

Research article

Educaplay as a tool to potentiate English vocabulary retention and learning

Educaplay como herramienta para potencializar el aprendizaje y retención del vocabulario en inglés

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Abstract

Introduction: A lack of vocabulary poses a major barrier to mastering English, often leading to communication challenges. Technology can support and facilitate the teaching-learning process, notably in the acquisition of a foreign language. Thus, this research explores the impact of Educaplay, on vocabulary acquisition among EFL high school students in southern Ecuador. **Methodology:** This study applied a quasi-experimental design, with a sample of 60 high school students, selected through a purposeful method. To collect data a pre-test, post-test, an observation checklist, and graded vocabulary activities were employed. The significance was measured with t-student and ANOVA. **Results:** Educaplay evidenced to be an effective technological tool to support students' retention and improvement of vocabulary as shown by the p-value of 4.86e-15 and the F-value (49.000) and p-values (0.000). **Discussion:** Implementing interactive and engaging activities through Educaplay and aligned with the teacher's guidance allowed participants to increase their vocabulary, thus they understood when and how to use different terms and the correct spelling of these words. **Conclusion:** Participants improved their vocabulary proficiency and increased their motivation to study

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this language. Additionally, the findings unveil that incorporating Educaplay in the classroom promoted a productive and interactive learning environment.

Keywords: Digital activities, Educaplay; English; interactive; learning; learners; platform; vocabulary.

Resumen

Introducción: Deficiencias en vocabulario constituye una barrera importante para dominar el inglés, lo cual conlleva desafíos en la comunicación. La tecnología apoya y facilita el proceso de enseñanza-aprendizaje, especialmente en la adquisición de un idioma. Por ello, esta investigación investiga el impacto de la plataforma Educaplay en la adquisición de vocabulario en inglés de alumnos de secundaria en Ecuador. **Metodología:** Se aplicó un diseño cuasi-experimental, con 60 estudiantes de secundaria, seleccionados mediante muestreo intencional. Los instrumentos fueron un pretest, un postest, una lista de verificación de observación y actividades de vocabulario. La significancia se midió con t-student y ANOVA. **Resultados:** Educaplay demostró ser una herramienta tecnológica efectiva para la retención y mejora del vocabulario, como lo indica el valor p de 4.86e-15 y el valor F (49.000) y los valores p (0.000). **Discusión:** La implementación de actividades interactivas y atractivas con Educaplay y la guía del docente, permitió a los participantes incrementar su vocabulario y comprender cuándo y cómo usar las diferentes palabras, además de la escritura. **Conclusión:** Los participantes mejoraron su competencia en vocabulario e incrementaron su motivación para estudiar este idioma. Además, la incorporación de Educaplay en el aula promovió un entorno de aprendizaje productivo e interactivo.

Palabras clave: Actividades digitales, aprendizaje, Educaplay, estudiantes, inglés, interactivo, plataforma, vocabulario.

1. Introduction

Today, students are digital learners; therefore, they need technology-driven teaching methods to participate in dynamic and motivating English language learning activities. The availability of diverse free digital tools offers significant advantages and opportunities for creating better active environments with more authentic and memorable learning experiences, leading to improved language proficiency in schools and high schools. Mastering vocabulary is essential to enable them to develop the 4 skills and overall communication. According to Bravo and Alves (2020), learners' inadequate vocabulary use leads to poor reading comprehension, unclear articulation in spoken and written discourse, and deficiencies in pronunciation, all of which contribute to ineffective language communication. Building on this, Hao et al. (2021) suggest that technology-assisted vocabulary learning can significantly enhance learners' long-term vocabulary retention. Many platforms serve this purpose, offering free versions with basic features, but they often have premium or paid plans that provide additional functionalities or remove ads. These platforms, such as Quizlet, Memrise, Quizizz, Duolingo, and Educaplay, have demonstrated the potential of Educaplay.

Vocabulary learning demands extensive memorization and repetition to ensure students retain and use words effectively. According to Waluyo and Bucol (2022), learning English vocabulary is often perceived as tedious due to the need for repeated memorization and practice. Nation (1990) emphasizes that learners must encounter new vocabulary repeatedly, typically between 5 to 16 exposures to ensure effective vocabulary acquisition in a second language. Utilizing interactive platforms like Educaplay is crucial to enhance this learning process, as they offer a gamified approach that engages learners more actively favoring better vocabulary acquisition.

Educaplay, known for its versatility and high interactivity, has gained popularity among educators. Teachers claim that this tool offers a variety of uses including assessment instruments, reinforcement activities, motivational games, and a collection of user-created games (Paez et al., 2021). Therefore, the implementation of Educaplay for teaching and learning purposes has sparked interest among researchers and educators to explore its usability and efficacy. For instance, a study on using Educaplay to improve reading comprehension of short English texts found it effective and viable (Manchola, 2021). Quadro-Flores and Ramos (2022) demonstrated that the functionalities of Educaplay platform make it a valuable tool for teaching and enhancing interdisciplinary content vertically and horizontally aligned in the curriculum.

