Enhancing English vocabulary acquisition through a flipped classroom model supported by USA learns: a quasi-experimental study with Colombian EFL learners

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Abstract
Vocabulary acquisition constitutes a fundamental component of English as a Foreign Language (EFL) learning, as it directly influences learners' communicative competence and academic performance. Despite its importance, many secondary school students experience difficulties in developing an adequate lexical repertoire, particularly in contexts where exposure to English is limited. This study aimed to determine the effect of a Flipped Classroom model supported by the USA Learns platform on English vocabulary acquisition among Colombian secondary school students. A quantitative approach framed within the positivist paradigm was adopted. The study employed a quasi-experimental design with non-equivalent groups, including an experimental group exposed to the Flipped Classroom intervention and a control group receiving traditional instruction. Vocabulary acquisition was measured through pre-test and post-test assessments designed to evaluate students' lexical knowledge across multiple thematic categories aligned with Pre-A1, A1, and A2 proficiency levels of the Common European Framework of Reference for Languages (CEFR). The findings revealed that students who participated in the Flipped Classroom intervention demonstrated a greater mean vocabulary gain (+2.5 points) than those in the control group (+0.5 points). Category-level results were mixed (see Table 2): the largest gains for the experimental group were observed in greetings, presentations and farewells (+5.27) and classroom vocabulary (+4.27), with small gains in personal information and numbers (+0.14) and cardinal and ordinal numbers (+0.55), while means decreased in the categories of verb To be, calendar, parts of the day, and daily routine and time. The results suggest that combining flipped learning principles with a technology-supported environment promotes learner autonomy, increases exposure to lexical content, and enhances opportunities for meaningful language practice. The study contributes empirical evidence supporting the pedagogical value of Flipped Classroom models in EFL contexts and highlights the potential of free digital learning platforms such as USA Learns for vocabulary instruction. These findings may inform English language teaching practices and encourage the integration of technology-enhanced methodologies to foster vocabulary development in secondary education settings.

Keywords: *Flipped classroom, vocabulary acquisition, English as a Foreign Language, USA learners, technology-enhanced learning, secondary education, EFL learners, digital language learning*

Introduction

Vocabulary knowledge is widely recognized as one of the most fundamental components of second and foreign language acquisition. A solid lexical repertoire enables learners to comprehend oral and written messages, participate in communicative interactions, and develop higher-order language skills such as reading comprehension, writing, and oral production. In English as a Foreign Language (EFL) contexts, vocabulary acquisition has become a critical educational objective because lexical competence directly influences learners' communicative performance and academic achievement. Despite its importance, many secondary school students continue to exhibit limited vocabulary knowledge, which

restricts their ability to interact effectively in English and negatively affects their performance in standardized assessments.

The challenge of vocabulary acquisition is particularly evident in Latin American educational settings, where English is commonly taught as a foreign language and opportunities for authentic language exposure remain limited. In Colombia, national educational policies have emphasized the development of bilingual competencies and communicative abilities; however, English proficiency levels among secondary school students continue to present significant challenges: in the participating institution, mean Saber 11 English scores were 46 in 2021 and 47 in 2022 and 2023, below the national mean of 50-52 in the same period (ICFES, 2023). Limited lexical knowledge often becomes a barrier to the development of communicative competence, reducing students' confidence and participation in language learning activities. Consequently, educational institutions are increasingly seeking innovative pedagogical strategies capable of improving vocabulary learning outcomes while promoting learner autonomy and engagement.

Recent advances in educational technology have created new opportunities for language instruction. Digital platforms provide learners with access to interactive resources, personalized learning experiences, immediate feedback, and opportunities for self-paced study. Within the field of Computer-Assisted Language Learning (CALL), technological tools have demonstrated considerable potential for supporting vocabulary acquisition by increasing exposure to lexical items and facilitating meaningful language practice. The integration of digital technologies into language education has therefore become an important area of research, particularly in contexts where traditional classroom instruction alone may be insufficient to address learners' diverse needs.

