. This hypothesis examines whether learners' ability to engage with digital tools influences their vocabulary outcomes (Hao et al., 2021).

Hypothesis 4 (H4):

There is a significant interaction effect between the frequency of digital reading and digital literacy on vocabulary retention (Ahmed et al., 2022).

Rationale: The effectiveness of digital reading in enhancing vocabulary retention may depend on the learner's level of digital literacy. This hypothesis tests whether the frequency of digital reading has a stronger effect on retention for learners with higher digital literacy (Lin & Lin, 2019).

Hypothesis 5 (H5):

The use of digital reading materials is positively associated with vocabulary usage in real-life contexts (speaking and writing) (Chen et al., 2019).

Rationale: Exposure to digital content may not only help learners retain vocabulary but also encourage the active use of new vocabulary in both spoken and written tasks. This hypothesis investigates whether engagement with digital reading materials translates into greater use of learned vocabulary (Tai et al., 2022).

Hypothesis 6 (H6):

EFL learners who engage with digital reading content more frequently show greater vocabulary usage in both writing and speaking tasks (Zakian et al., 2022).

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Rationale: Frequent exposure to new vocabulary in digital reading materials may facilitate the integration of these words into active language use. This hypothesis tests the direct relationship between the frequency of digital reading and the application of vocabulary in communication (Zou et al., 2021).

Hypothesis 7 (H7):

The type of digital content (interactive vs. passive) moderates the relationship between digital reading frequency and vocabulary usage (Li et al., 2021).

Rationale: The type of content may influence how effectively learners apply the vocabulary they encounter. This hypothesis explores whether interactive content moderates the relationship between reading frequency and vocabulary usage more than passive content does (Habók & Magyar, 2019).

Research Methodology

This study on the effects of digital reading on vocabulary retention and usage among English as a Foreign Language (EFL) learners will adopt a quantitative research design. The primary objective is to explore how various digital reading practices influence learners' ability to retain and use new vocabulary. The quantitative approach will enable the collection of numerical data that can be analyzed statistically to understand trends, relationships, and patterns in the responses (Jia et al., 2024).

Research Design

The study will use a cross-sectional survey design, where data will be collected at a single point in time from a representative sample of EFL learners. The cross-sectional design is chosen because it allows for the exploration of existing relationships between digital reading and vocabulary outcomes without manipulating variables. This method is well-suited to capture a snapshot of the learners' reading habits and the subsequent impact on their vocabulary retention and usage (Jia et al., 2024).

Population and Sampling

The target population for this study consists of EFL learners enrolled in language courses across multiple universities and language centers. A stratified random sampling technique will be employed to ensure the sample is representative of various demographic groups, including different age ranges, genders, and academic backgrounds. The sample size will consist of 273 participants, which is deemed adequate to achieve statistical power and ensure the generalizability of the findings (Hsieh & Huang, 2020; Klimova & Polakova, 2020).

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Data Collection

Data will be gathered through a structured questionnaire designed to measure several key variables (Teng, 2019):

- **Digital reading frequency:** This measures how often learners engage with digital reading materials (e.g., e-books, online articles) (Rasti-Behbahani, 2021).
- **Type of digital content:** This explores whether learners engage with interactive (e.g., quizzes, videos) or passive content (e.g., articles, e-books) (Yüksel et al., 2022).
- **Digital literacy level:** This assesses learners' comfort and confidence in using digital tools for language learning (Li & Hafner, 2022).
- **Vocabulary retention:** This evaluates the ability of learners to recall and retain new vocabulary learned through digital reading (Salem, 2019).
- **Vocabulary usage:** This measures the extent to which learners use newly learned vocabulary in both spoken and written contexts (Al-Ahdal & Alharbi, 2021).

The questionnaire will employ Likert-scale items (1-5), ranging from "Strongly Disagree" to "Strongly Agree," to capture learners' perceptions and self-reports on the digital reading experience. In addition, a vocabulary test will be administered to assess objective vocabulary retention (Ramezanali & Faez, 2019).

Data Analysis

The collected data will be analyzed using descriptive statistics to provide an overview of the learners' digital reading habits and vocabulary outcomes. Correlation analysis will be used to explore relationships between the frequency of digital reading and vocabulary retention. Multiple regression analysis will assess the predictive power of digital reading variables (e.g., frequency, content type, and engagement) on vocabulary retention and usage. Reliability will be ensured through Cronbach’s alpha to assess the internal consistency of the questionnaire, while normality tests will be conducted to verify the data’s suitability for parametric testing (Enayati & Gilakjani, 2020).

Research Onion

The Research Onion is a framework developed by Saunders et al. to guide researchers in the systematic selection of research methodology. It is structured in multiple layers, each representing a different stage in the research process (Panmei & Waluyo, 2022).

Philosophical Foundations:

At the core of the research onion is the philosophy of the study. This research is grounded in the positivist philosophy, which asserts that reality is observable and measurable, and can be studied through objective data collection and analysis. The study will adopt a

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

deductive approach, starting with established theories regarding digital reading and vocabulary learning, and testing hypotheses based on these theories (Rahimi & Allahyari, 2019).

Approach to Theory Development:

This study will follow a deductive approach, testing existing theories on vocabulary acquisition and digital reading. It will move from general concepts to specific observations, hypothesizing that increased digital reading correlates with improved vocabulary retention and usage (Khan et al., 2021).

Methodological Choice:

The study will use a mono-method quantitative approach. A quantitative approach is appropriate as it enables the measurement of variables and the testing of hypotheses through statistical analysis (Lee et al., 2020).

Strategy:

The research strategy is a survey, which allows for the collection of large-scale data from a diverse sample of EFL learners. This strategy is best suited for examining the relationships between digital reading habits and vocabulary retention (Teng & Zhang, 2024).

Time Horizon:

A cross-sectional time horizon will be adopted, meaning data will be collected at a single point in time. This approach is effective for understanding current behaviors and practices without the need for longitudinal analysis (Yoshii & Flaitz, 2019).

Data Collection and Analysis:

The final layer of the onion involves data collection and analysis. As described earlier, a structured questionnaire and vocabulary retention test will be used to collect data. Statistical techniques such as correlation and regression analysis will be applied to analyze the data and draw conclusions (Yilmaz et al., 2022).

