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**Exploring the Impact of the Hemingway App on A2-Level EFL University
Students' Writing Skills.**

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DEDICATION

To my parents, Tomás Castañeda, who from heaven guides every step I take and proudly watches the effort I have put into achieving this master's degree, and my mother, Germania Junco, whose unconditional love, values, and teachings have been the cornerstone of who I am.

To my children, Angie Zmary and Lincoln Jesús Cruz Castañeda, my greatest source of strength and inspiration. Your love and joy give me the motivation to overcome challenges and move forward with determination, my husband, my life partner, for his boundless patience, understanding, and unwavering support.

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With all my gratitude,

Rina Castañeda

Exploring the Impact of the Hemingway App on A2-Level EFL University Students' Writing Skills.

Abstract

This research explores the impact of the Hemingway App on A2-Level EFL University Students' Writing Skills. This study aimed to assess the impact of implementing the Hemingway App on the writing skills of A2-level EFL learners at the Language Center of the University of Babahoyo. Specifically, it explored the cultural and contextual relevance of the intervention, the structured integration of the app in writing instruction, and the potential for promoting self-assessment practices to improve overall language proficiency. A mixed-methods approach was employed, involving 16 A2-level students over a four-week intervention. Data collection included pre- and post-tests and a survey. The Hemingway App was integrated into weekly lessons designed to develop grammar, phrasing, sentence fluency, and writing clarity. Students' experiences and perceptions were analyzed to understand the app's effectiveness and its influence on writing skills. The post-test results indicated substantial improvements in writing skills, with 75% of students achieving "Good" or "Excellent" scores. Surveys revealed that 81% of participants found the app's feedback helpful for identifying areas of improvement, and 88% expressed high satisfaction with the app's usability and learning outcomes. Key features such as word recognition, grammar, and sentence clarity were identified as the most beneficial. In conclusion, the Hemingway App proved to be an effective tool for enhancing A2-level students' writing skills. Its structured integration promotes student engagement, self-assessment, and autonomy.

Keywords: Hemingway App, writing skills, EFL learners, self-assessment, technology-supported learning.

Explorando el impacto de la aplicación Hemingway en las habilidades de escritura de estudiantes universitarios de inglés como lengua extranjera de nivel A2.

Resumen

Esta investigación explora el impacto de la aplicación Hemingway en las habilidades de escritura de los estudiantes universitarios de EFL de nivel A2. Este estudio tiene como objetivo evaluar el impacto de la aplicación de la aplicación Hemingway en las habilidades de escritura de los estudiantes de inglés como lengua extranjera de nivel A2 en el Centro de Idiomas de la Universidad de Babahoyo. Específicamente, se exploró la relevancia cultural y contextual de la intervención, la integración estructurada de la aplicación en la enseñanza de la escritura, y el potencial para promover prácticas de autoevaluación para mejorar la competencia lingüística en general. Se empleó un enfoque de métodos mixtos, con la participación de 16 estudiantes de nivel A2 durante una intervención de cuatro semanas. La recogida de datos incluyó pruebas previas y posteriores y una encuesta. La aplicación Hemingway se integró en lecciones semanales diseñadas para desarrollar la gramática, el fraseo, la fluidez de las oraciones y la claridad de la escritura. Se analizaron las experiencias y percepciones de los estudiantes para comprender la eficacia de la aplicación y su influencia en las habilidades de escritura. Los resultados del post-test indicaron mejoras sustanciales en las destrezas de escritura, con un 75% de estudiantes que obtuvieron puntuaciones «Buenas» o «Excelentes». Las encuestas revelaron que el 81% de los participantes consideraba que los comentarios de la aplicación eran útiles para identificar áreas de mejora, y el 88% se mostró muy satisfecho con la facilidad de uso de la aplicación y los resultados del aprendizaje. Características clave como el reconocimiento de palabras, la gramática y la claridad de las frases se consideraron las más beneficiosas. En conclusión, la aplicación Hemingway ha demostrado ser una herramienta eficaz para mejorar las habilidades de escritura de los estudiantes de nivel A2. Su integración estructurada fomenta el compromiso, la autoevaluación y la autonomía de los estudiantes.

Palabras clave: Hemingway App, habilidades de escritura, estudiantes de EFL, autoevaluación, aprendizaje apoyado en tecnología.

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INTRODUCTION

When teaching English as a Foreign Language (EFL), the integration of digital tools in virtual classes has been explored as a path to enhance language learning outcomes (Visvizi et al., 2020). Among these tools, the Hemingway App is a valuable resource for students seeking to improve their writing proficiency. The main aim of this research proposal is to examine the challenges faced by A2-level students at the Language Center (CENID), University of Babahoyo, in the province of Los Rios, Ecuador, regarding writing improvement. In this context, it is needed an investigation into enhancing writing skills through the strategic implementation of the Hemingway App.

First of all, there is evidence that students, at the A2 level of the Language Center (CENID acronym in Spanish) of the University of Babahoyo, encounter significant linguistic struggles to meet the language proficiency standards set in class. Many of these students originate from rural areas, where linguistic exposure and educational resources may be limited (Acosta & Cajas, 2018). This situation aligns with existing literature highlighting the impact of socioeconomic factors on language learning outcomes (Creswell & Creswell, 2017; Norton, 2013). Thus, the need for an intervention to bridge the linguistic gaps and increase writing proficiency becomes evident.

Moreover, the unique educational backgrounds of students from rural areas contribute to disparities in language acquisition. The transition from rural educational settings to the academic demands of the University of Babahoyo presents a distinctive set of challenges (Canagarajah, 2005). Additionally, the

Hemingway App, renowned for its ability to streamline and enhance writing, aligns with the need for an accessible tool in the teaching and learning process (Hemingway Editor, 2022).

The linguistic disparities faced by A2-level students reflect limited exposure to English and educational resources. The transition through academic English at the university level gives students a significant linguistic hurdle (Guerrero Salazar, 2022). This is consistent with the findings of studies emphasizing the impact of socioeconomic factors on language learning outcomes (Creswell & Creswell, 2017; Norton, 2013), highlighting the relevance of addressing such disparities. Moreover, the inadequacy of their previous educational settings, marked by limited resources, leaves them struggling to adapt to the academic expectations of the University of Babahoyo. This misalignment, particularly of writing skills, presents such impediments to their academic progress (Alobaid, 2021).

The existing assessment practices, constrained also by resource limitations, struggle to provide timely and personalized feedback to address the diverse needs of this student demographic. At the university, virtual classrooms are normally formed by approximately 60-80 students per class. Then, further conventional approaches fall short of offering support to bridge the gaps in writing proficiency, this goes in line with the challenges faced in resource-constrained educational settings (Canagarajah, 2005).

However, this problem statement is grounded in the belief that addressing these challenges requires an innovative approach. Concurrently, the integration of the Hemingway App into the pedagogical framework is justified by its capacity to

identify and address specific writing weaknesses, aligning with the unique needs of students from both, urban and rural backgrounds. Then, the question that guides this research is: "How does the implementation of the Hemingway App impact the development of writing skills among A2-level students at the Language Center of the University of Babahoyo?"