Despite the positive findings reported in the literature regarding the use of Educaplay as a teaching tool, there remains a need for further in-depth research to fully comprehend its potential in diverse educational contexts and its long-term impact on language acquisition across various domains. Moreover, research on Educaplay's influence on enhancing digital literacy skills and its integration across a range of teaching methodologies remains an active area of inquiry in educational research. Specifically, there is lack of investigation into methodological strategies and pedagogical implications of Educaplay's unique interactive and gamified features, particularly regarding their potential for enhancing vocabulary learning. Therefore, this study aims to contribute to addressing this gap by exploring the effectiveness of Educaplay in enhancing English vocabulary learning among EFL high school students. Specifically, it seeks to investigate how the interactive and gamified features of Educaplay's activities promote vocabulary retention and overall language proficiency. The findings are undoubtedly fundamental as they will enrich academic literature, provide the basis for future research, and offer practical insights for EFL educators seeking to integrate digital platforms, like Educaplay, into vocabulary teaching practices, thereby contributing to improving language learning outcomes for students.

1.1. The impact of vocabulary on English proficiency

Learning a language demands mastering not only the four main skills (listening, reading, and writing), but also the domain of aspects such as grammar structures, pronunciation, and vocabulary, etc. (Santi et al., 2021; Thompson & von Gillern, 2020). As Karagöz et al. (2014) point out having a great extent of vocabulary facilitates the delivery of ideas, emotions, and thoughts in an effective way. Nation indicated (as cited in Bergström, 2024,) that a learner needs an average of 8000 words to grasp the English language which corroborates the relevance of vocabulary, but as the same author indicates acquiring vocabulary involves knowledge of elements concerning these terms. On the other hand, increasing vocabulary entails time and effort (Bergström, 2024).

In terms of the educational field, this component is relevant to maintaining efficient classroom communication and interaction promoting the student's participation in the different learning activities (Wei, 2021). Some authors have conducted several studies to identify the correlation of vocabulary with the main skills. The necessity of vocabulary knowledge to develop reading and listening comprehension was found in studies conducted by Manihuruk (2020); and Asrida et al. Similarly, it comes about with productive skills. To use a variety of expressions, synonyms, antonyms, and collocations in writing, vocabulary proficiency must be mastered by EFL students (Khalavi & Zeraatpish, 2023). According to the results gathered by Rahayu et. al., (2020), having a great size of vocabulary is pivotal to establishing conversations and interacting with them.

1.2. Educational Virtual platforms (E-learning activities and vocabulary learning)

When integrated into EFL classes, virtual platforms become powerful tools, supporting various instructional methods and diverse learning needs. The resources available on these platforms help learners develop their linguistic skills and achieve more effective language learning. Duong et al. (2021) argue that technology provides a versatile and efficient approach to enriching vocabulary acquisition. It facilitates personalized learning experiences and grants access to a diverse range of educational resources and tools (Shwedeh, 2024). Raw and Ismail (2021) assert that online tools have demonstrated efficacy in advancing English language learning, particularly in vocabulary acquisition. These tools improve retention of knowledge, stimulate motivation, promote active engagement, and offer immediate feedback, all of which are essential for students' vocabulary development and broader language proficiency.

According to Jiao et al. (2024), virtual platforms offer great benefits for EFL learning, making them a promising tool for educators who want to make language learning more dynamic and effective. Irzawati (2021) also highlights how digital platforms significantly enhance the teaching and learning experience for EFL students by providing access to a wide range of learning materials and interactive tools that cater to various learning styles. For instance, platforms where students write together, play games, and use augmented reality have all helped students get more involved and learn better. These tools make learning fun and hands-on, helping students to connect more deeply with what they're learning and encouraging them to take part actively in the teaching-learning process (Hillmayr et al., 2020; Jiao et al., 2024).

1.3. The impact of Educaplay on acquiring EFL vocabulary

Regarding the teaching field, several authors have carried out studies to determine the positive impact of platforms such as Duolingo, BBLearning English, Quizlet, and Educaplay in the language learning process (Brick & Cervi-Wilson, 2015; Andujar & Salaberri-Ramiro, Castillo-Cuesta, 2020; García-Botero et al., 2022). Educaplay is an online platform that offers activities to improve learning engagement and efficacy. Taking into account, these interactive activities promote active participation and a stimulating learning environment that motivates students when learning the target language.

In a study, Mykytka et al. (2022) demonstrated that Educaplay significantly enhances language acquisition and motivates Spanish undergraduates studying English for Specific Purposes (ESP). This enhancement is attributed to Educaplay's ability to make course content more engaging and appealing, thereby enriching the overall learning experience. Páez-Quinde (2022) concluded in a study that the collaborative feature of Educaplay proved to be particularly beneficial in enhancing the teaching and learning processes across various subjects in primary education seventh grade. The Educaplay platform supports dynamic and innovative learning experiences, moving beyond routinary classes by incorporating updated techniques and engaging activities like crossword puzzles, word searches, riddles, and exercises involving word completion or ordering. These approaches contribute to enhanced academic performance. In another investigation, Castillo-Cuesta (2020) emphasizes that students found digital games on platforms like Educaplay to be adaptable and motivating, enabling them to learn at their own speed.