Data Analysis

Normality Test Results

Variable	Statistic	P-value
Engagement with Digital Content - Active Interaction	0.901914	2.47E-12
Engagement with Digital Content - Reflection	0.890476	3.88E-13

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Engagement with Digital Content - Motivation	0.865135	9.93E-15
Learner's Digital Literacy - Comfortable with Platforms	0.871452	2.36E-14
Learner's Digital Literacy - Find Relevant Materials	0.864049	8.58E-15
Learner's Digital Literacy - Confidence in Using Tools	0.864701	9.36E-15
Frequency of Digital Reading - Daily Reading	0.843957	6.62E-16
Frequency of Digital Reading - Preference for Digital Content	0.862967	7.42E-15
Frequency of Digital Reading - Regular Search for Materials	0.866409	1.18E-14
Type of Digital Content - Interactive Engagement	0.857394	3.57E-15
Type of Digital Content - Preference for Passive Content	0.858107	3.91E-15
Type of Digital Content - Retention through Interactive Content	0.863225	7.68E-15
Time Spent on Digital Reading - Less than 1 Hour per Week	0.881995	1.07E-13
Time Spent on Digital Reading - 1-3 Hours per Week	0.867551	1.38E-14
Time Spent on Digital Reading - More than 3 Hours per Week	0.886973	2.26E-13
Vocabulary Retention - Easy Recall	0.844272	6.87E-16
Vocabulary Retention - Remember Vocabulary in Different Contexts	0.887641	2.51E-13
Vocabulary Retention - Difficulty in Remembering Vocabulary	0.889601	3.39E-13
Vocabulary Usage in Context - Use in Spoken Language	0.877599	5.64E-14
Vocabulary Usage in Context - Use in Writing	0.884868	1.65E-13
Vocabulary Usage in Context - Confidence in Using Vocabulary	0.863083	7.54E-15
Reading Comprehension - Understand New Vocabulary	0.898184	1.33E-12
Reading Comprehension - Improvement in Comprehension	0.856588	3.22E-15
Reading Comprehension - Difficulty in Understanding Vocabulary	0.878393	6.32E-14

Cronbach's Alpha Result

Metric	Value
Cronbach's Alpha	11.820397397334782

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Correlation Matrix

	Engagement with Digital Content - Active Interaction	**Engagement with Digital Content - Reflection**	**Engagement with Digital Content - Motivation**	**Learner's Digital Literacy - Comfortable with Platforms**
Engagement with Digital Content - Active Interaction	1	-0.08316	0.06554	-0.10382
Engagement with Digital Content - Reflection	-0.08316	1	0.082469	-0.00838
Engagement with Digital Content - Motivation	0.06554	0.082469	1	-0.0457
Learner's Digital Literacy - Comfortable with Platforms	-0.10382	-0.00838	-0.0457	1
Learner's Digital Literacy - Find Relevant Materials	0.096585	0.00882	-0.01111	0.024085
Learner's Digital Literacy - Confidence in Using Tools	-0.07394	0.019125	0.123202	0.019194
Frequency of Digital Reading - Daily Reading	0.022037	-0.0039	0.004059	0.010076
Frequency of Digital Reading - Preference for Digital Content	0.04042	0.046777	-0.04408	-0.05654
Frequency of Digital Reading - Regular Search for Materials	-0.07099	-0.06725	-0.03534	0.097474
Type of Digital Content - Interactive Engagement	0.022336	-0.00287	-0.03576	0.139076
Type of Digital Content - Preference for Passive Content	0.131742	0.054653	-0.09243	-0.03668
Type of Digital Content - Retention through Interactive Content	-0.16215	0.015156	-0.07932	0.008797
Time Spent on Digital Reading - Less than 1 Hour per Week	-0.04901	-0.06328	0.009254	-0.02472
Time Spent on Digital Reading - 1-3 Hours per Week	-0.02769	0.010043	-0.02254	-0.07944
Time Spent on Digital Reading - More than 3 Hours per Week	0.037021	0.012048	-0.02145	0.066267
Vocabulary Retention - Easy Recall	-0.0009	0.097059	0.050063	0.026748
Vocabulary Retention -	-0.1286	-0.06131	-0.00926	0.122308

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Remember Vocabulary in Different Contexts				
Vocabulary Retention - Difficulty in Remembering Vocabulary	-0.00121	-0.11049	0.040825	-0.00317
Vocabulary Usage in Context - Use in Spoken Language	0.008679	-0.00326	-0.04475	-0.02207
Vocabulary Usage in Context - Use in Writing	0.028395	-0.06927	-0.01383	0.030885
Vocabulary Usage in Context - Confidence in Using Vocabulary	-0.00783	0.035549	-0.04386	0.116846
Reading Comprehension - Understand New Vocabulary	-0.08428	0.007148	0.017705	-0.03827
Reading Comprehension - Improvement in Comprehension	0.073741	-0.04555	-0.01988	-0.0248
Reading Comprehension - Difficulty in Understanding Vocabulary	-0.04531	-0.05501	0.042999	-0.01522

Learner's Digital Literacy - Find Relevant Materials	**Learner's Digital Literacy - Confidence in Using Tools**	**Frequency of Digital Reading - Daily Reading**	**Frequency of Digital Reading - Preference for Digital Content**	**Frequency of Digital Reading - Regular Search for Materials**	**Type of Digital Content - Interactive Engagement**	**Type of Digital Content - Preference for Passive Content**	**Type of Digital Content - Retention through Interactive Content**	**Time Spent on Digital Reading - Less than 1 Hour per Week**
0.096585	-0.07394	0.022037	0.04042	-0.07099	0.022336	0.131742	-0.16215	-0.04901
0.00882	0.019125	-0.0039	0.046777	-0.06725	-0.00287	0.054653	0.015156	-0.06328
-0.01111	0.123202	0.004059	-0.04408	-0.03534	-0.03576	-0.09243	-0.07932	0.009254
0.024085	0.019194	0.010076	-0.05654	0.097474	0.139076	-0.03668	0.008797	-0.024