Among the pedagogical approaches that have gained increasing attention in recent years, the Flipped Classroom model has emerged as a promising alternative to conventional teacher-centered instruction. This model reverses the traditional sequence of teaching by allowing students to engage with instructional content before classroom sessions and dedicating face-to-face instructional time to collaborative learning, problem-solving activities, and guided practice. By shifting direct instruction outside the classroom, flipped learning promotes active participation, learner autonomy, and more effective use of classroom interactions. Previous studies, for example Alnuhayt (2018), Arévalo Piña (2023), and Retnaningsih et al. (2022), have reported positive effects of flipped learning on student motivation, engagement, academic performance, and language development across different educational contexts.

In language education, the Flipped Classroom model offers particular advantages for vocabulary learning. Pre-class exposure to instructional materials enables students to familiarize themselves with new lexical items at their own pace, while classroom activities provide opportunities to apply and reinforce vocabulary knowledge through communicative tasks and collaborative exercises. Furthermore, digital learning environments can support repeated exposure to vocabulary, an essential factor in long-term lexical retention. Nevertheless, although the effectiveness of flipped learning has been documented in several international contexts, empirical evidence regarding its impact on English vocabulary acquisition among Colombian secondary school learners remains limited.

To address this gap, the present study examines the effect of a Flipped Classroom model supported by the USA Learns platform on English vocabulary acquisition among Colombian secondary school students. Using a quasi-experimental design with an experimental group and a control group, the study seeks to determine whether technology-enhanced flipped learning can contribute to improved vocabulary outcomes in an EFL context. The findings are expected to provide empirical evidence regarding the pedagogical value of flipped learning for vocabulary instruction and offer practical implications for English language teachers seeking innovative strategies to enhance lexical development in secondary education.

Theoretical background

Vocabulary acquisition in EFL contexts

Vocabulary acquisition is widely recognized as a fundamental component of second and foreign language learning because lexical knowledge directly influences learners' ability to understand and produce language effectively. According to Nation (2013), vocabulary constitutes the foundation upon which communicative competence is built, enabling learners to engage in listening, speaking, reading, and writing activities. Similarly, Schmitt (2010) argues that vocabulary knowledge extends beyond the recognition of isolated lexical items and includes understanding their meanings, forms, collocations, grammatical functions, and contextual uses.

In English as a Foreign Language (EFL) contexts, vocabulary learning represents a particularly significant challenge due to the limited opportunities learners often have to interact with the target language outside the classroom. As a result, many students experience difficulties in developing sufficient lexical repertoires to communicate effectively and comprehend authentic language input. Research has consistently demonstrated that vocabulary size is strongly associated with language proficiency and academic performance, highlighting the need for instructional approaches that promote meaningful and sustained lexical development (Nation, 2013; Schmitt, 2010).

Contemporary perspectives on vocabulary instruction emphasize the importance of contextualized learning experiences. Rather than relying exclusively on memorization, learners should be exposed to authentic communicative situations that facilitate repeated encounters with lexical items and encourage meaningful language use. This communicative perspective aligns with current approaches to language teaching, which prioritize the development of learners' ability to use vocabulary appropriately in real-world contexts. Consequently, vocabulary acquisition is increasingly viewed as an active and dynamic process involving interaction, practice, and meaningful engagement with language.

Given these challenges, educational researchers have explored innovative pedagogical strategies capable of increasing learners' exposure to vocabulary and promoting greater autonomy in language learning. Technology-enhanced instructional environments have emerged as promising alternatives because they provide flexible access to learning resources and facilitate individualized learning experiences. Such environments can support vocabulary acquisition by allowing learners to review content repeatedly and engage with language materials at their own pace.