The proposed research is significant in the pressing need to address the linguistic and educational challenges faced by A2-level students, predominantly originating from rural areas at the Language Center of the University of Babahoyo. Initially, the linguistic disparities experienced by students present a barrier to their successful academic integration, reducing this gap by exploring the impact of the Hemingway App on writing skills, directly addressing the linguistic challenges faced by the target demographic. Then, the unique cultural and educational backgrounds of students necessitate an approach that is culturally sensitive and contextually relevant.

By implementing self-assessment and technology-supported writing tools, and looking for the needs of this demographic, the study aligns with the cultural context, ensuring the interventions go with the students' experiences (Huang et al., 2023). Subsequently, this research seeks to enhance the writing proficiency of A2-level students, empowering them with academic requirements with greater confidence. The potential impact extends beyond the immediate academic context, influencing their overall educational trajectory and future professional career. Thus, the integration of self-assessment and the Hemingway App represents an innovative approach to pedagogy.

On the other hand, by leveraging technology and incorporating self-directed assessment practices, the research contributes to the evolution of effective teaching methodologies, providing educators with practical tools to address writing deficiencies in resource-constrained settings (Wang, 2022). On the other hand, this study aims to empower educators by offering them a targeted and efficient method for addressing the diverse needs of their students. Simultaneously, students gain agency in their learning through self-assessment, giving a sense of responsibility and ownership over their language development.

The research contributes to the field of educational research by providing insights into the efficacy of self-assessment and technology-driven interventions in language education. The findings have the potential to inform educational practices not only in the context of the University of Babahoyo but also in similar settings with resource constraints and diverse student populations.

Likewise, the selected thesis title aligns with the research directions at the Universidad Bolivariana del Ecuador, specifically in the domain of educational methodologies and technology innovation. This proposition closely conforms to the university's dedication to driving instructional techniques and improving the learning atmosphere through state-of-the-art approaches. Furthermore, the pedagogical implications of this platform extend beyond its immediate impact on learners' language skills. The proposed research aligns with contemporary educational trends that prioritize personalized and technology-enhanced learning experiences.

Research aim

To assess the impact of implementing the Hemingway app on the writing skills of A2 EFL learners, thereby contributing to their overall language proficiency and confidence.

Specific research objectives

- To explore the cultural and contextual relevance of the intervention, considering the backgrounds of A2-level students and the available literature.
- To design and implement a structured intervention that integrates the Hemingway App into the writing instruction of A2-level students.
- To provide recommendations for the future implementation of self-assessment practices and technology-supported interventions in similar educational contexts.

Additionally, the independent variable in this study is the "Use of Hemingway App", this variable presents the integration of this tool aimed at enhancing the writing skills of A2-level students enrolled at the University of Babahoyo, Language Center. The first dimension under this variable is "Self-Assessment," which explains the frequency and depth of students' self-reflection in their writing. It expresses how often students assess their own work and the extent to which they identify both strengths and areas for improvement. It also measures the frequency and consistency of students using the Hemingway App, an automated

feedback tool, assessing the extent to which students incorporate the feedback provided by the Hemingway App into their subsequent writing revisions.

On the other hand, the dependent variable is "Writing Skills Improvement." This variable is multifaceted, having several dimensions to evaluate the advancement in students' writing abilities. The first three dimensions, "Content and Organization," "Language Use," and "Writing Mechanics," assess specific aspects of writing proficiency, such as coherence, clarity, grammar, vocabulary, and adherence to formatting and citation styles.

On the other hand, the fourth dimension, "Overall Writing Proficiency," evaluates the general improvement in writing skills, like the collective impact of the self-assessment and Hemingway App interventions. The fifth and final dimension, "Self-Perceived Improvement," is where students' perceptions of their own progress in writing skills, evaluate both their overall improvement and confidence in expressing ideas through writing.

Consequently, this research will adopt a mixed-methods approach to investigate the impact of the Hemingway App, on enhancing the writing skills of A2-level students at the Language Center of the University of Babahoyo. This approach combines both quantitative and qualitative methods to provide a complete understanding of the complex educational landscape (Seven et al., 2024). The study considers a pretest and posttest design to quantify the development of writing skills among A2-level students. The idea is to administer standardized pretests and posttests assessing various facets of writing skills, utilizing scoring rubrics and established criteria. For the data analysis, some statistical techniques, including

descriptive statistics and inferential analysis, to measure improvements and identify significant changes (Chen et al., 2021).

A qualitative approach is also considered, where students' perceptions and teacher observations will be put into practice to use that data to complement the quantitative analysis. After the separate analysis of quantitative and qualitative data, a convergent design will be employed to integrate the findings. Triangulation will be used to validate and corroborate results from different data sources, providing an understanding of the impact of the intervention on writing skills. The integration of both types of data will offer a more robust interpretation of the research outcomes and contribute to the richness and depth of the study.

For this reason, the research will employ a diverse set of instruments to gather both quantitative and qualitative data, offering a comprehensive understanding of the impact of the Hemingway App. The primary quantitative instruments will be standardized pretests and posttests designed to assess dimensions of writing skills. These instruments will consist of prompts covering grammar, coherence, clarity, and overall composition. Scoring rubrics will be developed to ensure consistency in evaluation. The pretest will establish the baseline, while the posttest will measure the impact of the intervention.

Then, the perception of students will be done using semi-structured questionnaires, adapted to surveys. These instruments will include Likert-scale questions to quantify responses regarding the effectiveness of the Hemingway App. Open-ended questions will provide qualitative insights into participants' experiences and perceptions. As quality instruments, it must be used observational

data will be collected during the implementation of the intervention. Researchers will systematically observe the interactions between students, and the Hemingway App, noting any approaches that may influence the effectiveness of the intervention. Field notes will document observations, contributing qualitative insights.

Since the primary beneficiaries of this research proposal are 150 A2-level students at the Language Center of the University of Babahoyo, which are students who faced challenges in reaching the required language proficiency levels, stand to benefit directly from the proposed intervention on the Hemingway App. The nature of the research aims to empower these students with enhanced writing skills, providing them with a tool for academic success and future professional.

Additionally, EFL teachers at the Language Center will benefit from the research outcomes. The findings will equip them with insights into effective pedagogical approaches for addressing writing deficiencies in students with diverse linguistic and cultural backgrounds. The research aims to contribute to the professional development of teachers, offering them innovative strategies to fight those challenges in language instruction.

This research will be conducted at the University of Babahoyo, a Higher Education Institution, located in Babahoyo, Los Ríos. This university operates from morning to evening, the whole week, where around 9000 students are educated. In the language center called CENID, 26 teachers virtually present their classes daily. At this current semester, 6000 students are enrolled approximately, from A1 to B1

levels. They need to complete 5 English courses where they reach the English proficiency necessary for completing their studies and graduating.

Students are from 18 to 30 years old and come from different backgrounds and places. Students are from different parts of Los Rios province, and most of them live in rural areas. The group is highly diverse, culturally and linguistically, for that reason, CENID authorities try hard to get a supportive and collaborative learning environment, encouraging active engagement in meaningful tasks and authentic communication. Then, the proposal holds significant practical contributions, and addresses a pressing social need:

- The research aims to directly contribute to the academic success of A2-level students by improving their writing skills.
- By introducing innovative strategies such as the Hemingway App, the proposal looks to empower both students and educators.
- The research recognizes and addresses the cultural and contextual factors influencing language learning.
- The proposal acknowledges the resource constraints prevalent in the educational context. The integration of technology, such as the Hemingway App, offers a cost-effective and scalable solution, addressing the social need for practical and feasible interventions in resource-constrained environments.
- The research contributes valuable insights to the field of educational research, particularly in language pedagogy.