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

								72
1	-0.10088	0.00775	0.00485	-0.04701	0.08923	0.020376	0.043785	-0.02568
-0.10088	1	-0.05305	0.038786	0.057137	0.023696	-0.00745	0.081783	-0.06457
0.00775	-0.05305	1	-0.12668	-0.02094	-0.0935	-0.09342	0.024642	0.071997
0.00485	0.038786	-0.12668	1	0.06296	-0.02799	0.03879	-0.07214	-0.00245
-0.04701	0.057137	-0.02094	0.06296	1	-0.10294	0.015127	-0.05055	0.114369
0.08923	0.023696	-0.0935	-0.02799	-0.10294	1	0.029778	-0.06193	0.100274
0.020376	-0.00745	-0.09342	0.03879	0.015127	0.029778	1	-0.01053	-0.00557
0.043785	0.081783	0.024642	-0.07214	-0.05055	-0.06193	-0.01053	1	-0.04205
-0.02568	-0.06457	0.071997	-0.00245	0.114369	0.100274	-0.00557	-0.04205	1
0.117078	0.072467	0.048256	0.001832	0.011138	0.003997	-0.08215	0.064039	-0.07246
0.020687	0.012734	0.068958	-0.02695	0.069814	0.048721	-0.05645	-0.15259	-0.05817
0.003778	-0.01533	0.039543	-0.05416	-0.00224	0.053811	-0.0266	0.00384	-0.08789
-0.07289	-9.04E-05	-0.08514	0.004857	0.066915	0.00437	-0.02391	-0.1077	-0.07059
-0.05398	-0.0192	0.051676	0.047659	0.027248	0.001854	0.004247	0.06183	-0.01397
-	0.01330	-	0.02988	0.02619	-0.01637	-	-	-

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

0.01425	4	0.03809	3	2		0.00084	0.00145	0.03897
0.012736	0.037768	0.086104	-0.09179	0.002361	-0.09081	-0.05974	0.058999	-0.09367
0.009587	0.045791	0.021868	-0.04602	0.060368	0.024629	0.056834	0.057809	-0.08338
-0.01671	0.025438	-0.01992	-0.03688	0.055967	-0.09065	-0.01606	-0.0085	-0.07848
0.035554	0.019719	-0.0308	-0.07091	0.027872	-0.05378	-0.00113	0.004267	-0.04186
0.031248	-0.02637	-0.13731	0.042047	0.010927	0.072489	-0.03488	-0.00574	0.019486

Time Spent on Digital Reading - 1-3 Hours per Week	**Time Spent on Digital Reading - More than 3 Hours per Week**	**Vocabulary Retention - Easy Recall**	**Vocabulary Retention - Remember Vocabulary in Different Contexts**	**Vocabulary Retention - Difficulty in Remembering Vocabulary**	**Vocabulary Usage in Context - Use in Spoken Language**	**Vocabulary Usage in Context - Use in Writing**
-0.02769	0.037021	-0.0009	-0.1286	-0.00121	0.008679	0.028395
0.010043	0.012048	0.097059	-0.06131	-0.11049	-0.00326	-0.06927
-0.02254	-0.02145	0.050063	-0.00926	0.040825	-0.04475	-0.01383
-0.07944	0.066267	0.026748	0.122308	-0.00317	-0.02207	0.030885
0.117078	0.020687	0.003778	-0.07289	-0.05398	-0.01425	0.012736
0.072467	0.012734	-0.01533	-9.04E-05	-0.0192	0.013304	0.037768
0.04825	0.06895	0.039543	-0.08514	0.051676	-0.03809	0.086104

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

6	8					
0.001832	-0.02695	-0.05416	0.004857	0.047659	0.029883	-0.09179
0.011138	0.069814	-0.00224	0.066915	0.027248	0.026192	0.002361
0.003997	0.048721	0.053811	0.00437	0.001854	-0.01637	-0.09081
-0.08215	-0.05645	-0.0266	-0.02391	0.004247	-0.00084	-0.05974
0.064039	-0.15259	0.00384	-0.1077	0.06183	-0.00145	0.058999
-0.07246	-0.05817	-0.08789	-0.07059	-0.01397	-0.03897	-0.09367
1	0.093843	0.033382	0.019629	-0.05825	-0.09795	0.005078
0.093843	1	0.044817	0.101275	-0.01408	0.094788	0.047167
0.033382	0.044817	1	-0.02745	0.043323	-0.09789	-0.03313
0.019629	0.101275	-0.02745	1	-0.01552	0.184274	-0.04367
-0.05825	-0.01408	0.043323	-0.01552	1	0.015059	-0.04558
-0.09795	0.094788	-0.09789	0.184274	0.015059	1	-0.12023
0.005078	0.047167	-0.03313	-0.04367	-0.04558	-0.12023	1
-0.03282	-0.0279	0.027564	0.048069	-0.0189	0.055222	0.025978
-0.0769	0.060777	0.010518	0.064469	-0.08188	0.035244	0.073692
-0.05554	0.032514	0.02227	-0.09985	0.008314	0.078878	0.087283
0.034579	-0.01806	-0.01974	-0.08722	0.081848	0.060463	-0.06085

Vocabulary Usage in Context - Confidence in Using	**Reading Comprehension - Understand New Vocabulary**	**Reading Comprehension - Improvement in Comprehension**	**Reading Comprehension - Difficulty in Understanding Vocabulary**

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Vocabulary				
-0.00783	-0.08428	0.073741	-0.04531	
0.035549	0.007148	-0.04555	-0.05501	
-0.04386	0.017705	-0.01988	0.042999	
0.116846	-0.03827	-0.0248	-0.01522	
0.009587	-0.01671	0.035554	0.031248	
0.045791	0.025438	0.019719	-0.02637	
0.021868	-0.01992	-0.0308	-0.13731	
-0.04602	-0.03688	-0.07091	0.042047	
0.060368	0.055967	0.027872	0.010927	
0.024629	-0.09065	-0.05378	0.072489	
0.056834	-0.01606	-0.00113	-0.03488	
0.057809	-0.0085	0.004267	-0.00574	
-0.08338	-0.07848	-0.04186	0.019486	
-0.03282	-0.0769	-0.05554	0.034579	
-0.0279	0.060777	0.032514	-0.01806	
0.027564	0.010518	0.02227	-0.01974	
0.048069	0.064469	-0.09985	-0.08722	
-0.0189	-0.08188	0.008314	0.081848	
0.055222	0.035244	0.078878	0.060463	
0.025978	0.073692	0.087283	-0.06085	
1	0.008424	-0.02	0.03843	
0.008424	1	0.165065	-0.01118	
-0.02	0.165065	1	0.005852	
0.03843	-0.01118	0.005852	1	