Flipped classroom and language learning

The Flipped Classroom model has gained considerable attention in recent years as an innovative instructional approach that seeks to maximize student engagement and active participation. Bergmann and Sams (2012), widely regarded as pioneers of the model, define flipped learning as an educational approach in which direct instruction occurs outside the classroom through digital resources, while classroom time is dedicated to collaborative learning activities, problem-solving, and guided practice. This pedagogical shift transforms the traditional role of the teacher from information provider to learning facilitator.

The theoretical foundations of the Flipped Classroom are rooted in constructivist learning theories, which emphasize the active role of learners in constructing knowledge through interaction and reflection. From this perspective, students become responsible for preparing instructional content independently before class, thereby allowing face-to-face sessions to focus on higher-order cognitive processes. Aguilera-Ruiz et al. (2017) argue that flipped learning promotes student-centred instruction by creating opportunities for personalized support, collaborative learning, and active engagement with educational content.

Within language education, the Flipped Classroom has demonstrated considerable potential for enhancing language learning outcomes. Bishop and Verleger (2013) explain that the model combines computer-based individual instruction with interactive classroom activities, creating an environment that

supports both autonomous learning and collaborative practice. In EFL contexts, this structure allows students to familiarize themselves with vocabulary and language structures before class and subsequently apply their knowledge through communicative activities under teacher guidance.

Several studies have reported positive effects of flipped learning on learners' motivation, participation, academic achievement, and language performance. Specifically, Alnuhayt (2018) found that flipped instruction contributed positively to vocabulary learning among EFL students by increasing opportunities for lexical exposure and practice. Likewise, recent systematic reviews have highlighted the growing effectiveness of flipped learning approaches in English language education, particularly when supported by digital technologies that facilitate autonomous study and continuous interaction with instructional materials (Arévalo Piña, 2023).

Technology-assisted vocabulary learning and USA learns

The integration of digital technologies into language education has significantly transformed instructional practices and learning experiences. Computer-Assisted Language Learning (CALL) has emerged as a prominent field of research focused on understanding how technological tools can support language acquisition processes. According to Beatty (2013), technology-mediated learning environments provide learners with opportunities for individualized instruction, immediate feedback, and increased interaction with linguistic content, all of which contribute to language development.

One of the primary advantages of technology-assisted vocabulary learning is the possibility of repeated exposure to lexical items through multimedia resources. Research suggests, consistent with Nation (2013) and Schmitt (2010), that vocabulary acquisition is enhanced when learners encounter words multiple times in varied contexts and modalities. Digital platforms facilitate this process by integrating audiovisual materials, interactive exercises, self-assessment tools, and adaptive learning pathways that accommodate individual learning needs.

Within this technological landscape, online language learning platforms have become increasingly important resources for supporting EFL instruction. Such platforms allow students to access learning materials beyond classroom boundaries, promoting learner autonomy and extending opportunities for language practice. Moreover, digital learning environments enable teachers to monitor student progress and provide targeted support based on individual performance data.

USA Learns represents a particularly valuable platform for language learning because it combines structured instructional content, multimedia resources, interactive activities, and progress monitoring features within a freely accessible environment. The platform offers learning modules designed to support the development of English language skills through contextualized instruction and guided practice. These characteristics make USA Learns especially suitable for implementation within a Flipped Classroom framework, where students engage with instructional content before classroom sessions and subsequently apply their learning through collaborative and communicative activities.

The combination of Flipped Classroom principles and technology-assisted learning environments provides a promising framework for addressing vocabulary acquisition challenges in EFL settings. By increasing learners' exposure to lexical content, promoting autonomous learning, and maximizing opportunities for meaningful classroom interaction, this pedagogical approach has the potential to enhance vocabulary development and improve overall language learning outcomes among secondary school students.

Methodology

Research design

This study adopted a quantitative approach within the positivist paradigm and employed a quasi-experimental pretest-posttest design with non-equivalent groups. This design was selected to determine the effect of a Flipped Classroom model supported by the USA Learns platform on English vocabulary

acquisition among secondary school EFL learners. Since participants belonged to pre-existing classroom groups, random assignment was not feasible; therefore, a quasi-experimental approach was considered the most appropriate methodological option (Bryman, 2016; Hernández-Sampieri et al., 2022).