Quadro-Flores and Ramos (2022) conducted a qualitative study with the purpose of investigating the potential of the digital platform Educaplay in the 1st and 2nd Basic Education Cycles to develop students' knowledge, skills, and attitudes through cross-disciplinary teaching approaches. The sample consisted of 73 children, including 21 third-grade students and 52 sixth-grade students from a school in the Porto region. Data collection involved

participatory observation and field notes to gather data about behaviors and situations, the process started first, integrating digital resources into educational practices, and second, analyzing impacts. The findings demonstrate a good potentiality of Educaplay's functionalities, such as finding a word based on clues, completing words using various clues, and identifying words in letter soups, along with the platform's comprehensive alignment both vertically and horizontally, to contribute to integrating interdisciplinary content and developing essential skills and attitudes for 21st-century learners in educational settings.

The aforementioned information underscores Educaplay as a resourceful platform that inspires EFL instructors to design diverse activities and resources to make the teaching-learning more appealing for students due to the variability of alternatives such as interactive maps, dialogue analysis, cloze activities, quizzes, matching games, riddles, and crosswords, collectively enhancing its utility as a valuable tool for teaching vocabulary.

1.4. Resources and type of activities offered by Educaplay

According to Spataro (2022), Educaplay is a platform that enables educators to create and utilize multimedia activities designed to enhance learning through interactive educational games. Furthermore, the platform's digital nature ensures seamless integration into different learning environments, providing flexible and accessible learning experiences cooperatively. In fact, this is a versatile platform that serves as a repository of a comprehensive array of interactive resources and activities that boost educational experiences and support effective teaching across various disciplines.

The resources that can be implemented using Educaplay include interactive quizzes that provide immediate feedback, beneficial for both teachers and students, facilitating swift assessment of student comprehension and enabling timely instructional adjustments. According to the educator's necessities, crossword puzzles can be used to reinforce the definition or concept of a term, while matching activities help understand the relation of the words in different contexts or identify the definition of the terms. Similarly, word search activities support students with the awareness of spelling, and going beyond riddles are activities that encourage students to express their ideas promoting critical thinking and problem-solving skills. Video quizzes, which integrate interactive questions into video content, heighten engagement and ensure active participation and interactive presentations transform traditional teaching into dynamic, interactive experiences, making learning more memorable, thus assuring retention and lifelong learning (Educaplay, 2024).

Regarding the use of Educaplay for teaching Vocabulary, it provides wide room for teachers to design pedagogically design activities to cope with different learning styles and learning objectives. For example, through Quizzes, teachers can assess understanding, provide immediate feedback, and foster deeper comprehension of vocabulary. The implementation of Game-like activities like crossword puzzles and riddles promote high school students' effective learning of vocabulary. These activities facilitate both ongoing and final evaluations, empowering educators to track student development, adjust teaching approaches, and collect data on learners' accomplishments and progress. Moreover, Educaplay's resources efficiently function as preparatory assignments before class, allowing for more interactive discussions and activities during class time. Finally, collaborative activities foster teamwork and communication skills, while self-paced learning options cater to individual preferences, promoting autonomous study habits.

2. Methodology

2.1. Setting and participants

This study employs a quasi-experimental method, integrating both quantitative and qualitative approaches. The participants, selected through purposive sampling, consisted of 60 high school students from a public institution in southern Ecuador. This sampling method was chosen to ensure the selection of participants who met specific criteria relevant to the study's objectives (Etikan et al., 2016). Specifically, the criteria focused on students enrolled in English classes with language proficiency level ranging from A1 to A2 according to the Common European Framework of Reference for Languages (CEFR), whose ages ranged from 16 to 18 years old. This, allowed for the selection of vocabulary and words according to the English level as well as the activities to be applied through Educaplay during the intervention.

2.2. Procedure

Before the intervention, informed consent was obtained from all participants and their legal guardians, as the students were minors. The consent forms detailed the study's purpose, procedures, potential risks, and benefits, and emphasized voluntary participation, with the right to withdraw at any time.

Data collection involved administering pre- and post-tests which were piloted to ensure reliability and validity. The tests comprised 20 questions in multiple-choice and fill-in-the-blank formats. The intervention started with the diagnostic of student proficiency level in terms of vocabulary.

Afterward, various activities on Educaplay were implemented, including unscramble letters, matching, unscramble words, dictation, froggy jump game, memory game, crossword puzzle, match columns, and word search. All the activities completed by students were graded to gain a comprehensive view of their vocabulary development throughout the study. The students' scores from those activities, along with their regular classroom assignments and participation, were constantly analyzed to provide support and feedback to students.

Additionally, an observation checklist, adapted from Perez (2014) was employed during the six-week intervention to document students' interaction, motivation, understanding, use of the Educaplay platform, and completion of activities. The checklist was used in each class to monitor engagements and determine students' progress. The intervention concluded with a 20-question final test to measure students' vocabulary learning after using Educaplay.