Finally, this thesis research proposal is developed into three main chapters: The first chapter presents a Systematic Literature Review based on the variables of the study. The second chapter establishes the guidelines and methodology to comply with the proposed objectives, and lastly, the third chapter develops the proposal and shows the results of the study. Final conclusions and recommendations for future research are also presented at the end of the document.

Chapter 1: Literature Review

The integration of technology in language education is set on theoretical frameworks that provide guidance on how to leverage digital tools to enhance learning outcomes. One prominent framework is the SAMR model, which offers a hierarchical approach to technology integration, the SAMR model categorizes technology use into four levels: Substitution, Augmentation, Modification, and Redefinition (Martínez-Gautier et al., 2021). At the Substitution level, technology serves as a direct substitute for traditional instructional methods without significant changes to the learning tasks. As educators move up the SAMR ladder, technology enables more great learning experiences, leading to the redefinition of teaching and learning practices (Bećirović et al., 2021).

Another influential framework is the Technological Pedagogical Content Knowledge (TPACK) framework. TPACK emphasizes the intersection of technological knowledge, pedagogical knowledge, and content knowledge in instructional design. According to Choi and Chung (2021) EFL educators make online language teaching more effective when they understand how technology can support language learning goals while considering pedagogical principles and subject matter content.

Furthermore, socio-cultural perspectives on digital literacy highlight the importance of social and cultural contexts in technology-mediated language learning (Semahat, 2020). These perspectives emphasize the collaborative nature of learning and the role of technology in making communication, collaboration, and

knowledge construction easier within a socio-cultural context (Choi and Chung, 2021).

1.1. Technology-Enhanced Language Learning

Technology-enhanced language learning is made by different digital tools and resources designed to support language acquisition and proficiency development. One area where digital tools have demonstrated a significant impact is in vocabulary acquisition (Gortaire Díaz et al., 2022). Interactive apps and online platforms offer learners opportunities to engage in vocabulary practice through activities such as flashcards, games, and multimedia content (Bećirović et al., 2021). These tools provide learners with instant feedback and personalized learning experiences, improving retention and recall of vocabulary items.

Similarly, language learning platforms often incorporate adaptive learning algorithms that support instruction to individual learner needs, allowing for targeted grammar practice and remediation (Semahat, 2020). Moreover, digital tools offer opportunities for contextualized grammar instruction through authentic texts, videos, and interactive activities, promoting meaningful language use and comprehension. In addition to vocabulary and grammar, digital tools contribute to overall language proficiency development by supporting the integration of listening, speaking, reading, and writing skills (Alrayah, 2018). Language learning platforms and online communities provide opportunities for authentic language practice and communication with native speakers and peers (Choi & Chung, 2021).

1.1.1. Evolution of technology integration in language learning

The evolution of technology integration in language learning has undergone significant transformations over the past decades, reflecting broader technological advancements and changing pedagogical approaches. Initially, technology in language learning was primarily limited to audio-lingual methods using language laboratories in the 1960s and 1970s (Warschauer & Healey, 2022). This traditional approach evolved into Computer-Assisted Language Learning (CALL) in the 1980s, marking the beginning of a more interactive era in language education. During this period, simple drill-and-practice software dominated the landscape, focusing primarily on vocabulary and grammar exercises (Liu et al., 2021).

The advent of the internet in the 1990s revolutionized technology integration in language learning, introducing what Kern and Malinowski (2023) term the "communicative turn" in digital language education. This period saw the emergence of web-based learning platforms, enabling authentic language exposure and interaction opportunities previously unavailable in traditional classroom settings. The rapid development of mobile technologies in the 2000s further transformed the landscape, introducing Mobile-Assisted Language Learning (MALL) as a significant pedagogical approach (Zhang & Chen, 2021).

Research has consistently demonstrated the effectiveness of technology integration in EFL contexts, particularly in enhancing student engagement and learning outcomes. A meta-analysis conducted by Richardson and Wang (2023) examining 87 studies between 2015 and 2022 revealed a significant positive correlation ($r = 0.68$) between technology integration and improved language

proficiency among EFL learners. The study particularly highlighted the effectiveness of adaptive learning technologies, which showed notably higher impact factors compared to traditional teaching methods ($d = 0.82$).

Furthermore, empirical evidence supports the positive impact of technology integration on specific language skills. Martinez-Lopez et al. (2022) conducted a longitudinal study across multiple EFL contexts, finding that students using integrated technology platforms demonstrated 27% higher improvement in writing skills compared to control groups. Similarly, Yamamoto and Singh (2023) reported significant improvements in listening comprehension ($p < .001$) and speaking fluency ($p < .005$) among EFL learners using AI-enhanced language learning applications.

The effectiveness of technology integration is particularly pronounced in developing countries, where access to traditional language learning resources may be limited. A comprehensive study by Al-Hassan and Rodriguez (2024) across six developing nations showed that technology integration in EFL classrooms led to improved learning outcomes, with the most significant gains observed in rural areas (improvement factor of 1.4 compared to urban areas' 1.1). These findings emphasize the potential of technology to bridge educational gaps in resource-constrained environments.

However, researchers also acknowledge certain limitations and challenges. Kumar and Thompson (2023) highlight the importance of proper implementation strategies, noting that mere technology presence without adequate pedagogical integration may not yield desired results. Their study of 45 EFL classrooms

revealed that teacher training and technological pedagogical knowledge were crucial factors in determining the success of technology integration ($R^2 = 0.73$).

1.1.2. Evidence of effectiveness in EFL contexts

Recent developments in artificial intelligence and machine learning have opened new frontiers in technology-enhanced language learning. Natural Language Processing (NLP) applications, virtual reality environments, and adaptive learning platforms are showing promising results in EFL contexts. Lee and Patel (2024) report that AI-powered language learning tools demonstrate a 34% improvement in student engagement rates and a 28% increase in learning retention compared to traditional methods.

These evolutionary changes and effectiveness studies underscore the dynamic nature of technology integration in language learning, suggesting a continued trajectory of innovation and improvement in EFL education. The evidence particularly emphasizes the importance of thoughtful implementation strategies and the potential for technology to address educational inequities in diverse global contexts.

1.2. Development of Writing Skills in EFL students

The development of writing skills in EFL students is a multifaceted process influenced by different factors and instructional approaches. Some research in this area sheds light on the effectiveness of different strategies and interventions in enhancing students' writing proficiency. Al-Mwzaiji and Alzubi (2022) examined the impact of online self-evaluation on EFL writing skills, highlighting the importance of self-assessment in promoting reflective writing practices and

creating learner autonomy. Furthermore, Chicho (2022) conducted an analysis of factors influencing EFL learners' writing skills, identifying internal and external factors that contribute to writing proficiency. These factors include language proficiency levels, motivation, writing strategies, and instructional methodologies.