The following hypotheses, stated in the original thesis (Santacruz Andrade, 2025), guided the study. Null hypothesis (H0): The implementation of the Flipped Classroom model does not generate significant improvements in English vocabulary learning in the intervened students. Alternative hypothesis (H1): The implementation of the Flipped Classroom model generates significant improvements in English vocabulary learning in the intervened students. No inferential test of the between-group difference in gains is reported in this article; the hypotheses are therefore addressed descriptively through the comparison of gains and category-level means, and the correlation analysis described below does not by itself test H1.

Participants and sampling

The study was conducted with 41 eleventh-grade students enrolled at the Isaías Gamboa Educational Institution, Aguacatal campus, in Santiago de Cali, Colombia. Participants were distributed into an experimental group (n = 21), which received the Flipped Classroom intervention supported by the USA Learns platform, and a control group (n = 20), which continued receiving conventional English instruction. Regarding gender distribution, the experimental group consisted of 12 female students (57%) and 9 male students (43%), whereas the control group included 18 female students (90%) and 2 male students (10%). Although differences in gender composition existed between groups, all participants belonged to the same educational level and institutional context.

A non-probability convenience sampling procedure was employed. This type of sampling is frequently used in educational research when researchers work with naturally occurring groups and encounter practical limitations for obtaining representative samples (Bryman, 2016).

Data collection procedure

The study followed six sequential stages: (1) research design and definition of variables; (2) design of the 35-item test and expert validation; (3) pilot study with 24 tenth-grade students and revision of three ambiguous items; (4) pretest administration to both groups; (5) five-week intervention (Flipped Classroom supported by USA Learns for the experimental group; traditional instruction for the control group); and (6) posttest administration and statistical analysis. Data were collected through a closed-ended objective test administered via Google Forms. This procedure ensured standardized administration conditions, facilitated student access, and enabled automatic collection and organization of responses.

The instrument included multiple-choice, single-answer, and matching items designed to evaluate everyday English vocabulary corresponding to the Pre-A1, A1, and A2 proficiency levels established by the Common European Framework of Reference for Languages (Council of Europe, 2020).

Instrument

Vocabulary acquisition was assessed using a 35-item test specifically designed for this study. The instrument evaluated functional English vocabulary in eight categories used consistently throughout this article: (1) affirmations with the verb To Be; (2) calendar; (3) personal information and numbers; (4) cardinal and ordinal numbers; (5) parts of the day; (6) daily routine and time; (7) greetings, presentations and farewells; and (8) classroom vocabulary. Each item assessed lexical comprehension, semantic association, and contextual vocabulary recognition.

The test was administered through Google Forms, which facilitated standardized implementation and systematic data collection for both the experimental and control groups.

Validity and reliability

Content validity was established through expert judgment. Experienced English language teachers with expertise in secondary education and familiarity with the Common European Framework of Reference for Languages reviewed the instrument. The evaluation focused on linguistic relevance, clarity, educational appropriateness, and alignment with the learning objectives.

To strengthen reliability, a pilot study was conducted with 24 tenth-grade students from the same educational institution who shared characteristics similar to those of the target population. The pilot study identified three ambiguous items, which were subsequently revised to improve precision and comprehension.

In addition, a feedback session (conversatorio) was conducted with the 24 pilot-group students, not with the study sample, to gather observations regarding content, instructions, and difficulty level. Although a statistical reliability coefficient such as Cronbach's alpha was not calculated, the pilot testing process, expert validation, and consistency observed between pretest and posttest administrations provided evidence of acceptable instrument stability and measurement precision.