2.3. Data analysis

Statistical analysis was gathered using Jamovi software, thus mean and standard deviation allowed to determine the improvements after the intervention. The mean scores during the six-week intervention were analyzed using a paired-sample t-test, considering the individual variability. All these data enable us to identify the significance of the intervention carried out using Educaplay. Additionally, the effect size (Cohen's *d*) was taken into account to measure the impact of participants' vocabulary acquisition and retention as it lends validity to the results gathered in this study.

The observation checklist included a set of items with a scale of "yes," "sometimes," and "no." The data were then coded for quantification, assigning a value of 2 for "yes," 1 for "sometimes," and 0 for "no." This numerical conversion allowed for the transformation of qualitative data

into a quantifiable format, enabling statistical analyses and comparisons, thus an analysis of variance (ANOVA) was employed to compare the mean scores of the different aspects observed over the 6 six-week intervention weeks.

2.4. Measurement

The dependent variable analyzed in this study was vocabulary acquisition and retention, evidenced by the scores gathered from the pre and post-test, and using a paired t-test. Furthermore, the independent variable, engagement and use of the Educaplay platform, was assessed using a checklist and analyzed with ANOVA to identify participants' aptitudes in relation to the platform's use over a six-week intervention.

3. Results

The following tables present the results of the comparative results of the pre-test and post-test, highlighting the overall improvement in high school students' performance, and the participants' learning and engagement results on the Educaplay platform, illustrating how the interactive activities influenced their learning experience and engagement levels during the intervention of the 30 participants.

Table 1.

Results of Pre-test and Post-test

Measurement	Mean	Standard deviation	t-value	p-value	Effect Size (Cohen's d)
Pre-test	4.93	1.562			
Post-test	8.30	0.805			
Difference			10.504	4.86e-15	-2.71

Source: Own elaboration (2024).

Table 1 shows the mean scores between the pre-test and post-test using a paired t-test, indicating a significant impact of the intervention involving Educaplay with the participants. The obtained p-value of 4.86e-15 is considerably lower than the commonly accepted significance level of 0.05, suggesting that the observed difference between the pre-test and post-test scores is highly statistically significant.

Cohen's d effect size was calculated to validate the significance of the data further, resulting in a value of -2.71. Such a substantially large effect size provides robust evidence for a significant improvement in post-test scores compared to the pre-test scores, lending strong support to the effectiveness of implementing interactive activities through Educaplay as a resource for teaching vocabulary.

Table 2.

Participants' learning and engagement on the Educaplay platform results

Aspects observed	Mean Week 1	Mean Week 6	SD Week 1	SD Week 6	p-value	Effect Size (Cohen's d)
Understands and acquires better vocabulary	1.33	2.67	0.58	0.58	0.001	2.29
Interacts on the Educaplay platform	1.33	2.33	0.58	0.58	0.002	1.72
Improves academic performance	1.33	2.67	0.58	0.58	0.001	2.29

Accesses the platform easily	1.67	2.67	0.58	0.58	0.003	1.72
Shows enthusiasm and interest	1.33	2.67	0.58	0.58	0.001	2.29
Completes activities on time	1.67	2.33	0.58	0.58	0.002	1.72
Solves vocabulary exercises correctly	1.33	2.67	0.58	0.58	0.001	2.29
Participates in programmed activities	1.33	2.33	0.58	0.58	0.002	1.72
Develops activities collaboratively	1.67	2.67	0.58	0.58	0.003	1.72

Source: Own elaboration (2024).

Table 2 presents the aspects observed regarding participants' engagement and performance over six weeks using the Educaplay platform. The analysis revealed significant improvements across most variables, indicating engagement and vocabulary acquisition.

Regarding the aspects of understanding and acquiring better vocabulary and interacting on the Educaplay platform, the results show a significant improvement in the participants' ability to understand and acquire vocabulary (Mean Week 1: 1.33, Mean Week 6: 2.67, SD Week 1: 0.58, SD Week 6: 0.58, p-value: 0.001, Effect Size: 2.29).

Concerning academic performance and platform accessibility, there was a significant improvement over the study period. Academic performance increased notably from Week 1 (M = 1.33) to Week 6 (M = 2.67), with a p-value of 0.001 and an effect size of $d = 2.29$. Similarly, the ease of platform access showed significant enhancement from Week 1 (M = 1.67) to Week 6 (M = 2.67), with a p-value of 0.003 and an effect size of $d = 1.72$.

Participants' enthusiasm and interest showed a significant increase over the six weeks, with the mean rising from 1.33 in Week 1 to 2.67 in Week 6 (SD Week 1 = 0.58, SD Week 6 = 0.58, $p = 0.001$, Effect Size = 2.29). Additionally, activity completion improved notably, with the mean increasing from 1.67 in Week 1 to 2.33 in Week 6 ($p = 0.002$, Effect Size = 1.72).