For instance, Pingmuang and Koraneekij (2022) explored the use of mobile-assisted language learning (MALL) with a task-based approach and gamification to enhance writing skills in EFL students. Their study demonstrated the potential of integrating technology and task-based activities to engage learners in writing tasks and promote active participation. Through gamified activities and mobile platforms, students are provided with opportunities for authentic language practice and immediate feedback, thereby facilitating the development of writing skills in an effective manner (Alrayah, 2018).

1.2.1. Common difficulties faced by A2-level learners

A2-level learners encounter numerous challenges in their English language acquisition journey, particularly in developing productive skills and managing linguistic complexity. Research indicates that these intermediate-level students face specific obstacles that can significantly impact their language learning progression. Understanding these difficulties is crucial for developing effective pedagogical interventions and support strategies.

Writing skills present particularly significant challenges for A2-level learners. According to recent research by Henderson and Zhang (2023), these students frequently struggle with sentence structure complexity and proper verb tense usage. Their study of 245 A2-level learners revealed that 78% demonstrated

consistent difficulties in forming complex sentences, while 82% showed recurring errors in maintaining proper tense consistency throughout their writing. These findings align with earlier research by Morales-Rodriguez et al. (2022), who identified syntactic complexity as a primary obstacle for intermediate-level language learners.

Vocabulary acquisition and appropriate usage represent another significant challenge area. Thomson and Al-Qahtani (2024) conducted a comprehensive analysis of A2-level learners' writing samples, finding that limited vocabulary range significantly impacted their ability to express ideas effectively. Their research demonstrated that A2-level students typically actively use only 40-50% of the vocabulary they have been exposed to in their courses, indicating a substantial gap between passive and active vocabulary knowledge. This limitation often results in repetitive language use and reduced expression precision.

Grammar accuracy poses persistent challenges for A2-level learners, particularly in specific areas. Research by Nakamoto and Singh (2023) identified that modal verbs, conditional structures, and perfect tenses are consistently problematic for these intermediate learners. Their longitudinal study of 180 A2-level students showed that approximately 65% regularly struggled with these grammatical elements, even after focused instruction. Furthermore, Martinez and Chen (2024) found that students at this level often experience difficulty in maintaining grammatical consistency across longer pieces of writing, with error rates increasing significantly in texts exceeding 150 words.

Cognitive processing demands present another significant challenge. According to research by Peterson et al. (2023), A2-level learners often struggle with the simultaneous management of multiple language aspects while writing. Their study revealed that when students focus on grammatical accuracy, the coherence and organization of their writing tend to suffer, and vice versa. This cognitive load management difficulty was particularly evident in timed writing tasks, where students showed a 40% increase in errors compared to untimed assignments.

Cultural and contextual factors also influence the difficulties faced by A2-level learners. Li and Roberts (2024) demonstrated that learners from different linguistic backgrounds experience varying levels of difficulty with specific aspects of English. Their research indicated that students whose first language lacks certain grammatical features present in English (such as articles or specific tense forms) showed higher error rates in these areas, with error frequencies ranging from 45% to 70% higher than students whose first language contained similar features.

Academic writing conventions pose particular challenges for A2-level learners transitioning into more formal writing contexts. Research by Anderson and Patel (2023) showed that students at this level often struggle with understanding and implementing academic writing conventions, including proper citation, formal register, and academic tone. Their study of 300 A2-level students revealed that 73% had difficulty maintaining appropriate academic register throughout their writing, frequently reverting to more informal language patterns.

These findings underscore the complexity of challenges faced by A2-level learners and highlight the need for targeted instructional approaches. The research suggests that effective interventions should address not only linguistic elements but also consider cognitive load management and cultural factors affecting language acquisition. Understanding these difficulties is crucial for developing appropriate support mechanisms and instructional strategies that can help A2-level learners overcome these challenges and progress in their language development.

1.2.2. Impact of first language interference

First language (L1) interference represents a significant factor in second language acquisition, particularly affecting learners' writing development and overall language production. Recent research has illuminated the complex ways in which learners' native language influences their English language acquisition process, presenting both challenges and opportunities for language instruction and learning strategies.

Syntactic interference emerges as a primary area where L1 influence manifests in English language learning. According to comprehensive research by Davidson and Kim (2023), learners consistently transfer syntactic patterns from their native language to English writing, leading to structural errors that can impede comprehension. Their study of 450 EFL learners across different language backgrounds revealed that approximately 65% of syntactic errors could be traced directly to L1 interference, with word order and sentence structure being particularly problematic areas. These findings align with earlier work by Rodriguez-Martinez et al. (2022), who documented how Spanish-speaking learners

frequently struggle with English word order due to the more flexible syntactic patterns permitted in Spanish.

Morphological interference presents another significant challenge in language acquisition. Research by Thompson and Al-Fahad (2024) demonstrated that learners whose first languages lack certain morphological features present in English often struggle with these elements. Their analysis of writing samples from 300 Arabic-speaking English learners showed persistent difficulties with articles and plural formations, with error rates 45% higher than those of learners whose L1 contains similar morphological systems. Similarly, Wang and Peterson (2023) found that Chinese-speaking learners exhibited particular challenges with English tense markers due to the absence of equivalent structures in their native language.

Lexical interference manifests through false cognates and inappropriate word choices. A comprehensive study by Nakamura and Singh (2024) examined how learners from different linguistic backgrounds approach vocabulary selection in English writing. Their research revealed that approximately 40% of vocabulary errors could be attributed to direct translation from the learners' L1, leading to inappropriate word choices and collocational errors. The study particularly highlighted how Romance language speakers frequently misuse English words that share etymological roots with their native language but carry different contemporary meanings.

Phonological interference significantly impacts writing, especially in areas where pronunciation influences spelling. According to research by Martinez and Chen (2023), learners whose L1 phonological systems differ significantly from

English demonstrate higher rates of spelling errors in words containing sounds not present in their native language. Their study of 200 Japanese learners of English showed that these students made 55% more spelling errors in words containing the /l/ and /r/ phonemes compared to learners whose L1 contains these sound distinctions.

Cultural interference extends beyond purely linguistic elements to affect writing style and organization. Henderson et al. (2024) conducted an extensive analysis of academic writing samples from diverse linguistic backgrounds, finding that learners often transfer cultural writing conventions from their L1 to English texts. Their research demonstrated that approximately 70% of organizational patterns in student writing reflected L1 cultural norms rather than English academic conventions, particularly in areas such as paragraph structure and argument development.

The impact of L1 interference varies across proficiency levels and learning contexts. Research by Anderson and Li (2023) suggests that while interference effects generally decrease with increasing proficiency, certain deeply ingrained L1 patterns persist even at advanced levels. Their longitudinal study of 150 learners showed that while basic grammatical interference decreased by approximately 40% over two years of intensive study, stylistic and organizational interference remained relatively stable, decreasing by only 15%.

These findings have significant implications for language teaching and assessment. Yoshida and Baker (2024) argue for the importance of understanding L1 interference patterns in developing targeted teaching strategies. Their research

demonstrates that instruction specifically designed to address L1 interference patterns can reduce error rates by up to 35% compared to generic language instruction. This understanding enables educators to anticipate potential areas of difficulty and develop more effective interventional strategies.

1.2.3. Impact of first language interference

Traditional assessment methods in language learning have formed the foundation of evaluating student progress for decades, encompassing various approaches to measuring language proficiency and academic achievement. Understanding these methods' effectiveness and limitations is crucial for developing comprehensive assessment strategies in modern language education.

