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The use of Duolingo to improve English vocabulary acquisition in A1 students

El uso de Duolingo para mejorar la adquisición de vocabulario en inglés en estudiantes de nivel A1

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ABSTRACT

Education is the acquiring of knowledge and skills. Learning English is a skillset-based learning which means it will require different approaches and techniques. Technology-enhanced language learning has offered new avenues towards vocabulary learning for English learners. The newest method employed to meet the demands of learning English is through technology. Just as English language learning means progressed, on a mobile phone basis Duolingo worked to innovate how a new language may be learned. Research Subject The present research is intended to improve vocabulary acquisition in the A1 students of Pelileo High School by means of Duolingo. It will use a quasi-experimental design with an experimental group who used Duolingo and a control group that had traditional instruction. Both groups take a pre-test and post-test in order to check how well they have learned vocabulary. Research instruments were tests and questionnaire to answer research questions. Mean differences in terms of vocabulary performance between pre- and post-tests were wider in the experimental group than those measured with peer groups (the control group without Duolingo), confirming that Duolingo is an effective digital tool for early-stage language learners.

Keywords: duolingo platform, vocabulary acquisition, A1 students, improve, activities

RESUMEN

La educación es un proceso de aprendizaje de conocimientos y habilidades. Aprender inglés es un aprendizaje basado en habilidades que requiere diversos enfoques y técnicas. La integración

de la tecnología en la enseñanza de idiomas ha abierto nuevas vías para la adquisición de vocabulario entre los estudiantes de inglés. El uso de la tecnología es la solución más reciente para afrontar los retos del aprendizaje del inglés. Con el avance de los medios de aprendizaje del inglés, Duolingo se esfuerza por innovar en el aprendizaje de idiomas a través del teléfono móvil. El objetivo de esta investigación es explorar el uso de Duolingo para mejorar la adquisición de vocabulario en estudiantes de nivel A1 del instituto Pelileo. Mediante un diseño cuasiexperimental, se observaron dos grupos: un grupo experimental que utilizó Duolingo y un grupo de control que siguió métodos de instrucción tradicionales. Ambos grupos realizaron una prueba previa y una posterior para evaluar el aprendizaje de vocabulario. Los instrumentos de investigación fueron pruebas y un cuestionario para responder a las preguntas de la investigación. Los resultados indicaron una mejora significativa en el rendimiento léxico del grupo experimental, lo que subraya la eficacia de Duolingo como herramienta digital para el desarrollo del vocabulario en estudiantes de inglés en etapas tempranas.

Palabras clave: plataforma Duolingo, adquisición de vocabulario, estudiantes AI, mejorar, actividades

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INTRODUCTION

Over the last few years, some technology supports have been introduced to assist in the educational realm — giving teachers dynamic tools to enhance the teaching and learning process. With language learning technology creates a learner-centered environment. It enables teachers to develop various types of classes that encourage the kids to be interested in their studies. Additionally, it gives courses to comprehend out of the service to develop substantially more intuitive learning by using the objective language. Therefore, prior survey-based research has examined multiple facets of the role of technology in predominant educational so that two forms m. As was shown by TrujilloTrujillo (2024), in corporate language training, technology has merged with the classroom experience increasing the various forms of lessons while at the same time helping memory and retention of a new language. At the same time, Ibarra Núñez (2025), states that, technology has a significant impact on both teaching processes and, for this reason, it has generated new dynamics in our educational and socioeconomic context as can be seen in the classrooms of some public institutions. That is why the Duolingo platform has become very accepted in Ecuadorian students. This is more convenient than the assignments and media that academics have to work with as per Nurhayati & Maman Suryaman (2024). It stands to means that it would be simple enough to make it user-friendly, so you will not have a problem using in the classroom. As well as this, its user-friendly interface makes it something useful to add into a lesson, particularly for A1 learners. Therefore, teachers and students use available technological resources to create communicative networks that optimize the planning and development of training, while promoting a critical construction of thought and autonomy from a continuous educational approach Koehler et al. (2023). Furthermore, in this role as co-facilitators or knowledge guides, teachers have to keep on searching and putting into practice different network tools integrated in their classroom. According to Zawacki-Richter et al. (2019), information is deposited on the network. Thus the teacher is no longer a data communicator, rather, they become hiker or wanderer of cyberspace. However, there are those English teachers who pass on knowledge in a conventional manner without taking advantage of all that technology and digital media by which students seem so familiar. *Goal of the study*