Data analysis

Data obtained from the pretest and posttest were analysed using descriptive procedures. Vocabulary performance was examined through means, standard deviations, and mean gains by group and by vocabulary category (Tables 1 and 2). Excel was used to tabulate scores. Pearson and Spearman coefficients were calculated in SPSS and cross-checked in R-Studio; both programs produced identical values (Pearson r = 0.531; Spearman rho = 0.537). The coefficients correlate pretest scores with posttest scores within the experimental group only (n = 21), as a measure of consistency of scores over time. They do not measure the effect of the intervention, because group membership is a categorical variable. The intervention effect is assessed by comparing the mean gains and category-level means of the experimental and control groups. A note on total scores: the thesis from which this article is drawn reports the mean total gains (+2.5 experimental, +0.5 control) and the full means and standard deviations by category (Table 2), but it does not disaggregate the total pretest and posttest means and standard deviations for the 35-item test. Total means and standard deviations are therefore not reported here, to avoid reconstructing values that were not in the source dataset; comparability at baseline should be judged from the category-level pretest means in Table 2.

Ethical considerations

This study adhered to the ethical principles of respect, autonomy, beneficence, and justice governing educational research involving human participants. Institutional authorization was obtained from the administration of the Isaías Gamboa Educational Institution before data collection began.

Written informed consent was obtained from parents or legal guardians during a face-to-face meeting in which the objectives, procedures, benefits, and ethical conditions of the study were clearly explained. Students also received age-appropriate information regarding the study and retained the right to participate voluntarily or withdraw at any stage of the research process.

To ensure confidentiality, each participant was assigned an anonymous identification code. Personal information remained accessible only to the researcher and was stored securely under restricted access conditions. Results were reported exclusively in aggregate form and used solely for academic and research purposes.

Results and discussion

The results obtained from the pretest and posttest assessments indicate that the implementation of the Flipped Classroom model supported by the USA Learns platform positively influenced English vocabulary acquisition among eleventh-grade EFL learners. Although both groups demonstrated

improvements during the intervention period, students in the experimental group achieved substantially greater gains than those in the control group, suggesting that the instructional strategy contributed significantly to vocabulary development.

The study involved a total of 41 students distributed into two naturally occurring groups. The experimental group consisted of 21 students who participated in the Flipped Classroom intervention, while the control group consisted of 20 students who continued receiving conventional English instruction. Vocabulary acquisition was measured through a 35-item test specifically designed to assess lexical knowledge corresponding to the Pre-A1, A1, and A2 levels of the Common European Framework of Reference for Languages (Council of Europe, 2020).

The comparison between pretest and posttest results revealed a difference in learning outcomes between groups. Students in the experimental group achieved an average total vocabulary gain of 2.5 points, whereas students in the control group obtained an average gain of 0.5 points (Table 1, maximum possible score = 35). As noted in the Methodology, total pretest and posttest means and standard deviations are not reported because the source thesis reports only the total gains and the category-level means and standard deviations. Table 2 therefore reports the pretest and posttest means and standard deviations for each of the eight vocabulary categories.