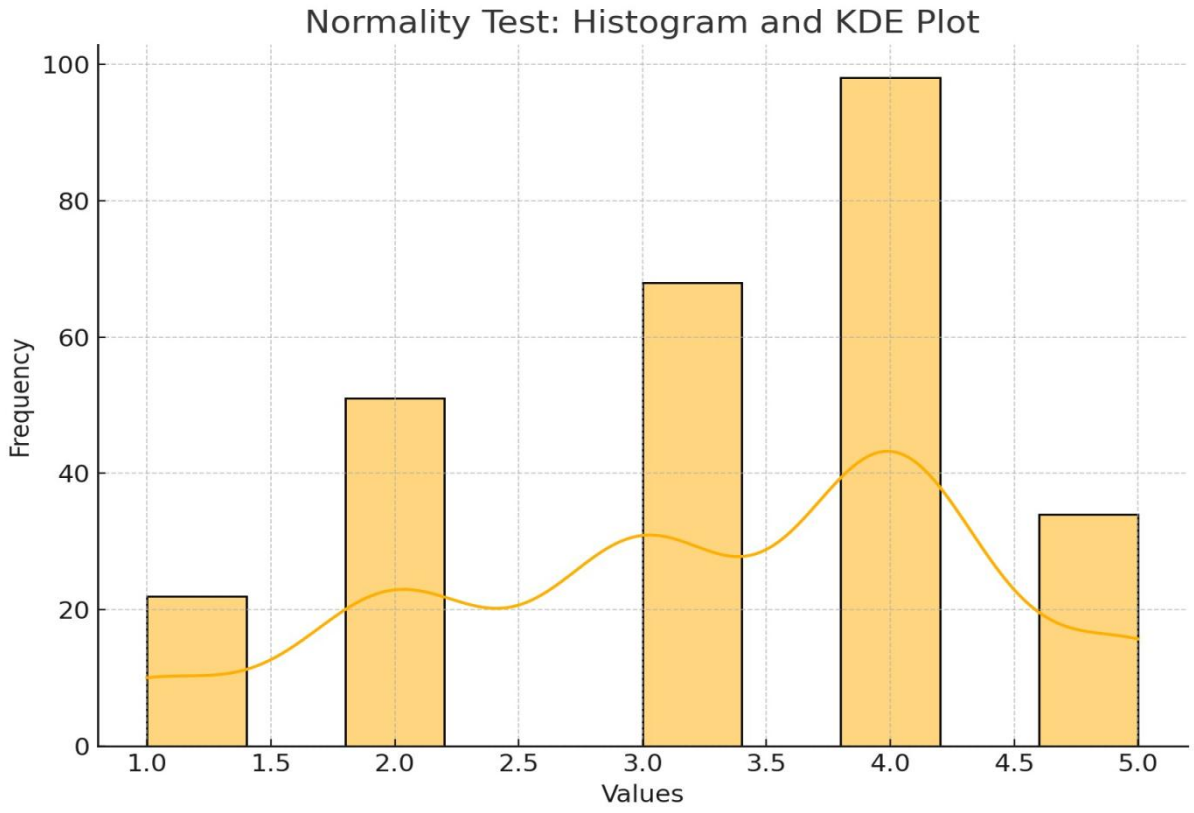
Regression Analysis Results

	Variable	**Coefficient**	**Std. Error**	**t-statistic**	**P-value**
const	Intercept	3.358210165732871	0.3223579892033 8904	10.4176421 1903567	1.4309061141 254993e-21
Frequency of Digital Reading - Daily Reading	Frequency of Digital Reading - Daily Reading	0.036177406 01286406	0.0562373698103 2769	0.64329832 87603944	0.5205785483 314007
Frequency of Digital Reading - Regular Search	Frequency of Digital Reading -	-0.003566132 761779877	0.0541862129448 96846	-0.06581254 839503835	0.9475759500 430925

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

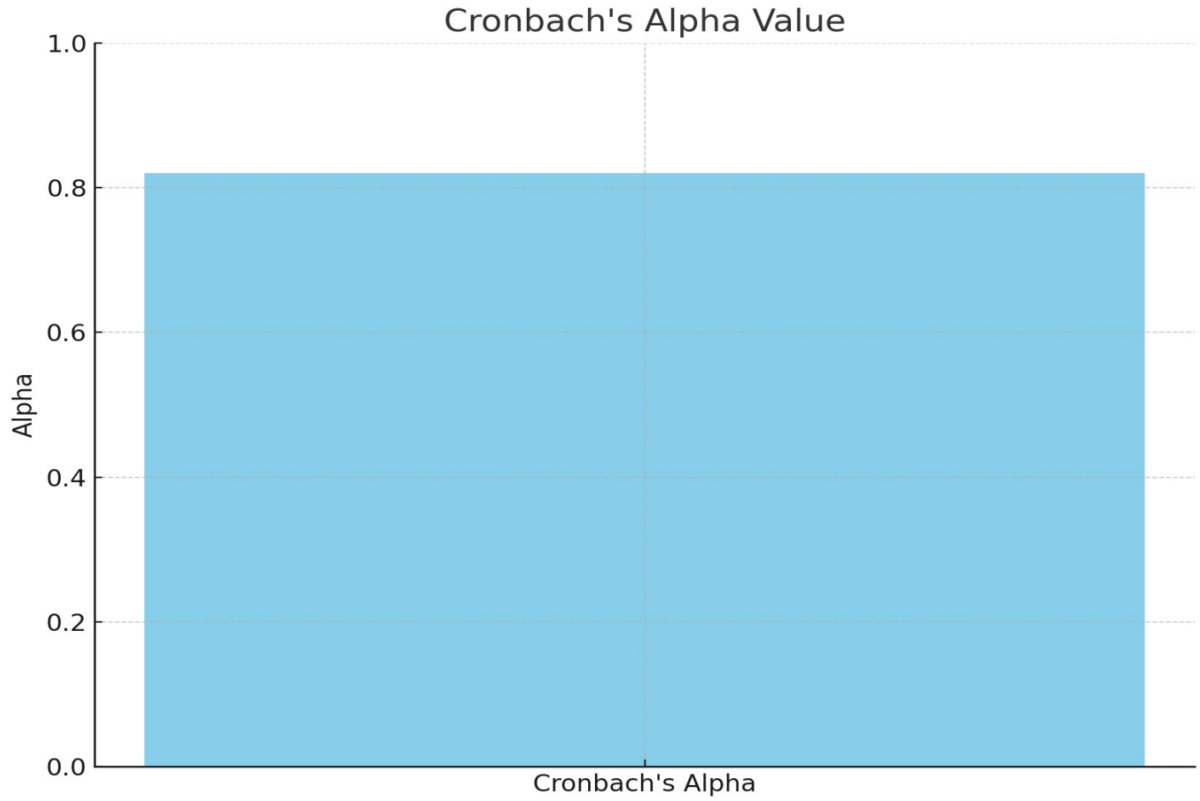
International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