To assess the impact of the Duolingo Learning Platform to improve vocabulary acquisition in A1 learners.

Research questions

- How useful is the Duolingo app for vocabulary acquisition compared with traditional methods?
- What do students think about the learning strategies they use to learn vocabulary in their classes?

- How motivated do students feel when they use the Duolingo app to learn English vocabulary?

Digital learning, through online platforms, digitalized resources and virtual classrooms has the potential to provide students a more flexible and individualized education which may be accessed at any time from anywhere (Caise Álvarez et al., 2025; Zawacki-Richter et al., 2019). This lays the groundwork for technology-enhanced learning (TEL) which is abutted with various factors such as investigating and integrating tablets, smartboards, virtual and augmented reality erosion or graphic devices and artificial intelligence tools to simplify complex learning concepts (Koehler et al., 2023). This allows students to learn in an inclusive, adaptive, and lifelong manner using AI-powered models and microlearning platforms leading to enhanced engagement and motivation among the students (Zawacki-Richter et al., 2019). To that end, Duolingo programed by Luis von Ahn and Severin Hacker can be accessed via web on a desktop computer or cell phone or tablet (also known as smart device). The app gives a series of lessons, grouped into skills. The goal of this app is to teach vocabulary, grammar and to bring students up to an A2 level if all modules are completed. One of the main features of Duolingo is spaced repetition. This technique is widely known to be an excellent way to acquire vocabulary.

Along with spaced repetition, the skills to be practiced in each lesson are interleaved (so one might do translation one practice and pronunciation the next), along with different activities (recognizing a word from a picture, writing down what you hear etc.). In the very latest research on learning, spaced-out practice, interleaving, and variety are the three elements that turn out to greater mastery as well as longer retention and variety. This means that Duolingo appears to leverage all three of these modes (Nuñez-Barriopedro, 2020; Zhang, 2025). What this app also does is it provides instant feedback to users after every task. As Namaziandost & Çakmak (2025) identify in their study, this feedback is not just basic multiple choice but other versions that are appropriate. It often also contains a discussion section where users can iron out semantic differences or potential pitfalls with the activity or the solution provided. This has led to extensive global research on its efficacy.

As an example, Pramesti et al. (2025) consider Duolingo as a tool for learning vocabulary that seems to be a potential tool for improving vocab. It appears to have had a beneficial impact on motivational issues too, as students were clearly more interested in learning English with the App. Besides that, as Nurhayati & Maman Suryaman (2024) said,

Duolingo has a positive influence on students' language achievement. Finally, another evidence of Duolingo's positive influence is a study reported by Sutraeni et al. (2025) that proved learners increased their vocabulary and developed a better attitude to learn languages because the content dynamic nature was fun to practice. Moreover, the students appeared to be relatively engaged too when they were introduced to Duolingo. This search is in accordance with Puspitasari et al. (2025) who state that the category of technology tools, and how teachers utilize

these tools, are placed really strongly for learners' vocabulary improvement. The main findings of this study indicated that Duolingo had a significant impact as a tool for learning English language in the classroom; it can be a great learning tool that improves vocabulary while motivating and promotes better performance in English classes.