Table 1: Summary of vocabulary acquisition outcomes

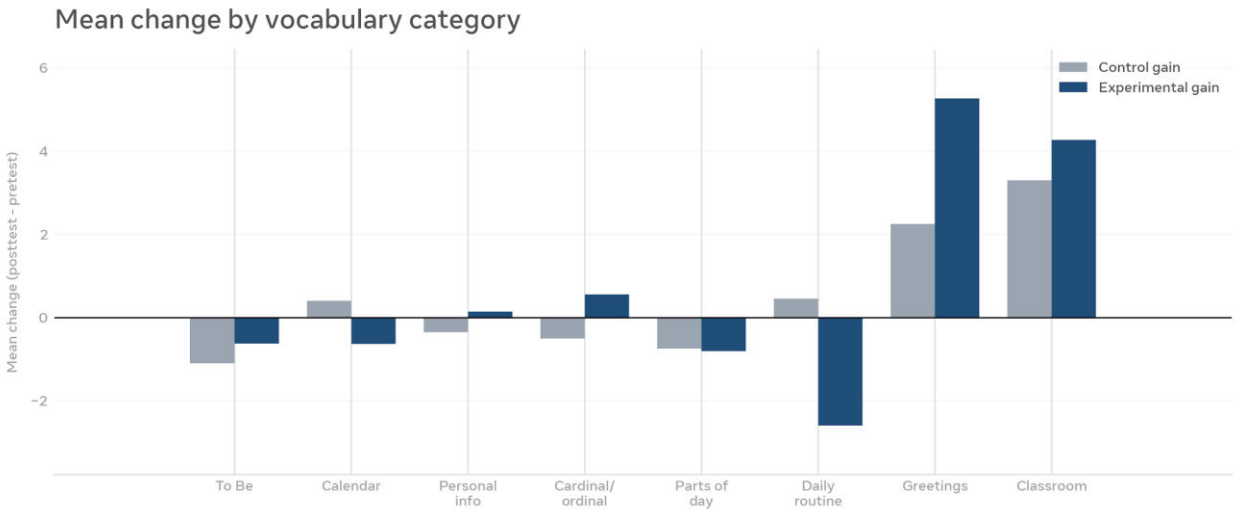
Variable	Control group	Experimental group
Participants	20	21
Female students	18 (90%)	12 (57%)
Male students	2 (10%)	9 (43%)
Mean vocabulary gain	+0.5	+2.5
Pearson correlation	—	0.531
Spearman correlation	—	0.537

Note. Maximum possible total score = 35. Total pretest/posttest means and SDs are not reported for the reason explained in the Methodology and in the note to Table 2.

Within the experimental group, Pearson's correlation coefficient (r = 0.531) and Spearman's correlation coefficient (rho = 0.537) between pretest and posttest scores indicated a moderate positive association between the two measurement occasions. This result describes score consistency within the experimental group; it does not test the alternative hypothesis (H1) and does not by itself establish an intervention effect.

The differences between groups are illustrated in Figure 1. As shown, the experimental group achieved vocabulary gains that were considerably greater than those obtained by the control group, demonstrating the effectiveness of the intervention.

Figure 1: Mean vocabulary gains in the experimental and control groups



Source: thesis Tables 13-20.

No systematic observation protocol was used in this quantitative study, and no observation data were collected. Therefore, no claims are made here about observed motivation, engagement, or learner autonomy. No systematic observation protocol was used in this quantitative study, and no observation data were collected. Therefore, no claims are made here about observed motivation, engagement, or learner autonomy. These observations suggest that the Flipped Classroom model not only enhanced vocabulary acquisition but also promoted learner autonomy and active participation, two characteristics frequently associated with successful language learning environments.

The findings are consistent with the theoretical principles of flipped learning proposed by Bergmann and Sams (2012), who argue that transferring direct instruction outside the classroom allows students to engage more actively with content during face-to-face sessions. In the present study, students interacted with vocabulary materials independently through USA Learns and subsequently reinforced their learning through collaborative and communicative classroom activities. This instructional sequence appears to have facilitated deeper vocabulary processing and retention.

The results also support the conceptualization of the Flipped Classroom described by Bishop and Verleger (2013), who define flipped learning as a combination of individual computer-based instruction and interactive classroom learning. The integration of USA Learns enabled students to access multimedia resources, vocabulary exercises, and self-paced learning opportunities prior to classroom instruction. Consequently, classroom time could be devoted to activities requiring vocabulary use in meaningful communicative contexts.

Furthermore, the findings align with previous empirical research examining flipped learning in language education. Alnuhayt (2018) reported that flipped instruction positively influences vocabulary acquisition by increasing students' exposure to language input and encouraging active engagement with learning materials. Similarly, Retnaningsih et al. (2022) found that flipped learning environments support vocabulary development through repeated interaction with lexical items and enhanced learner participation. The substantial vocabulary gains observed in the experimental group provide additional evidence supporting these conclusions.