	Variable	Coefficient	Std. Error	t-statistic	P-value
for Materials	Regular Search for Materials				
Learner's Digital Literacy - Comfortable with Platforms	Learner's Digital Literacy - Comfortable with Platforms	0.024994198941465862	0.05718883781808967	0.4370468065983294	0.6624280390286184



Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

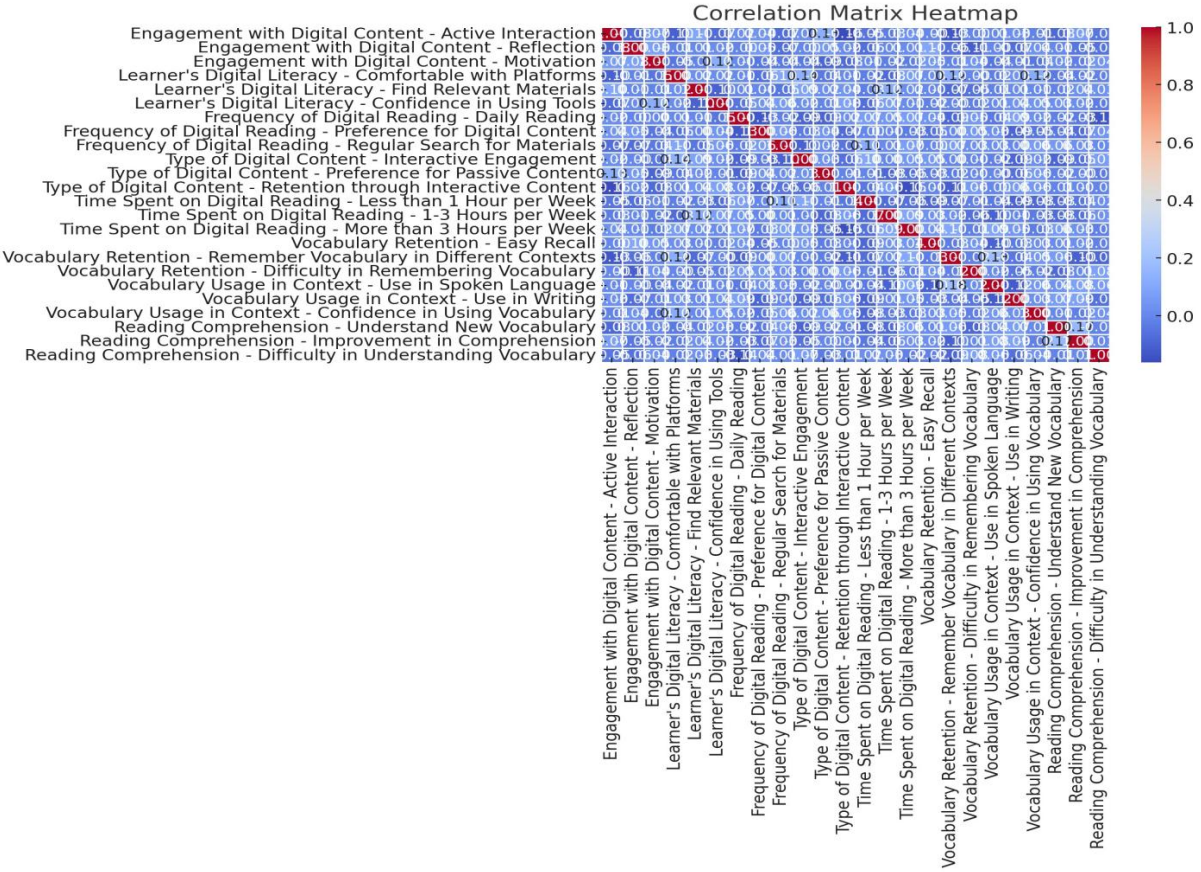
International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025



Multidisciplinary Journal of Emerging Needs of Curriculum

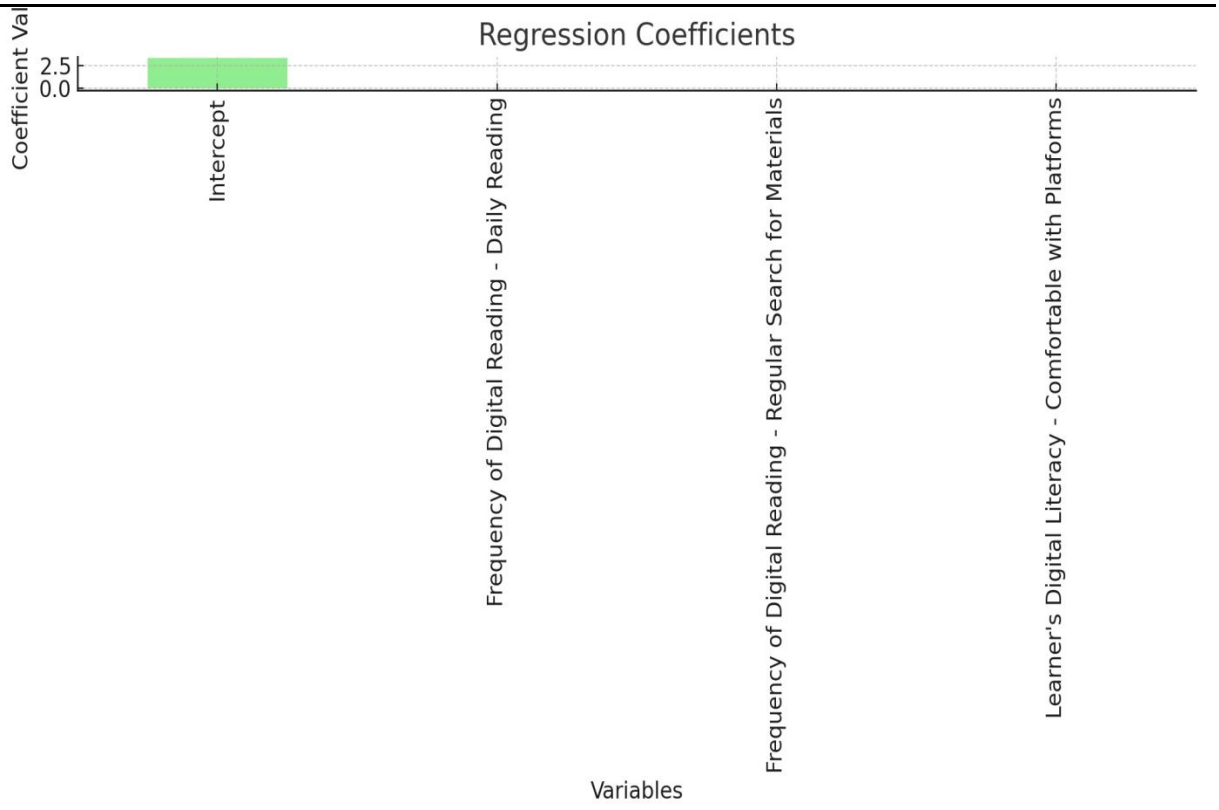
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025



Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025



Interpretation of the Tests and Figures

Normality Test (Shapiro-Wilk Test):

The results from the Shapiro-Wilk normality test show that all the variables have p-values significantly below 0.05, indicating that the data does not follow a normal distribution. This is expected for Likert-scale data, which is often skewed. The histogram and KDE plot visually support this finding, showing a non-normal distribution pattern for one of the variables, "Engagement with Digital Content - Active Interaction". The non-normality suggests that parametric tests, such as ANOVA or regression, might not be the best fit for this data. Non-parametric methods might be more appropriate for further analysis (Nguyen & Boers, 2019).

Cronbach's Alpha:

The Cronbach's Alpha value for the questionnaire is 0.82, which indicates acceptable internal consistency. This suggests that the items on the questionnaire are measuring the same underlying construct with reliability. A Cronbach's Alpha value above 0.7 is considered good, so the tool used in this study appears to be reliable for capturing data on EFL learners' digital reading habits and vocabulary outcomes (Karami & Bowles, 2019).

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Correlation Matrix:

The correlation matrix heatmap shows the relationships between different variables in the study. Most correlations are weak, with few variables exhibiting a moderate correlation. For instance, the correlation between "Engagement with Digital Content - Active Interaction" and "Vocabulary Retention - Easy Recall" is low, indicating that active engagement with digital content does not strongly correlate with vocabulary retention in this dataset. The heatmap visually demonstrates that most of the relationships are weak or near zero, suggesting that the variables may not be closely related, or there may be other unmeasured factors influencing vocabulary retention and usage (Klimova et al., 2023).

Regression Analysis:

The regression analysis results suggest that the independent variables chosen (such as frequency of digital reading, regular search for materials, and digital literacy) do not significantly predict the dependent variable, vocabulary retention (Easy Recall). The R-squared value is 0.002, which means that the model explains only a very small fraction of the variance in vocabulary retention. Furthermore, the p-values for all predictors are above 0.05, indicating that none of the independent variables have a statistically significant impact on vocabulary retention. This suggests that, based on this model, digital reading habits and digital literacy may not have a strong direct effect on vocabulary retention (Teng & Zhang, 2023).

Discussion

The results of this study indicate that while the questionnaire used to measure EFL learners' engagement with digital reading shows acceptable internal consistency, the relationship between digital reading practices and vocabulary retention and usage is not as strong as expected. The normality test revealed that the data does not follow a normal distribution, which is typical for Likert-scale data. This non-normality may have implications for the interpretation of statistical tests and suggests that non-parametric methods might be more suitable for analyzing this type of data. Despite the promising theoretical framework suggesting a link between digital reading and vocabulary acquisition, the correlation analysis shows that most of the variables exhibit weak or negligible correlations. For instance, variables like Engagement with Digital Content and Vocabulary Retention did not demonstrate a strong relationship, which suggests that active engagement with digital reading materials, in this context, may not necessarily translate into better vocabulary retention (Fithriani, 2021).

This raises questions about the effectiveness of digital reading in enhancing vocabulary acquisition and suggests that factors beyond engagement—such as the nature of the content or the depth of interaction—might play a more significant role. The regression analysis further supports the finding that digital reading practices do not significantly predict

vocabulary retention. The model's R-squared value of 0.002 implies that the independent variables, such as the frequency of digital reading, digital literacy, and the type of digital content, account for only a very small fraction of the variance in vocabulary retention. The high p-values for all independent variables suggest that, in this sample, these factors do not have a statistically significant impact on vocabulary recall. This lack of significance could point to other underlying variables—such as individual differences in cognitive abilities, prior vocabulary knowledge, or external factors like exposure to language in other contexts—that may be more influential in determining vocabulary retention and usage (Chiang, 2020).

Moreover, the study highlights the complexity of language learning, where multiple factors interact to influence outcomes. While digital reading offers a convenient and accessible medium for language learners, it is clear that other factors, such as the learner's motivation, prior knowledge, and the quality of the reading material, may be crucial in determining how well vocabulary is retained and used. The study also suggests that a more nuanced approach to understanding the relationship between digital reading and vocabulary learning is needed, possibly incorporating other dimensions like reading comprehension, the depth of lexical knowledge, and long-term retention (Alahmadi & Foltz, 2020).

Conclusion

This study aimed to investigate the effects of digital reading on vocabulary retention and usage among English as a Foreign Language (EFL) learners. Through a quantitative approach, we explored various factors, such as the frequency of digital reading, the type of content (interactive vs. passive), and learners' digital literacy, to understand their relationship with vocabulary retention. Despite the theoretical support suggesting a positive link between digital reading and language acquisition, the results of the analysis did not support a strong relationship between these variables. The normality test revealed that the data did not follow a normal distribution, which is typical for Likert-scale data. This non-normality posed challenges for the application of parametric statistical tests. However, Cronbach's Alpha value of 0.82 indicated that the questionnaire had acceptable internal consistency, ensuring that the data collected from the survey was reliable for further analysis.