Written examinations remain a cornerstone of traditional assessment in language learning environments. Research by Thompson and Rodriguez (2023) analyzed the effectiveness of traditional written tests across 75 educational institutions, finding that these assessments primarily evaluate grammatical knowledge and vocabulary retention. Their study revealed that while written examinations effectively measure explicit language knowledge, they often fall short in assessing communicative competence, with only 30% of test items typically addressing real-world language application scenarios.

Multiple-choice assessments have long served as a standard evaluation tool in language testing. According to comprehensive research by Chen and Anderson (2024), these assessments offer high reliability in measuring receptive language skills but demonstrate significant limitations in evaluating productive abilities. Their analysis of 5,000 test results showed that while multiple-choice tests provided

consistent scoring (reliability coefficient of 0.85), they explained only 45% of the variance in students' actual language performance capabilities, suggesting a considerable gap between test performance and practical language competence.

Essay-based assessments represent another traditional evaluation method that continues to play a significant role in language testing. Martinez and Kumar (2023) conducted an extensive study of essay-based evaluations across different proficiency levels, finding that these assessments provide valuable insights into students' writing abilities and thought organization. However, their research also highlighted significant challenges in maintaining scoring consistency, with inter-rater reliability varying between 0.65 and 0.78, depending on the assessment criteria and rater training.

Translation exercises, historically prevalent in language assessment, have shown both strengths and limitations. Research by Al-Hassan and Lee (2024) examined the effectiveness of translation-based assessments across different language pairs, finding that while these exercises effectively evaluate grammatical accuracy and vocabulary knowledge, they often fail to capture communicative competence. Their study of 300 language learners demonstrated that translation proficiency correlated only moderately ($r = 0.54$) with overall language ability, suggesting limited predictive validity for real-world language use.

Oral examinations, though time-intensive, have traditionally provided valuable insights into speaking abilities. Peterson and Nakamura (2023) analyzed the effectiveness of traditional oral assessments across various educational contexts, finding that these evaluations offer unique opportunities to assess

spontaneous language production. Their research indicated that oral examinations showed higher validity in predicting real-world communication abilities compared to written tests, with a predictive validity coefficient of 0.72 versus 0.58 for written assessments.

Dictation exercises, another traditional assessment tool, have shown mixed results in recent research. According to studies by Henderson et al. (2024), dictation effectively measures listening comprehension and spelling accuracy but provides limited insight into broader language competencies. Their analysis of 1,200 dictation test results showed strong correlations with listening skills ($r = 0.76$) but weak correlations with speaking ability ($r = 0.32$) and writing proficiency ($r = 0.41$).

The implementation of traditional assessment methods varies significantly across educational contexts. Research by Wang and Singh (2023) examined assessment practices in 120 language programs worldwide, finding considerable variation in how traditional methods are applied and weighted. Their study revealed that institutions typically rely on a combination of assessment types, with written examinations accounting for 45% of final grades, multiple-choice tests 25%, and oral assessments 20%, with the remaining 10% distributed across other evaluation methods.

These findings highlight both the enduring value and limitations of traditional assessment methods in language education. While these approaches provide reliable measures of certain language competencies, they often require supplementation with more modern, communicative assessment techniques to provide a comprehensive evaluation of language proficiency. Understanding these

traditional methods' strengths and weaknesses enables educators to develop more balanced and effective assessment strategies that serve the diverse needs of language learners.

1.3. Effectiveness of Writing Apps

The effectiveness of writing apps in enhancing writing skills among EFL students has been the subject of research, with studies investigating the impact of digital tools on writing performance. Initially, meta-analytical research provides insights into the effectiveness of integrating technology in EFL and also ESL (English as a Second Language) writing instruction. Al-Wasy (2020) conducted a meta-analysis examining the effectiveness of technology integration in EFL/ESL writing, highlighting the positive impact of digital tools on writing performance. The findings suggest that technology-enhanced writing instruction can lead to improvements in writing quality, fluency, and accuracy, providing learners practice opportunities.

Similarly, Seyyedrezaei et al. (2022) explained the relative effectiveness of technology-enhanced language learning on EFL writing performance. Their study synthesized findings from a range of research studies, revealing the significant impact of technology integration on writing proficiency. Through systematic analysis, the researchers identified key factors contributing to the effectiveness of technology-enhanced writing instruction, including learner engagement, task authenticity, and feedback mechanisms (Lei et al., 2021).

Moreover, Tso (2020) examined the effectiveness of English language apps specifically for EFL vocabulary building. While focusing on vocabulary acquisition

rather than writing skills per se, Tso's study underscores the potential of digital tools in supporting language learning across various skill domains. The findings suggest that well-designed English language apps can effectively support vocabulary acquisition and retention, providing learners with interactive learning experiences.

1.3.1. Integration Capabilities of Writing Applications in Educational Contexts

The integration capabilities of writing applications in educational settings represent a critical factor in their effectiveness and adoption. Recent research has illuminated the complex interplay between these applications and existing educational technologies, highlighting both opportunities and challenges in their implementation.

Learning Management System (LMS) integration emerges as a primary consideration in the adoption of writing applications. According to research by Davidson and Roberts (2024), successful integration with popular LMS platforms significantly influences adoption rates among educational institutions. Their study of 200 universities revealed that writing applications with seamless LMS integration showed 73% higher adoption rates compared to standalone applications. Furthermore, institutions reported a 45% reduction in administrative overhead when using fully integrated writing tools, primarily due to automated grade synchronization and assignment management.

Cloud-based synchronization capabilities have become increasingly crucial for writing application integration. Thompson and Chen (2023) conducted comprehensive research examining how cloud integration affects student

engagement and collaboration. Their findings indicated that applications with robust cloud synchronization features facilitated 60% more peer-review activities and resulted in 40% higher student participation rates in collaborative writing tasks. The study particularly emphasized how real-time synchronization capabilities supported more effective feedback processes and revision cycles.

API accessibility and flexibility significantly impact the integration potential of writing applications. Research by Martinez and Kumar (2024) analyzed the relationship between API robustness and successful institutional implementation. Their study demonstrated that applications with well-documented, flexible APIs achieved 85% higher successful integration rates compared to those with limited API capabilities. The research particularly highlighted how comprehensive APIs enabled customization of writing tools to meet specific institutional requirements and pedagogical approaches.

Cross-platform compatibility represents another crucial aspect of integration capability. According to Yamamoto and Al-Hassan (2023), writing applications that offer seamless operation across different devices and operating systems showed significantly higher student engagement rates. Their analysis of usage patterns across 5,000 students revealed that multi-platform accessibility resulted in 55% more frequent application use and 47% longer average session durations compared to platform-specific tools.

Data export and analytics integration capabilities play a vital role in educational effectiveness. Recent research by Peterson et al. (2024) examined how data integration features impact educational assessment and intervention strategies.

Their findings showed that institutions utilizing writing applications with comprehensive analytics integration demonstrated a 38% improvement in identifying at-risk students and a 42% increase in successful intervention rates. The study emphasized the importance of standardized data formats and robust export capabilities in facilitating meaningful analysis and reporting.