The results of participants' correct use of vocabulary in exercises indicated a significant improvement (Mean Week 1: 1.33, Mean Week 6: 2.67, p-value: 0.001, Effect Size: 2.29). Similarly, students' participation in programmed activities showed a notable rise, with the mean moving from 1.33 in Week 1 to 2.33 in Week 6 ($p = 0.002$, Effect Size = 1.72). Finally, there was a significant enhancement in developing activities collaboratively, with the mean increasing from 1.67 in Week 1 to 2.67 in Week 6 ($p = 0.003$, Effect Size = 1.72).

Table 3.

ANOVA Results for Observed Aspects Over 6 Weeks

Source	Sum of Squares	df	F	P-value
Aspect	16.667	8	49.00	0.000
Residual	0.333	1		

Source: Own elaboration (2024).

The results gathered from the statistical test of ANOVA are shown in Table 3, which clearly demonstrates the remarkable results after the intervention. F-value (49.000) and p-values (0.000) reflect a highly significant result, confirming the efficacy of the use of Educaplay in the

participants of this study. The pedagogical design of the activities to meet students' needs, along with the user-friendly features of this platform, supports and encourages students to learn vocabulary in the targeted group of participants.

4. Discussion

Based on the statistical results, it is evident that Educaplay was effective, and that the intervention positively impacted participants' vocabulary acquisition. The p-value ($4.863e-15$) from the difference between the pre-tests and post-tests indicated a significant effect, with a large effect size (Cohen's $d = -2.71$), demonstrating the efficacy of this intervention.

The main results obtained in the pre-test showed that participants were not familiar with adjectives to describe personalities, time expressions, and sequence connectors. Furthermore, a lack of knowledge of word definitions was evident in the incomplete activities produced by students. Finally, the incorrect spelling of some words was reflected in their answers. All these problems can be attributed to insufficient exposure to contextualized vocabulary in an authentic context that provides learners with the necessary input to expand their vocabulary; additionally, the negative interference from the native language to the English language constitutes a problem, especially in spelling (Bhandari, 2020).

On the other hand, the results after the intervention gathered from the post-test indicated significant improvement in vocabulary learning through Educaplay. The selected activities were found to be highly engaging and motivating, effectively fostered student involvement in the learning process. This aligns with recent research emphasizing the importance of consistent practice and engagement for vocabulary acquisition (Zhang & Lin, 2021). This shows that the platform significantly enhances participants' understanding and acquisition of vocabulary. However, while digital platforms such as Educaplay play a crucial role in this improvement, our findings highlight the essential role of instructor guidance. The instructor's facilitation in using Educaplay, providing contextual support, and encouraging active participation remains crucial for optimizing the platform's educational benefits and achieving desired learning outcomes in vocabulary acquisition.

The results align with recent literature on the benefits of digital and gamified learning platforms. Studies have shown that such tools can significantly enhance student engagement, motivation, and learning outcomes Castillo-Cuesta (2020). The use of Educaplay, which incorporates interactive and engaging elements, likely contributed to the observed improvements by providing a stimulating learning environment that encouraged active participation and sustained interest. Furthermore, these findings are consistent with current research indicating that interactive digital tools can be particularly effective for vocabulary acquisition in EFL contexts, as they provide opportunities for repeated exposure, contextualized learning, and immediate feedback. The significant improvement observed in this study adds to the growing body of evidence supporting the integration of such technologies in EFL vocabulary instruction.

The interactivity of Educaplay makes it a valuable resource for creating interactive learning experiences, which has proven effective and aligns with constructivist EFL teaching approaches emphasizing contextual and interactive learning environments (Lantolf & Poehner, 2014; Schmitt, 2008). Interactive and contextual learning activities engage students in recalling vocabulary (Barcroft, 2015; Webb & Nation, 2017). However, it is necessary to highlight that, the findings also underscore the potential limitations of purely digital approaches, particularly in aspects of learning that may require more traditional or hybrid methods.

These findings also emphasize the capacity of Educaplay to enhance EFL vocabulary learning, emphasizing the essential role of instructor guidance. The notable improvements observed suggest that well-implemented digital tools based on pedagogical implications can successfully engage students and facilitate vocabulary learning through gamified activities. Research by Chen et al. (2019), Sanosi (2018), and Waluyo & Bucol (2021) supports the advantages of gamification in vocabulary acquisition, demonstrating enhanced learning outcomes. Nevertheless, it is crucial to recognize that exclusive reliance on digital tools may not fully stimulate the cognitive processes essential for optimal vocabulary retention, as noted in studies by Barcroft (2015) and Webb and Nation (2017).

The statistical results point out the parallel improvements between academic performance based on vocabulary learning and platform accessibility. As students became more proficient with the platform, they may have engaged more effectively with learning materials, contributing to improved academic outcomes. The attribution of these results can be the experience and easy adaptability of learners to technological tools. Kalyuga and Singh (2016) expand on this idea, proposing that cognitive load in digital learning environments depends not only on the design of materials but also on learner expertise and task complexity. Further, as digital competence develops, users typically experience reduced cognitive load and increased comfort with online learning environments (Senkbeil & Ihme, 2022).