The results can also be interpreted through the lens of vocabulary acquisition theory. According to Nation (2013), vocabulary learning requires repeated encounters with lexical items across multiple contexts and opportunities for meaningful use. The Flipped Classroom model implemented in this study

provided students with multiple exposures to target vocabulary through digital materials, online exercises, and classroom interactions. This combination of independent study and communicative practice likely contributed to the observed improvements in lexical knowledge.

From a constructivist perspective, the findings support Aguilera-Ruiz et al. (2017), who argue that flipped learning promotes active knowledge construction by placing learners at the center of the educational process. Students in the experimental group assumed greater responsibility for their learning, engaged with instructional materials before class, and participated actively in collaborative activities during classroom sessions. These experiences may be related to the vocabulary gains reported in Tables 1 and 2. Motivation and autonomy were not measured in this study and are not claimed as outcomes.

Another relevant finding concerns the educational potential of USA Learns as a complementary learning tool. The platform provided structured instructional content, immediate feedback, and opportunities for repeated practice, all of which are recognized as important factors in successful vocabulary learning. These characteristics are consistent with the principles of Computer-Assisted Language Learning (CALL), which emphasize the role of technology in expanding learning opportunities and increasing access to language input (Beatty, 2013).

Overall, the findings provide descriptive evidence regarding the use of Flipped Classroom methodologies in EFL contexts. The larger vocabulary gain in the experimental group, together with the category-level pattern in Table 2, suggests that technology-supported flipped learning may serve as a useful pedagogical alternative for vocabulary instruction in secondary education. The results therefore contribute to the growing body of research advocating the integration of learner-centered and technology-enhanced approaches in foreign language education.

Table 2: Pretest and posttest means (M) and standard deviations (SD) by vocabulary category. Source: thesis Tables 13-20

Table 2: Pretest and posttest means (M) and standard deviations (SD) by vocabulary category
Source: thesis Tables 13-20

Category	Group	Pretest M (SD)	Posttest M (SD)	Gain
To Be (max 5)	Control	4.50 (0.87)	3.40 (0.92)	-1.10
To Be (max 5)	Experimental	4.27 (1.14)	3.64 (0.98)	-0.63
Calendar (max 15)	Control	11.65 (3.07)	12.05 (2.31)	+0.40
Calendar (max 15)	Experimental	10.50 (1.70)	9.86 (2.83)	-0.64
Personal info & numbers (max 8)	Control	6.70 (1.73)	6.35 (1.93)	-0.35
Personal info & numbers (max 8)	Experimental	7.43 (1.07)	7.57 (0.65)	+0.14
Cardinal / ordinal (max 14)	Control	12.80 (3.43)	12.30 (4.19)	-0.50
Cardinal / ordinal (max 14)	Experimental	12.95 (2.01)	13.50 (1.87)	+0.55
Parts of day (max 13)	Control	10.85 (1.95)	10.10 (3.14)	-0.75
Parts of day (max 13)	Experimental	10.00 (3.33)	9.19 (3.12)	-0.81
Daily routine & time (max 18)	Control	11.85 (6.27)	12.30 (6.45)	+0.45
Daily routine & time (max 18)	Experimental	13.09 (4.40)	10.50 (4.88)	-2.59
Greetings (max 35)	Control	17.10 (7.54)	19.35 (9.60)	+2.25
Greetings (max 35)	Experimental	16.82 (6.02)	22.09 (7.23)	+5.27
Classroom vocab (max 13)	Control	8.05 (2.53)	11.35 (2.27)	+3.30
Classroom vocab (max 13)	Experimental	7.00 (1.82)	11.27 (2.17)	+4.27

Pedagogical implications

The findings of this study have important implications for English language teaching in secondary education. First, they demonstrate that vocabulary acquisition can be strengthened through the integration of technology-enhanced learning environments that extend learning opportunities beyond classroom hours. Second, the results highlight the potential of flipped learning to promote learner autonomy, self-regulation, and active engagement with language content. Third, the successful implementation of USA Learns suggests that freely available digital resources can provide cost-effective alternatives for schools seeking to improve English language instruction without substantial financial investment.