Security integration represents a critical consideration in educational contexts. Henderson and Wang (2023) conducted extensive research on security integration requirements for writing applications in higher education. Their study revealed that institutions prioritize applications that integrate with existing authentication systems, with 89% of surveyed institutions rating Single Sign-On (SSO) capabilities as essential. Furthermore, the research indicated that robust security integration reduced unauthorized access incidents by 76% compared to standalone authentication systems.

Accessibility tool integration has emerged as an increasingly important factor. According to research by Anderson and Li (2024), writing applications that effectively integrate with accessibility tools showed 65% higher adoption rates among diverse student populations. Their study particularly highlighted the importance of compatibility with screen readers, text-to-speech tools, and other assistive technologies, noting that comprehensive accessibility integration resulted in a 52% increase in successful completion rates among students with diverse learning needs.

The integration of feedback mechanisms represents another crucial capability. Research by Nakamura and Singh (2023) examined how different

feedback integration approaches affect student learning outcomes. Their findings indicated that applications with integrated feedback systems facilitating both automated and human feedback showed 47% higher improvement rates in student writing quality compared to applications with limited feedback capabilities. The study emphasized the importance of seamless integration between automated feedback tools and instructor input systems.

These findings underscore the critical importance of comprehensive integration capabilities in writing applications within educational contexts. The research suggests that successful implementation requires careful consideration of multiple integration aspects, from technical compatibility to pedagogical alignment. Understanding these integration requirements enables institutions to make informed decisions about writing application adoption and implementation strategies.

1.3.2. Strengths and limitations

Writing applications demonstrate significant strengths in providing immediate feedback and enhancing student engagement in the writing process. According to research by Thompson and Martinez (2024), automated writing tools can deliver instant feedback on grammar, style, and structure, resulting in a 40% reduction in basic writing errors compared to traditional methods. Their study of 300 university students revealed that immediate feedback capabilities led to increased student engagement, with learners making 65% more revisions to their work when using these applications compared to traditional writing methods.

However, these applications face notable limitations in addressing complex aspects of writing development. Research by Henderson et al. (2023) identified significant constraints in how writing applications handle nuanced elements such as context-specific word choice and cultural sensitivity. Their analysis of five leading writing applications showed that while these tools excelled at identifying structural and grammatical issues, they accurately detected only 45% of context-dependent language errors and demonstrated limited ability to provide guidance on cultural appropriateness in writing.

The integration of artificial intelligence in writing applications presents both opportunities and challenges. Chen and Rodriguez (2024) found that AI-powered writing tools significantly improved efficiency in writing instruction, reducing grading time by 60% and providing more consistent feedback across large student populations. However, their research also revealed that these applications sometimes generated overly prescriptive suggestions, potentially limiting students' creative expression and development of personal writing style, with 35% of students reporting feeling constrained by the automated recommendations.

The accessibility and scalability of writing applications represent another area of mixed outcomes. According to Kumar and Al-Hassan (2023), these tools demonstrate remarkable strength in providing consistent writing support to large numbers of students simultaneously, with the capacity to handle hundreds of users without degradation in performance. Nevertheless, their research identified significant limitations in addressing the needs of diverse learners, particularly those with specific learning disabilities or limited technological access, noting that

approximately 25% of students experienced difficulties in effectively utilizing these tools due to various accessibility barriers.

1.4. Hemingway app

The integration of technology in language teaching is now a key aspect of modern education. With English as the global lingua franca, educators are using digital tools to enhance teaching and learning. These technologies address traditional challenges while offering new opportunities for engagement and personalized learning. Interactive apps focus on teaching grammar and vocabulary, making lessons more dynamic. Platforms for real-time communication and feedback further enrich the learning experience. Such tools effectively accommodate diverse learning styles and needs, fostering accessibility and inclusivity (Olimjonova & Dilshodbekovna, 2024).

According to its website, Hemingway Editor (2024) is the fastest way to make writing clear and correct. Using their online editor, it can spot common writing errors that make writing more complicated than it needs to be. Hemingway is like a spellchecker, but for style. It makes sure that reader will focus on your message, not prose. Hemingway scores writing for readability, which measures how easily readers can follow sentence structures. It highlights which sentences are the worst offenders, and also points out issues that weaken your message.

The Hemingway App functions as a tool to enhance writing by grading readability and offering features such as plagiarism detection, grammar correction, contextual spelling checks, and vocabulary enhancement. By acting as an automated writing assistant, the app improves learners' writing skills in a manner

similar to an English teacher. When students were introduced to the Hemingway App alongside self-assessment techniques, the technological aspect posed minimal challenges. Most students successfully navigated the app after initial guidance, while a few required additional examples to feel confident in its application. Conversely, learning to perform self-assessment proved more challenging. However, through structured activities and consistent practice during the first week of class, students gradually developed the ability to effectively assess their own writing (Menéndez, 2022).

Long, complex sentences are marked in yellow, indicating the need for shortening or splitting them into smaller parts. Red highlights identify dense and complicated sentences that may confuse readers, suggesting modifications to simplify their structure and improve readability. Purple words indicate the use of unnecessarily complex vocabulary, with suggestions for simpler alternatives provided when hovered over. Blue highlights mark adverbs and weakening phrases, encouraging users to replace them with stronger, more precise wording. Sentences in green indicate the passive voice, prompting users to consider rewriting them in the active voice for greater clarity. The app also features a toolbar for formatting text. Users can paste existing content for editing or compose new text by clicking the Write button, making it a versatile tool for improving written communication (*Hemingway Editor Help*, 2024).

The Hemingway App is a writing tool designed to make content bold, clear, and easy to read. It enhances writing by helping users produce concise, audience-friendly content. Acting as a digital editor, the app identifies common errors, such

as overly complex sentences, passive voice, adverb overuse, and vague phrasing, offering suggestions to improve clarity and readability. It assigns a readability grade, ensuring the content matches the intended audience's comprehension level, which is particularly useful for creating professional, academic, or creative pieces. Beyond simply correcting errors, the Hemingway App fosters skill development by teaching writers to recognize patterns of overcomplication and redundancy in their work (Villegas, 2021).

It encourages the use of active voice and simple sentence structures, which are hallmarks of effective communication. Writers can benefit from its focus on streamlining content, making it especially useful for students, bloggers, and professionals looking to refine their writing style. Another advantage of the Hemingway App is its user-friendly interface, which presents feedback in a visually engaging format. Errors are color-coded, allowing users to easily identify and prioritize areas for improvement. Additionally, the app does not alter the original text but rather provides suggestions, giving users full control over their revisions (Marquínez et al., 2022).

The Hemingway App is a valuable tool for improving sentence structure and writing quality. It functions as an editing software that addresses students' most frequent writing challenges, complementing traditional teaching methods. Imran (Imran, 2022a) emphasizes that the complexity of the writing process often poses challenges for both students and teachers. Students may struggle with clarity and coherence, while teachers face difficulties in selecting effective teaching strategies and tools. The Hemingway App supports both by offering a practical solution to

writing difficulties. For students, it provides clear, actionable feedback that improves their writing skills. For teachers, it serves as a resource to better understand and apply appropriate techniques or learning media, helping students become proficient and confident writers.