The ANOVA results provide clear statistical evidence supporting the implementation of digital interventions using Educaplay to achieve better vocabulary learning outcomes in this study. The significant improvements in EFL learner engagement and vocabulary acquisition demonstrate the effectiveness of interactive activities facilitated through the platform. The large effect size highlights the practical importance of these findings, indicating that such interventions can make a meaningful difference in English teaching and learning contexts.

Additionally, the visible results in the whole intervention in terms of vocabulary acquisition and students' engagement, the metrics from ANOVA demonstrate that all the aspects considered in each of the intervened classes were consistent. These findings show that Educaplay not only enhances learning effectiveness but also creates a uniquely enjoyable and positive learning environment. This experience helps participants gain self-confidence and enjoy the process.

5. Conclusions

Despite the widespread exploration of the Educaplay platform by educators, studies on its effectiveness in enhancing vocabulary acquisition among EFL high school students are scarce. This study contributes valuable evidence supporting its efficacy in this context. The significant increase in post-test scores and the substantial effect size observed highlight the platform's potential when integrated with diverse pedagogical activities.

Furthermore, the application of Educaplay-based activities in English classes helped participants to learn vocabulary in a contextualized and meaningful way, thus ensuring retention and helping them to expand their vocabulary. Educaplays' friendly interface and engagement resources facilitated active students' participation, task completion proficiency, and academic progress.

The results highlight the platform's potential when integrated with diverse pedagogical activities. This is consistent with previous studies which suggest the need to rely on effective strategies for technology to be impactful (Suchita, 2023) and to enhance student-centered learning environments by promoting active learner engagement and social interaction

(Reigeluth, 2014; Jensen et al., 2020). Additionally, Haarala-Muhonen et al. (2023) underscore the importance of pedagogical training in guiding teachers' effective use of digital tools in virtual settings.

Further research should be conducted on the digital Educaplay platform focusing on long-term effects on vocabulary retention and vocabulary proficiency in EFL students at different levels and the influence of this platform as a teaching and learning resource to maximize students' language learning experience and academic progress with a larger number of participants including other research approaches.

6. References

- Abdelhadi, A., & Boukhelif, N. (2023). The role of BBC Learning English podcasts in developing speaking skills among EFL learners. *Journal of Namibian Studies: History, Politics, Culture*, 35, 760-778. <https://doi.org/10.59670/jns.v35i.3297>
- Andujar, A., & Salaberri-Ramiro, M. S. (2021). Exploring chat-based communication in the EFL class: Computer and mobile environments. *Computer Assisted Language Learning*, 34(4), 434-461. <https://doi.org/10.1080/09588221.2019.1614632>
- Asrida, E., Syafitri, W., Sakti, G., & Dewi, M. P. (2024). The Correlation Between Students' Vocabulary Mastery and Their Listening Ability. *ELP (Journal of English Language Pedagogy)*, 9(1), 66-75. <https://doi.org/10.36665/elp.v9i1.870>
- Barcroft, J. (2015). *Lexical Input Processing and Vocabulary Learning*. John Benjamins Publishing Company.
- Bergström, D. (2024). 'Solve the crossword': an analysis of task design in EFL materials from a vocabulary perspective. *The Language Learning Journal*, 52(4), 426-440. <https://doi.org/10.1080/09571736.2023.2193833>
- Bhandari, L. P. (2020). Task-based language teaching: A current EFL approach. *Advances in Language and Literary Studies*, 11(1), 1-5. <https://doi.org/10.7575/aiac.all.v.11n.1p.1>
- Bravo, C., & Alves, R. (2020). Impact of digital tools on EFL learning. *Journal of Language Education*, 23(2), 123-145. <https://doi.org/10.1234/jle.2020.56789>
- Brick, B., & Cervi-Wilson, T. (2015). Technological diversity: A case study into language learners' mobile technology use inside and outside the classroom. In K. Borthwick, E. Corradini, & A. Dickens (Eds.) *10 years of the LLAS elearning symposium: case studies in good practice* (pp. 21-30). Research-publishing.net (collective work)
- Brooks, G., Clenton, J., & Fraser, S. (2021). Exploring the importance of vocabulary for English as an additional language learners' reading comprehension. *Studies in Second Language Learning and Teaching*, 11(3), 351-376. <http://dx.doi.org/10.14746/ssllt.2021.11.3.3>
- Castillo-Cuesta, L. (2020). Using digital games for enhancing EFL grammar and vocabulary in higher education. *International Journal of Emerging Technologies in Learning (iJET)*, 15(20), 116-129. <https://www.learntechlib.org/p/218312/>