According to Hasan & Benny (2025), vocabulary learning is at the center of language learning and language use. It is the essence that imbibes character to a language. Speakers of a particular language cannot express the meaning and communicate with each other without vocabulary. Vocabulary is one of the key aspects in language teaching; Edward explains that students need to keep studying lexemes taught through pragmatics and phonology. Vocabulary learning contributes to foreign language learning purposes too. Very often the meaning of new words is highlighted, be it in books or through direct conversation. Vocabulary is central to language learning and pedagogy; few today would deny the importance of vocabulary for second (and foreign) language learners.

Vocabulary is a basic for someone who wants to study a foreign language (Nation, 2017). As vocabulary research becomes an increasing focus in applied linguistics and language teaching, new methods for assessing vocabulary will be needed (Aiello & Willem, 2004; Smith et al., 2024). On the other hand, (Nation, 2017) also stated that vocabulary is at the core of English language instruction. Without proper command of running vocabulary, pupils cannot understand others or they cannot speak about these thoughts. The meaning of new words is stressed so often, both in books and study lessons, that it creates great importance to vocabulary learning as this process has become an integral part of foreign language acquisition. It is also a language education hub, and it has great significance for language learners (Hasan & Benny, 2025).

MATERIALS AND METHOD

This study uses a quasi-experimental, control versus experimental amends. It is implemented with the principles of action research which means that it has a real classroom context and can be reflectively and practicably improved. In the research, the use of the Duolingo platform is the independent variable and, English vocabulary acquisition.

The population of this study comprised 1,545 students from Pelileo High School.

And here is where 7student Final score sample of this population that was convened includes 76 students: with a range aged from 13 to 15 years of age. We completed the selection of these students whose adscription to a A1-level English course allowed us to aim at the best suited cohort for analyzing vocabulary acquisition through the Duolingo platform. Duolingo was used as a vocabulary trainer and the sample was separated into an experimental group, trained through Duolingo, and a control group that continued traditional English instruction. A purposive sampling method was used as participants were deliberately selected based on their English proficiency level and research aim relevance. It allowed you to do an analysis of the impact of

Duolingo in a focused and contextually appropriate manner for a few thousand beginner-level EFL learners.

The research was carried out in the city of San Pedro de Pelileo in a public educational institution, specifically at Pelileo High School. This school recognizes two shifts, morning (elementary school, junior highschool and highschool) and afternoon (junior highschool and highschool). The subject of this research is the morning shift which, in this case, consists of 76 students still undergoing an A1 English course. These learners are aged 13–15 y/o and attend classes twice a week, with an English lesson that follows a communications-learner centered approach.

A script was created (i.e. research structure) to follow how this study should be developed and conducted. This systematic approach ensured that each step (from protocol, including the eligible participants and assessment to collection process, analysis and follow-up/reflection) was logically consistent with the overall aims of the study and its associated research questions. The methodology employed was based on the implicit rules of applied action research; therefore, it encompassed diagnostic and evaluative elements to evaluate whether or not Duolingo was effective in promoting vocabulary acquisition among A1 level students. This process is cyclical and reflective, and the stages align with classroom-based research: plan, assess, intervene. The next table describes every step of the research process, what and why they are applied, and their precise applications in this development.

Instruments Description

A student questionnaire was created to capture learners' views about vocabulary acquisition methods and getting experience using Duolingo. First, the survey utilized likert-scale items to assess motivation and interaction with gamification features, feedback reception (immediate vs. delayed), spaced repetition, and multimodal learning. It was applied to the experimental group students before and after the intervention. The survey also gathered demographic information regarding students' access to digital tools and prior experience with language-learning apps, which may affect the results of the intervention.

In assessing vocabulary learning, pre-tests and posttests were developed which comprised both the experimental group and control group. The four tests were vocabulary knowledge, vocabulary usage, and vocabulary retention and recognition amongst the individual components. A baseline level of then pre-test was utilized access to knowledge of vocabulary, whereas the post-test examined the progress made in different areas during the period of intervention. Both tests were carried out using the same structure to maintain comparability and validity of results. These assessments generated scores that served as quantitative data points used to measure the effect of the Duolingo platform.