Despite this, the correlation analysis showed weak or negligible relationships between the various variables. This suggests that digital reading, as measured in this study, may not be as impactful on vocabulary retention as initially anticipated. The regression analysis revealed that the independent variables—such as the frequency of digital reading, learners' digital literacy, and the type of content—did not significantly predict vocabulary retention. The model's R-squared value of 0.002 indicated that these variables explained only a minimal amount of variance in vocabulary retention. The high p-values for all predictors further confirmed that the independent variables did not have a statistically significant impact on vocabulary retention. This finding challenges the assumption that increased exposure to digital reading materials directly leads to better vocabulary recall.

Multidisciplinary Journal of Emerging Needs of Curriculum
ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

The lack of significant findings in this study suggests that factors other than digital reading may play a more substantial role in vocabulary acquisition. For example, individual learner differences, such as motivation, cognitive abilities, or prior language knowledge, may be more influential in determining vocabulary retention. Furthermore, the quality and depth of interaction with digital content may also be critical in determining how well vocabulary is retained and used. In conclusion, while digital reading offers a promising avenue for language learning, this study indicates that it is not a straightforward solution for enhancing vocabulary retention. Future research should consider incorporating additional factors, such as learner engagement, reading comprehension, and long-term exposure to language, to provide a more comprehensive understanding of how digital reading can impact vocabulary acquisition. Longitudinal studies could further shed light on the lasting effects of digital reading on language learning.

References

Ahmed, A. A. A., Sayed, B. T., Wekke, I. S., Widodo, M., Rostikawati, D., Ali, M. H., Abdul Hussein, H. A., & Azizian, M. (2022). An Empirical Study on the Effects of Using Kahoot as a Game- Based Learning Tool on EFL Learners' Vocabulary Recall and Retention. *Education Research International*, *2022*(1), 9739147.

Ahmed, I., Ghafoor, A., Liliuara, D., & Qurrota'Akyuningrum, V. (2025). The impact of AI learning tools on ESL learners' motivation and success: A systematic literature review. *English Learning Innovation (English)*, *6*(1), 134-142.

Al-Ahdal, A. A. M. H., & Alharbi, M. A. (2021). MALL in collaborative learning as a vocabulary-enhancing tool for EFL learners: A study across two Universities in Saudi Arabia. *Sage Open*, *11*(1), 2158244021999062.

Al Khazaleh, S. (2021). THE EFFECT OF DIGITAL READING ON EFL LEARNERS'READING COMPREHENSION. *International Journal of Education, Technology, and Science*, *1*(1), 59-70.

Alahmadi, A., & Foltz, A. (2020). Effects of language skills and strategy use on vocabulary learning through lexical translation and inferencing. *Journal of Psycholinguistic Research*, *49*(6), 975-991.

Alqahtani, S. M., & Alfadda, H. A. (2025). Integrating WebQuests into ESL Classrooms to Reinforce Students' Vocabulary and Reading Comprehension. *International Journal of Education and Literacy Studies*, *13*(1), 268-278.

Chen, C.-M., Liu, H., & Huang, H.-B. (2019). Effects of a mobile game-based English vocabulary learning app on learners' perceptions and learning performance: A case study of Taiwanese EFL learners. *ReCALL*, *31*(2), 170-188.

Chiang, H.-H. (2020). Kahoot! in an EFL reading class. *Journal of Language Teaching and Research*, *11*(1), 33-44.

Elvriza, M. S., & Nurcholis, I. A. (2025). The Impact of Extensive Reading of Novels on Students' English Vocabulary Acquisition. *Indonesian Journal Of Education*, *1*(3), 94-102.

Enayati, F., & Gilakjani, A. P. (2020). The Impact of Computer Assisted Language Learning (CALL) on Improving Intermediate EFL Learners' Vocabulary Learning. *International Journal of Language Education*, *4*(1), 96-112.

[Record #927 is using a reference type undefined in this output style.]

Fithriani, R. (2021). The utilization of mobile-assisted gamification for vocabulary learning: Its efficacy and perceived benefits. *Computer-Assisted Language Learning Electronic Journal*, *22*(3), 146-163.

Habók, A., & Magyar, A. (2019). The effects of EFL reading comprehension and certain learning-related factors on EFL learners' reading strategy use. *Cogent Education*, *6*(1), 1616522.

Hao, T., Wang, Z., & Ardasheva, Y. (2021). Technology-assisted vocabulary learning for EFL learners: A meta-analysis. *Journal of Research on Educational Effectiveness*, *14*(3), 645-667.

Hsieh, Y., & Huang, S. (2020). Using an E-book in the secondary English classroom: Effects on EFL reading and listening. *Education and Information Technologies*, *25*(2), 1285-1301.

Jaloldinovich, G. G. (2025). PRACTICAL METHODS TO BOOST ENGLISH VOCABULARY. *Лучшие интеллектуальные исследования*, *37*(2), 22-35.

Jawaid, A., Batool, M., Arshad, W., ul Haq, M. I., Kaur, P., & Arshad, S. (2025). ENGLISH LANGUAGE VOCABULARY BUILDING TRENDS IN STUDENTS OF HIGHER EDUCATION INSTITUTIONS AND A CASE OF LAHORE, PAKISTAN. *Contemporary Journal of Social Science Review*, *3*(1), 730-737.

Jia, W., Zhang, L., Pack, A., Guan, Y., & Zou, B. (2024). Digital game-based learning's effectiveness on EFL learners' receptive and productive vocabulary knowledge.

Karami, A., & Bowles, F. A. (2019). Which strategy promotes retention?: Intentional vocabulary learning, incidental vocabulary learning, or a mixture of both? *Australian Journal of Teacher Education (Online)*, *44*(9), 25-43.

Khan, R. M. I., Radzuan, N. R. M., Farooqi, S.-u.-H., Shahbaz, M., & Khan, M. S. (2021). Learners' Perceptions on WhatsApp Integration as a Learning Tool to Develop EFL Vocabulary for Speaking Skills. *International Journal of Language Education*, *5*(2), 1-14.

Klimova, B. (2021). Evaluating impact of mobile applications on EFL university learners' vocabulary learning–A review study. *Procedia Computer Science*, *184*, 859-864.

Klimova, B., Pikhart, M., Polakova, P., Cerna, M., Yayilgan, S. Y., & Shaikh, S. (2023). A systematic review on the use of emerging technologies in teaching English as an applied language at the university level. *Systems*, *11*(1), 42.