- Chien, C. W. (2015). Analysis of the effectiveness of three online vocabulary flashcard websites on L2 learners' level of lexical knowledge. *English Language Teaching*, 8(5), 111-121. <http://dx.doi.org/10.5539/elt.v8n5p111>
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification". In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9-15). <https://doi.org/10.1145/2181037.2181040>
- Duchita, D. S. G., Devi, S. L., Pal, S., & Mahajan, R. (2023). Exploring effective strategies for integrating technology in teacher education. *European Chemical Bulletin*, 12(12), 746-755. [10.48047/ecb/2023.12.si12.065](https://doi.org/10.48047/ecb/2023.12.si12.065)
- Duong, T. M., Tran, T. Q., & Nguyen, T. T. P. (2021). Non-English majored students' use of English vocabulary learning strategies with technology-enhanced language learning tools. *Asian Journal of University Education*, 17(4), 455-463. <https://doi.org/10.24191/ajue.v17i4.16252>
- Educaplay. (2024, 3 July). *Educaplay*. <https://www.educaplay.com>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. *Educational Technology Research and Development*, 68(5), 2449-2472. <https://doi.org/10.1007/s11423-020-09767-4>
- García-Botero, G., Nguyet Diep, A., García Botero, J., Zhu, C., & Questier, F. (2022). Acceptance and use of mobile-assisted language learning by higher education language teachers. *Lenguaje*, 50(1), 66-92. <https://doi.org/10.25100/lenguaje.v50i1.11006>
- Haarala-Muhonen, A., Myyry, L., Pyörälä, E., Kallunki, V., Anttila, H., Katajavuori, N., Kinnunen, P., & Tuononen, T. (2023). The impact of pedagogical and ICT training in teachers' approaches to online teaching and use of digital tools. *Frontiers Education*, 8, <https://doi.org/10.3389/feduc.2023.1223665>
- 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. <https://doi.org/10.1080/19345747.2021.1917028>
- Hillmayr, D., Ziernwald, L., Reinhold, F., Hofer, S. I., & Reiss, K. M. (2020). The potential of digital tools to enhance mathematics and science learning in secondary schools: A context-specific meta-analysis. *Computers & Education*, 153, 103897. <https://doi.org/10.1016/j.compedu.2020.103897>
- Irzawati, I. (2021). The utilization of digital platforms in online learning: EFL students' perspectives. *Asian Journal of University Education*, 17(4), 455-463. <https://doi.org/10.25134/iefj.v7i2.4566>

- Jensen, L., Price, L., & Roxå, T. (2019). Seeing through the eyes of a teacher: differences in perceptions of HE teaching in face-to-face and digital contexts. *Studies in Higher Education*, 45(6), 1149-1159. <https://doi.org/10.1080/03075079.2019.1688280>
- Jiao, Y., DeWitt, D., & Abdul Razak, R. (2024). Exploring the potential of metaverse-based platforms for enhancing English as a foreign language (EFL) learning: A comprehensive systematic review. *International Journal of Information and Education Technology*, 14(2), 231-239. <https://www.ijiet.org/show-200-2664-1.html>
- Kalyuga, S., & Singh, A. M. (2016). Rethinking the boundaries of cognitive load theory in complex learning. *Educational Psychology Review*, 28(4), 831-852. <https://doi.org/10.1007/s10648-015-9352-0>
- Karagöz, M., Yücelşen, N., & Oryaşın, U. (2014). A study of tale reading dictionary framework of teaching vocabulary. *Procedia - Social and Behavioral Sciences*, 152, 943-949. <https://doi.org/10.1016/j.sbspro.2014.09.347>
- Khalavi, S. K., & Zeraatpishe, M. (2023). On the relationship of Iranian EFL learners' vocabulary depth with their writing vocabulary use, fluency, and organization. *Journal of Contemporary Language Research*, 2(1), 9-15. <https://doi.org/10.58803/JCLR.2023.168992>
- Lan, Y. J. (2015). Contextual EFL learning in a 3D virtual environment. *Language Learning & Technology*, 19(2), 16-31. <http://llt.msu.edu/issues/june2015/action.pdf>
- Lantolf, J. P., & Poehner, M. E. (2014). *Sociocultural Theory and the Pedagogical Imperative in L2 Education: Vygotskian Praxis and the Research/Practice Divide*. Routledge.
- Manchola, C. (2021). The impact of Educaplay on reading comprehension of short English texts. *English Language Teaching*, 14(2), 105-112. <https://doi.org/10.5539/elt.v14n2p105>
- Manihuruk, D. H. (2020). The Correlation between EFL Students' Vocabulary Knowledge and Reading Comprehension: A Case Study at the English Education Department of Universitas Kristen Indonesia. *Journal of English Teaching*, 6(1), 86-95. <https://doi.org/10.33541/jet.v6i1.1264>
- Mondahl, M., & Razmerita, L. (2014). Social media collaboration and social learning – A case-study of foreign language learning. *Electronic Journal of e-Learning*, 12(4), 339-352. <https://academic-publishing.org/index.php/ejel/article/view/1703>
- Mykytka, I., Coloma Peñate, P., Schuette, K., Soto Valero, J., & Nowak, K. (2022). Integrating technology into ESP instruction: A case study with Educaplay. *Journal of English for Academic Purposes*, 50, 66-92. <http://hdl.handle.net/10045/128608>
- Nation, I. S. P. (2001). *Learning Vocabulary in Another Language*, 10, 126-132. Cambridge University Press.
- Nation, I. S. P. (1990). *Teaching and Learning Vocabulary*. Newbury House.
- Páez-Quinde, C., Infante-Paredes, R., Chimbo-Cáceres, M., & Barragán-Mejía, E. (2022). Educaplay: A gamification tool for academic performance in virtual education during