For teachers, the study supports the redesign of classroom practices in which direct instruction occurs before class through digital resources, allowing classroom time to focus on communicative interaction, collaborative learning, and problem-solving activities. For educational institutions, the findings emphasize the importance of teacher training, technological infrastructure, and policies that facilitate equitable access to digital learning resources.

Limitations

This study presents several limitations that should be considered when interpreting the findings. First, the research was conducted within a single public educational institution and involved a relatively small convenience sample of 41 eleventh-grade students. Consequently, the generalizability of the findings to other educational contexts may be limited. Second, the gender distribution was unequal between groups (90% female in the control group vs. 57% female in the experimental group), which may have influenced performance. Third, although content validity was established through expert judgment and pilot testing, no statistical reliability coefficient, such as Cronbach's alpha, was calculated. Fourth, no inferential test of the between-group difference in gains is reported, so conclusions remain descriptive. Finally, access to technological resources varied among participants.

Future research

Future studies could examine the long-term effects of flipped learning on vocabulary retention and explore its impact on other language skills, including speaking, listening, reading, and writing. Research involving larger samples, multiple educational institutions, and diverse sociocultural contexts would contribute to strengthening the empirical evidence regarding the effectiveness of technology-enhanced flipped learning environments in EFL education.

Conclusion

This study investigated the effect of a Flipped Classroom model supported by the USA Learns platform on English vocabulary acquisition among secondary school EFL learners. The findings demonstrated that students who participated in the technology-enhanced flipped learning intervention achieved greater vocabulary gains than those who received traditional instruction. The results provide evidence that combining autonomous learning opportunities with interactive classroom activities can significantly contribute to lexical development in foreign language learning contexts.

The comparison of pretest and posttest outcomes revealed a larger mean total gain in the experimental group (+2.5) than in the control group (+0.5). Category-level results were mixed: the experimental group showed the largest gains in greetings, presentations and farewells (+5.27) and classroom vocabulary (+4.27), small gains in personal information and numbers (+0.14) and cardinal and ordinal numbers (+0.55), and decreases in verb To Be (-0.63), calendar (-0.64), parts of the day (-0.81), and daily routine and time (-2.59) (Table 2). The moderate within-group pretest-posttest correlations (Pearson r = 0.531; Spearman rho = 0.537) describe score consistency in the experimental group and do not test the intervention effect.

The study also confirms the pedagogical value of the Flipped Classroom model as a learner-centred approach that promotes active participation, learner autonomy, and meaningful engagement with language content. By allowing students to access instructional materials before classroom sessions, the model created additional opportunities for vocabulary exposure and enabled classroom time to be used more effectively for communicative practice and collaborative learning. These findings are consistent with previous research highlighting the benefits of flipped learning environments for language education and support the integration of digital technologies into EFL instruction.

An important contribution of this study lies in the use of USA Learns as a freely accessible educational platform. The platform facilitated independent learning, provided continuous access to instructional resources, and supported the implementation of the flipped learning approach in a public-school context. Consequently, the findings suggest that free digital learning environments can serve as effective tools for promoting vocabulary acquisition, particularly in educational settings where access to commercial technological resources may be limited.

The study was conducted within a specific educational context and involved a non-probability sample, which may limit the generalizability of the findings. Full limitations are reported in the Limitations section and are not repeated here. In conclusion, the findings of this study provide descriptive support for the Flipped Classroom model supported by USA Learns as an instructional strategy for enhancing English vocabulary acquisition in this context.

In conclusion, this study supports the effectiveness of the Flipped Classroom model supported by USA Learns as an innovative instructional strategy for enhancing English vocabulary acquisition. The results demonstrate that technology-enhanced, learner-centered approaches can create meaningful learning experiences and contribute significantly to the development of lexical competence among secondary school EFL learners.

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