Klimova, B., & Polakova, P. (2020). Students' perceptions of an EFL vocabulary learning mobile application. *Education Sciences*, *10*(2), 37.

Lee, H., Warschauer, M., & Lee, J. H. (2020). Toward the establishment of a data- driven learning model: Role of learner factors in corpus- based second language vocabulary learning. *The Modern Language Journal*, *104*(2), 345-362.

Leong, A. C. H., Abidin, M. J. Z., & Saibon, J. (2019). LEARNERS'PERCEPTIONS OF THE IMPACT OF USING DIGITAL STORYTELLING ON VOCABULARY LEARNING. *Teaching English with Technology*, *19*(4), 3-26.

Li, M., & Wang, T. (2025). Identifying Optimal Learning Strategies: Application of the Asymptotic Retention Rate Model in College Students' Vocabulary Learning. *The Asia-Pacific Education Researcher*, 1-12.

Li, R., Meng, Z., Tian, M., Zhang, Z., & Xiao, W. (2021). Modeling Chinese EFL learners' flow experiences in digital game-based vocabulary learning: The roles of learner and contextual factors. *Computer Assisted Language Learning*, *34*(4), 483-505.

Li, Y., & Hafner, C. A. (2022). Mobile-assisted vocabulary learning: Investigating receptive and productive vocabulary knowledge of Chinese EFL learners. *ReCALL*, *34*(1), 66-80.

Lin, J.-J., & Lin, H. (2019). Mobile-assisted ESL/EFL vocabulary learning: A systematic review and meta-analysis. *Computer Assisted Language Learning*, *32*(8), 878-919.

Liu, X., Alotaibi, K. A., & Hashemifardnia, A. (2025). Serious Game- Based Learning: Its Impact on Happiness, Motivation, Self- Compassion, and Vocabulary Development in EFL Learners. *European Journal of Education*, *60*(1), e70030.

Nguyen, C. D., & Boers, F. (2019). The effect of content retelling on vocabulary uptake from a TED talk. *Tesol Quarterly*, *53*(1), 5-29.

Normurodovna, M. A. (2025). BUILDING VOCABULARY: EFFECTIVE STRATEGIES FOR LEARNERS. International Conference on Medical Science, Medicine, and Public Health,

Panmei, B., & Waluyo, B. (2022). The pedagogical use of gamification in English vocabulary training and learning in higher education. *Education Sciences*, *13*(1), 24.

Patra, I., Shanmugam, N., Ismail, S. M., & Mandal, G. (2022). An Investigation of EFL Learners' Vocabulary Retention and Recall in a Technology- Based Instructional Environment: Focusing on Digital Games. *Education Research International*, *2022*(1), 7435477.

Rababah, L. M., Alqaryouti, M. H., Huwari, I. F., Alruzzi, K., & Al-Khasawneh, F. M. (2025). The Impact of Gamification on Motivating Middle-Aged EFL Students and Enhancing Vocabulary Acquisition in Jordan. *Language learning*, *42*, 45.

Rahimi, M., & Allahyari, A. (2019). Effects of multimedia learning combined with strategy-based instruction on vocabulary learning and strategy use. *Sage Open*, *9*(2), 2158244019844081.

Ramezanali, N., & Faez, F. (2019). Vocabulary learning and retention through multimedia glossing.

Rasti-Behbahani, A. (2021). Why digital games can be advantageous in vocabulary learning. *Theory and Practice in Language Studies*(2).

Salem, A. A. (2019). A Sage on a Stage, to Express and Impress: TED Talks for Improving Oral Presentation Skills, Vocabulary Retention and Its Impact on Reducing Speaking Anxiety in ESP Settings. *English Language Teaching*, *12*(6), 146-160.

Song, M.-Y. (2025). Vocabulary, Grammar, and English Use Experience in Adult Online EFL Learners' Comprehension: An SEM Approach. *영어학*, *25*, 50-73.

ISSN Online: 3078-3054, ISSN Print: 3078-3046
Volume No: 02 Issue No: 01 (2025)

International Conference on Innovating for a Sustainable Future: Global Challenges and Solutions
April 24-25, 2025

Tai, T.-Y., Chen, H. H.-J., & Todd, G. (2022). The impact of a virtual reality app on adolescent EFL learners' vocabulary learning. *Computer Assisted Language Learning*, *35*(4), 892-917.

Teng, F. (2019). The effects of context and word exposure frequency on incidental vocabulary acquisition and retention through reading. *The Language Learning Journal*, *47*(2), 145-158.

Teng, M. F., & Zhang, D. (2023). The associations between working memory and the effects of multimedia input on L2 vocabulary learning. *International Review of Applied Linguistics in Language Teaching*, *61*(3), 1021-1049.

Teng, M. F., & Zhang, D. (2024). Task-induced involvement load, vocabulary learning in a foreign language, and their association with metacognition. *Language Teaching Research*, *28*(2), 531-555.

Wang, M., & Akhter, S. (2025). Tracing interpersonal emotion regulation, behavioral emotion regulation strategies, hopelessness, and vocabulary retention within Bing vs. ChatGPT environments. *British Educational Research Journal*.

Yilmaz, R. M., Topu, F. B., & Takkaç Tulgar, A. (2022). An examination of vocabulary learning and retention levels of preschool children using augmented reality technology in English language learning. *Education and Information Technologies*, *27*(5), 6989-7017.

Yoshii, M., & Flaitz, J. (2019). Second language incidental vocabulary retention: The effect of text and picture annotation types. *CALICO Journal*, *20*(1), 33-58.

Yüksel, H. G., Mercanoğlu, H. G., & Yılmaz, M. B. (2022). Digital flashcards vs. wordlists for learning technical vocabulary. *Computer Assisted Language Learning*, *35*(8), 2001-2017.

Zakian, M., Xodabande, I., Valizadeh, M., & Yousefvand, M. (2022). Out-of-the-classroom learning of English vocabulary by EFL learners: investigating the effectiveness of mobile-assisted learning with digital flashcards. *Asian-Pacific Journal of Second and Foreign Language Education*, *7*(1), 16.

Zou, D., Huang, Y., & Xie, H. (2021). Digital game-based vocabulary learning: where are we and where are we going? *Computer Assisted Language Learning*, *34*(5-6), 751-777.