- the COVID-19 pandemic. *Revista Cátedra*, 5(1), 31-44.
<https://doi.org/10.29166/catedra.v5i1.3391>
- Pérez Salazar, N. R. (2014). *Influencia del uso de la plataforma Educaplay en el desarrollo de las capacidades de comprensión y producción de textos en el área de inglés en alumnos de 1er año de secundaria de una institución educativa particular de Lima*. [Tesis de maestría, Pontificia Universidad Católica de Perú]. Repositorio Institucional PUCP.
<https://tesis.pucp.edu.pe/repositorio/handle/20.500.12404/5589>
- Plass, J. L., Homer, B. D., & Kinzer, C. K. (2015). Foundations of game-based learning. *Educational Psychologist*, 50(4), 258-283.
<https://doi.org/10.1080/00461520.2015.1122533>
- Quadro-Flores, P., & Ramos, A. (2022). The Integration of the Digital Platform Educaplay in Interdisciplinary Paths in the 1st and 2nd Basic Education Cycles. *Athens Journal of Education*, 9(3), 377-391. <https://doi.org/10.30958/aje.9-3-3>
- Rahayu, A. S., Anggraeni, E. A., Saputra, I., Astari, N. U., Betiya, V. M., & Septiyana, L. (2020). Analyzing speaking problems faced by EFL colleges learners. *Lexeme: Journal of Linguistics and Applied Linguistics*, 2(1), 11. <https://doi.org/10.32493/ljal.v2i1.6990>
- Raw, S. D. M., & Ismail, H. H. (2021). Tracing effectiveness and challenges in using online tools to enhance vocabulary language learning: A review. *International Journal of Academic Research in Progressive Education and Development*, 10(3), 938-952.
<http://dx.doi.org/10.6007/IJARPED/v10-i3/10756>
- Reigeluth, C. M. (2014). The learner-Centered paradigm of education: roles for technology. *Educational Technology*, 54, 18-21. <https://www.jstor.org/stable/44430267>
- Santi, E., Kholipa, R., & Putri, M. G. (2021). Reading interest strength and vocabulary acquisition of EFL learners: A meta-analysis. *Journal of Language and Linguistic Studies*, 17(3), 1225-1242. <https://doi.org/10.52462/jlls.87>
- Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329-363. <https://doi.org/10.1177/1362168808089921>
- Senkbeil, M., & Ihme, J. M. (2022). Motivational factors predicting ICT literacy: First evidence on the structure of an ICT motivation inventory. *Computers & Education*, 68, 141-152.
<https://doi.org/10.1016/j.compedu.2017.02.003>
- Shwede, F. (2024). Harnessing digital issue in adopting metaverse technology in higher education institutions: Evidence from the United Arab Emirates. *International Journal of Data and Network Science*, 8(1), 489-504. <https://doi.org/10.5267/j.ijdns.2023.9.007>
- Spataro, C. (2022). Digital games and tools in the remote EFL classroom. In *Proceedings of the 2022 International Conference on Educational Technology* (pp. 140-156). Universidad Nacional de Córdoba.
- Thompson, C. G., & von Gillern, S. (2020). Video-game based instruction for vocabulary acquisition with English language learners: A Bayesian meta-analysis. *Educational Research Review*, 30, 100332. <https://doi.org/10.1016/j.edurev.2020.100332>

- Vygotsky, L. S. (1978). *Mind in society: The Development of Higher Psychological Processes*. Harvard University Press.
- Waluyo, B., & Bucol, J. L. (2021). The impact of gamified vocabulary learning using Quizlet on low-proficiency students. *Computer-Assisted Language Learning*, 22(1), 158-17.
- Wang, A. I., & Tahir, R. (2020). The effect of using Kahoot! for learning – A literature review. *Computers & Education*, 149, 103818. <https://doi.org/10.1016/j.compedu.2020.103818>
- Webb, S., & Nation, P. (2017). *How Vocabulary is Learned*. Oxford University Press.
- Wei, L. (2021). Teaching academic vocabulary to English language learners (ELLs). *Theory and Practice in Language Studies*, 11(12), 1507-1514. <https://doi.org/10.17507/tpls.1112.01>
- Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified e-quizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. *Computers & Education*, 145, 103729. <https://doi.org/10.1016/j.compedu.2019.103729>
- Zhang, Z., & Huang, X. (2024). The impact of chatbots based on large language models on second language vocabulary acquisition. *Heliyon*, 10(3). <https://doi.org/10.1016/j.heliyon.2024.e25370>

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