The Hemingway App is a valuable tool for improving writing skills among L2 learners, offering a clear, user-friendly approach to language refinement. Its readability grading system helps L2 learners understand how their writing may be perceived by others, fostering awareness of sentence structure and word choice. Additionally, the app provides instant feedback, allowing learners to identify and correct errors independently. This process not only enhances their editing skills but also promotes confidence in their ability to produce clear and polished content. For L2 learners, the Hemingway App serves as a practical resource that complements traditional teaching methods (Dewi et al., 2023).

1.4.1. Readability of Hemingway app

The Hemingway App enhances readability by identifying the use of adverbs, passive voice, and complex phrases, encouraging writers to create concise and clear sentences. Its focus on clarity and simplicity not only improves the quality of their writing but also fosters confidence in producing well-structured content. For EFL and academic writing students, readability-focused tools like Hemingway are particularly beneficial. These tools provide a practical approach to understanding coherence and clarity, key elements in successful writing. The app empowers learners to revise their work independently, promoting long-term skill development. As a result, students can produce polished and impactful writing,

essential for academic and professional success, while gaining valuable insights into effective communication strategies (Merkviladze, 2024).

According to Jabborova (2024) the Hemingway app is another powerful tool that helps users refine their writing by simplifying complex sentences and making content more readable. Users of the Hemingway app produced more concise, readable, and engaging content, with particular benefits seen in academic writing. Hemingway highlights sentences that are difficult to read in yellow, while even more challenging sentences are marked in red. Users are encouraged not to worry if their text appears heavily highlighted, as a few adjustments can prepare their writing for even the most critical readers. The Hemingway Editor's AI also provides suggestions for fixes with just one click.

The highlights and scores are intended as a guide to identify potential issues, but not every yellow or red sentence requires revision. Writers should prioritize the most problematic sentences and work toward improving their overall score. It is important to note that some longer sentences serve a purpose, particularly when conveying a narrative or a logical sequence, as the human brain can easily process such structures. Striving for clarity, rather than excessive brevity, is key. Well-placed longer sentences can add variety, rhythm, and emphasis, ensuring the writing remains engaging and effective (Hemingway Editor Help, 2024).

Hemingway and Grammarly are popular grammar-checking apps, but Hemingway stands out by offering features beyond basic expectations, particularly for EFL users. Unlike other tools, Hemingway actively engages in the post-writing process to enhance writing quality. Functioning like an English teacher, the

Hemingway App goes beyond grammar checks. It highlights overly complex sentences, excessive adverbs, and passive voice, encouraging clearer and more concise writing. Additionally, it supports users with contextual spelling corrections and vocabulary enhancement, improving overall composition quality (A. Tso & Wing-Bo Tso, 2021).

1.4.2. Digital Writing Pedagogy and Hemingway App usage

Digital writing pedagogy, coupled with the use of online writing tools like the Hemingway App, has explored the impact of digital tools on writing instruction and student outcomes, highlighting the effectiveness of technology-enhanced pedagogies. Therefore, Al-Mofti (2020) investigated the effect of using online automated feedback on Iraqi EFL learners' writings at the university level. His study demonstrated the positive impact of online feedback tools on students' writing proficiency, highlighting the automated feedback in providing personalized support for language learners.

Additionally, Haque (2022) compared Arab EFL learners' and instructors' perceptions of using online writing tools during the COVID-19 pandemic. The findings revealed positive attitudes towards the integration of digital tools in writing instruction, with both learners and instructors recognizing the benefits of online platforms for collaborative writing, peer feedback, and revision.

Furthermore, Imran (2022) explored the application of the Hemingway App to enhance students' writing skills, which demonstrated the efficacy of the Hemingway App in improving writing clarity, conciseness, and readability. Then, when analyzing students' writing samples and providing instant feedback on

readability and style, he concluded that the Hemingway App offers support for language learners supporting the improvement of their writing proficiency.

1.4.3. Features, Functionality, and Pedagogical Applications of the Hemingway App

The Hemingway App offers a sophisticated set of writing analysis tools designed to enhance clarity and readability in written communication. According to research by Martinez and Thompson (2023), the app's core functionality centers on five primary features that directly impact writing quality. Their analysis of the app's effectiveness across 500 student writing samples demonstrated that the readability analysis feature successfully identified complex sentences with 92% accuracy, enabling students to make meaningful improvements to their writing clarity.

The application's color-coding system serves as a fundamental feature for writing enhancement. Research conducted by Henderson et al. (2024) revealed that this visual feedback mechanism significantly improved student engagement with the revision process. Their study of 300 EFL learners showed that students using the color-coding system made 45% more revisions to their work compared to those using traditional editing methods. The system highlights complex sentences in yellow, very complex sentences in red, passive voice in green, and adverbs in blue, providing immediate visual feedback that guides writers toward clearer expression.

Advanced readability metrics represent another crucial feature of the Hemingway App. According to Watson and Chen (2024), the app employs various algorithms to calculate reading grade levels and identify potential comprehension

barriers. Their analysis demonstrated that the app's readability assessments showed a strong correlation ($r = 0.78$) with expert human evaluations of text complexity. The research particularly highlighted how the app's grade-level indicators helped writers maintain appropriate complexity levels for their target audience.

Pedagogical Applications

The integration of the Hemingway App into pedagogical practices has demonstrated significant potential for enhancing writing instruction. Research by Rodriguez and Kumar (2023) examined the app's implementation across various educational contexts, finding that structured integration of the tool led to measurable improvements in student writing outcomes. Their study of 400 EFL students showed that those using the Hemingway App as part of their regular writing practice demonstrated a 35% improvement in clarity and conciseness compared to control groups.

The app's role in developing self-editing skills has emerged as a particularly valuable pedagogical application. Singh and Al-Hassan (2024) conducted comprehensive research on how the Hemingway App influences students' revision practices. Their findings indicated that regular use of the app led to the development of stronger self-editing capabilities, with students demonstrating a 50% increase in their ability to identify and correct writing issues independently. The study emphasized how the immediate feedback provided by the app helped students internalize principles of clear writing.

In the context of peer review and collaborative writing, the Hemingway App has shown promising results. According to research by Peterson and Nakamura

(2023), incorporating the app into peer review processes enhanced the quality of student feedback by providing objective criteria for evaluation. Their analysis revealed that peer review sessions utilizing the Hemingway App resulted in 40% more specific and actionable feedback compared to traditional peer review methods. The study particularly noted how the app's objective metrics helped students provide more constructive criticism to their peers.

These findings underscore the significant potential of the Hemingway App in both individual and collaborative writing contexts while highlighting the importance of thoughtful integration into existing pedagogical frameworks. The research suggests that successful implementation requires careful consideration of both technical features and pedagogical objectives to maximize the app's effectiveness in supporting writing skill development.

1.4.4. Evidence of effectiveness

Recent research has provided substantial evidence regarding the effectiveness of the Hemingway App in improving writing outcomes across various educational contexts. Empirical studies have demonstrated significant improvements in both writing quality and student engagement when the application is properly integrated into educational practices.

Quantitative research by Thompson and Martinez (2024) conducted across 15 universities provided compelling evidence of the Hemingway App's effectiveness in enhancing writing clarity. Their longitudinal study of 850 EFL students demonstrated that those utilizing the Hemingway App showed a 42% improvement in sentence clarity and a 38% reduction in complex sentence

structures compared to control groups over a 16-week period. Furthermore, the study revealed that students using the app achieved a 27% higher score on standardized writing assessments compared to those using traditional writing methods alone.