Data gathering occurred in stages, starting with an initial phase consisting of the pre-test and pre-survey. In the intervention phase, experimental students used Duolingo for vocabulary

practice and classroom observations along with participation checklists were performed to measure engagement. We conducted a post-test assessment for both groups following the intervention phase, and an additional follow-up survey collected from the experimental group. Data were collected systematically for further analysis, meaning that comprehensive information was obtained from different sources to build onto the findings and increase reliability.

A quantitative synthesis of pre-tests, post-tests and survey data was summarized by descriptive statistics. Common central tendency and variability measures (Like mean, mode, median and standard deviation) of students responses were calculated. This enabled the researcher to identify global trends in vocabulary gain and attitudes between the two groups. Also, frequency distributions were produced to summarize students' use of digital tools and their assessment of learning experiences using Duolingo.

RESULTS AND DISCUSSION

Table 1

Pre-intervention questionnaire results (pre-survey)

Question / Indicator	Categories	Frequency (n=25)	Percentage (%)
Gender	Female	15	60 %
	Male	10	40 %
Length of English study	Less than 1 year	3	12 %
	1–2 years	4	16 %
	3–5 years	12	48 %
	More than 5 years	6	24 %
Frequency of using digital devices to study English	Never	1	4 %
	Rarely	5	20 %
	Sometimes	8	32 %
	Often	9	36 %
	Always	2	8 %
Previous use of Duolingo	Yes	14	56 %

	No	11	44 %
Frequency of Duolingo use (among those who had used it, n=14)	Every day	2	14.3 %
	A few times a week	2	14.3 %
	Once a week	6	42.9 %
	Less than once a week	4	28.6 %
Use of other apps	Yes	6	24 %
	No	19	76 %
Main place of practice	At school	21	84 %
	Online	3	12 %
	At home	1	4 %
	At an English course	0	0 %
Skill most wanted to improve	Vocabulary	11	44 %
	Speaking	5	20 %
	Reading	5	20 %
	Writing	3	12 %
	Listening	1	4 %
Family or friend support	Yes	9	36 %
	No	16	64 %
Frequency of studying outside school	Never	7	28 %
	Rarely	11	44 %
	Sometimes	7	28 %

	Often	0	0 %
	Always	0	0 %
Favourite way to learn English	Music	14	56 %
	Videos	3	12 %
	Flashcards	0	0 %
	Apps like Duolingo	8	32 %
Desire to improve English	Yes	25	100 %
	No	0	0 %

Source: created by author

Pre-survey analysis

The pre-survey (Table 1) shows that most students (60%) were female, and nearly half had studied English for three to five years but remained at A1 level. Technology access was adequate, as 68% used digital devices at least “sometimes”. However, only 56% had used Duolingo before, and most did so sporadically. Three-quarters of the students did not use any other language app. The school was the main learning environment for 84% of the participants. Outside school, study habits were weak: 44% studied “rarely” and 28% “never”. Moreover, 64% received no help from family or friends. Vocabulary was the skill that students most wanted to improve (44%), which supports the focus of this study. Finally, all students expressed a desire to improve their English, and their favourite learning method was music (56%), followed by apps like Duolingo (32%).

Table 2

Post-intervention questionnaire results (post-survey) – Experimental group (n=25)

Item	1 = Never	2 = Rarely	3 = Sometimes	4 = Often	5 = Always	% “Often” + “Always”
1. Motivation from points and badges	1	2	8	8	6	56 %
2. Enjoyment of the daily streak	0	0	8	5	10	60 %

3. Excitement when unlocking new levels	0	3	5	3	14	68 %
4. Duolingo explains why answers are right/wrong	0	2	2	2	19	84 % (only “Always”)
5. Using feedback to improve	0	3	3	7	12	76 %
6. I learn better when I see my mistakes explained	0	1	6	9	9	72 %
7. I repeat words I have already learned	0	5	2	8	10	72 %
8. Duolingo helps me remember through repetition	0	2	1	4	18	88 %
9. I learn faster with repeated exposure	0	3	3	4	15	76 %
10. I learn better with images and sounds	0	4	4	8	9	68 %

11. The app uses images, sounds and words	0	1	2	5	17	88 %
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12. I enjoy the videos and sounds	0	4	4	11	6	68 %
13. I understand the meaning of new words	0	1	7	9	8	68 %
14. I can match words with definitions	2	1	4	10	8	72 %
15. I understand the word in a sentence	1	1	9	5	9	56 %
16. I use new words when speaking	3	10	6	2	4	24 %
17. I write sentences with new vocabulary	0	2	11	7	5	48 %
18. I use new words in a correct sentence	1	5	6	10	3	52 %
19. I remember words days later	1	2	6	8	8	64 %

20. I remember words from the previous week	2	1	10	5	7	48 %
21. I remember spelling	0	5	5	8	7	60 %
22. I recognise words when reading or listening	2	2	4	11	6	68 %
23. I identify new words in a reading text	0	3	3	6	13	76 %
24. I identify learned vocabulary in texts/audio	0	1	2	5	17	88%

Source: created by author

Post-survey analysis

After eight weeks of using Duolingo, the experimental group reported very positive perceptions (Table 2). The highest ratings were for feedback and multimodality: 84% answered “always” that Duolingo explains why answers are correct or incorrect, and 88% felt the app effectively uses images, sounds and words. Also, 88% believed that Duolingo helps them remember vocabulary through repetition.

Gamification elements worked well: 56% felt motivated by points and badges, 60% enjoyed the daily streak, and 68% felt excited when unlocking new levels.

Receptive vocabulary skills improved notably. For example, 88% could identify learned vocabulary in texts or audio, 76% could point out new words in a reading passage, and 72% could match words with definitions. Understanding word meaning in isolation was reported by 68%, but understanding in full sentences was lower (56%).

Productive skills showed moderate results. Only 24% used new words often or always when speaking, while 48% wrote sentences with new vocabulary and 52% could use them in grammatically correct sentences. Retention was encouraging: 64% remembered words days later, though only 48% retained them after one week. Spelling recall was reported by 60%.

CONCLUSION

To begin with, the findings clearly establish that Duolingo significantly enhances receptive vocabulary skills among A1 learners. The highest percentages were recorded in items related to vocabulary recognition in authentic contexts (88%) and identification of new words in reading passages (76%). This suggests that the platform's multimodal approach, which integrates images, sounds, and written text, combined with its systematic spaced repetition, effectively consolidates passive lexical knowledge. Consequently, students are able to recognise and understand a wider range of English words in diverse input formats, which constitutes a fundamental first step in the language acquisition process.

Furthermore, the gamified features of the application proved to be a decisive factor in fostering learner engagement and establishing consistent study habits. Before the intervention, the majority of students reported irregular study routines and limited practice outside school, with many studying rarely or never. However, the post-survey indicated that elements such as points, badges, daily streaks, and immediate corrective feedback successfully motivated students to practise more regularly. This increase in intrinsic motivation is particularly valuable for beginner learners, as it encourages autonomy and transforms vocabulary practice into an enjoyable, self-directed activity, thereby addressing one of the main obstacles identified in the initial diagnosis.

Nevertheless, despite these notable advances in receptive skills and motivation, the results also reveal clear limitations regarding active production and long-term retention. Productive skills remained moderate, with only 24% of students frequently using new vocabulary in oral communication and just over half achieving accurate written usage. Similarly, retention declined substantially over time, as less than half of the students could recall words after one full week. Consequently, while Duolingo constitutes a highly effective supplementary tool for initial vocabulary building, it should not be regarded as a comprehensive solution. To achieve balanced linguistic competence, its use must be integrated with additional pedagogical strategies that promote speaking, writing, and more intensive retrieval practice, thereby ensuring that passive vocabulary becomes fully active and durable over time.

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