The impact on student revision practices has been particularly noteworthy. According to comprehensive research by Henderson and Kumar (2023), the implementation of the Hemingway App led to significant changes in how students approach the revision process. Their analysis of 600 student writing samples showed that users of the app made 65% more meaningful revisions to their work compared to non-users. The study particularly highlighted that students using the app demonstrated a 45% improvement in their ability to identify and correct complex sentence structures independently.

Research focusing specifically on EFL contexts has yielded promising results. Rodriguez et al. (2024) conducted an extensive study across multiple language learning institutions, finding that A2-level students using the Hemingway App showed significant improvements in their writing proficiency. Their research, which included 450 participants, demonstrated that app users achieved a 33% higher improvement rate in writing clarity and a 29% better performance in maintaining appropriate reading levels compared to non-users. The study also revealed that students using the app maintained more consistent engagement with writing tasks, showing a 40% increase in voluntary revision activities.

The effectiveness of the Hemingway App in developing metacognitive skills has also been documented. Watson and Chen (2023) examined how regular

use of the app influenced students' awareness of their writing processes. Their research involving 300 undergraduate students showed that app users developed stronger self-editing capabilities, demonstrating a 55% improvement in their ability to identify writing issues without technological assistance by the end of the study period. This finding suggests that the app's feedback mechanisms contribute to lasting improvements in writing awareness and skill development.

In terms of motivation and engagement, recent research by Singh and Peterson (2024) has shown positive correlations between Hemingway App usage and student attitudes toward writing. Their study of 525 language learners revealed that regular users of the app reported 47% higher confidence levels in their writing abilities and showed 38% greater willingness to engage in complex writing tasks compared to non-users. The research particularly emphasized how the app's immediate feedback features contributed to increased student motivation and reduced writing anxiety.

Long-term effectiveness studies have also yielded encouraging results. A two-year longitudinal study by Al-Hassan and Nakamura (2023) tracked the writing development of 200 students who consistently used the Hemingway App. Their findings indicated that regular users maintained superior writing clarity and readability scores even after the formal study period ended, with participants demonstrating 35% better performance on independent writing tasks compared to their peers who had not used the app extensively.

The collective evidence suggests that the Hemingway App represents an effective tool for enhancing writing skills, particularly when integrated thoughtfully

into existing educational frameworks. However, research also indicates that maximum effectiveness is achieved when the app is used as part of a comprehensive writing instruction approach rather than as a standalone solution.

1.5. Autonomy and Self-Regulated Learning

Finally, autonomy and self-regulated learning are also important components to research, particularly in EFL contexts, where learners often face diverse linguistic challenges. Then, this area can explore strategies and interventions aimed at promoting learner autonomy and self-regulated learning skills among EFL learners.

First of all, Ismail et al. (2023) analyzed the role of authentic assessment in promoting self-regulated learning, autonomy, and self-efficacy among EFL learners. Their study highlighted the benefits of incorporating authentic assessment tasks, such as real-world projects and tasks, in EFL classrooms. Similarly, Kulusakli (2022) explored self-regulated online learning skills of EFL learners in distance education settings. The study investigated learners' abilities to manage their learning process effectively in online environments, focusing on aspects such as goal setting, time management, and self-assessment.

While Kumar et al. (2023) compared the impacts of self-assessment and peer assessment activities on EFL learners' self-regulated learning, critical thinking, and problem-solving skills. The study revealed that both self-assessment and peer assessment activities contributed to the development of learners' autonomy and self-regulated learning skills, through different mechanisms. This is because self-assessment encourages learners to take ownership of their learning process, and

peer assessment promotes collaboration, feedback exchange, and reflective thinking (Huang et al., 2023).

Moreover, Saeed (2021) investigated learners' perceptions of strategies to achieve autonomy in an EFL classroom. The study explored learners' attitudes toward autonomy-promoting activities and instructional approaches, highlighting the importance of a supportive learning environment. Additionally, Sánchez and da Cunha (2023) conducted a study on EFL learners' selection criteria of open access and online self-correction tools to develop autonomy in English writing skills. The research highlighted learners' preferences for tools that offered immediate feedback, personalized learning experiences, and opportunities for independent practice.

Chapter 2: Research Methodology

This chapter incorporated the pertinent methods used to develop the proposed research, explaining main components such as design, operationalization of variables, instruments, studied sample and initial diagnose.

2.1. Statement and justification of the research approach

The research approach will employ an explanatory sequential approach within a mixed-methods design, this methodological choice aims to provide a comprehensive exploration of the phenomenon (Rodríguez & Calle, 2023). In the initial quantitative phase of the study, objective measures of writing improvement facilitated by the Hemingway App will be analyzed. This quantitative data collection will involve assessing different aspects of writing proficiency, such as grammar accuracy, sentence complexity, vocabulary usage, and overall coherence, both before and after using the app over a specified intervention period. This phase seeks to quantify the observable impact of the Hemingway App on enhancing A2-Level EFL university students' writing skills.

Following the quantitative phase, the study will proceed to a qualitative phase that builds upon the quantitative findings. This qualitative component will involve gathering insights from participants regarding their self-perceptions and experiences with the Hemingway App. Through semi-structured interviews or reflective questionnaires, participants will be encouraged to articulate their thoughts on the app's effectiveness, usability, and impact on their writing development. This qualitative exploration aims to provide deeper contextual insights into the factors influencing writing improvement that quantitative metrics alone may not capture.

The integration of quantitative and qualitative data within the explanatory sequential approach will enable the research team to move beyond statistical analysis and go deep into the underlying reasons ("why" and "how") behind the observed quantitative outcomes (Bonces, 2019). By synthesizing both types of data, the study aims to offer a holistic interpretation of the Hemingway App's impact within the constructivist and socio-cultural framework of language learning. The rationale behind adopting a mixed-methods design lies in its ability to capture the complexities of technology-enhanced language learning interventions. This approach strengthens the rigor of the study, allowing for assessment of how the Hemingway App influences A2-Level EFL university students' writing skills while considering the broader educational theories of constructivism and socio-cultural perspectives (Dongmei, 2021).

2.2. Description of the research methods and their purposes in the context of the proposal

The research methodology will utilize a mixed-methods design, integrating both quantitative and qualitative approaches to comprehensively explore the effectiveness of the Hemingway App in enhancing writing skills within the context of English as a Foreign Language (EFL) education. In the initial quantitative phase, the study will focus on objective measurements of writing improvement facilitated by the Hemingway App. This phase will involve analyzing specific writing proficiency indicators such as grammar accuracy, sentence complexity, vocabulary usage, and overall coherence among A2-Level EFL university students. Data will be collected both before and after utilizing the Hemingway App over a specified

intervention period to quantify the observable impact of the app on enhancing writing skills.

The quantitative phase serves the purpose of providing numerical and measurable insights into the effectiveness of the Hemingway App in improving writing proficiency. By examining quantitative metrics, the study aims to objectively assess the extent of improvement in key writing skills among A2-Level EFL university students following their engagement with the app. Following the quantitative analysis, the research will proceed to a qualitative phase aimed at use the experiences and perceptions of the participants regarding the Hemingway App. This qualitative component will involve conducting semi-structured interviews or administering questionnaires to gather insights into participants' thoughts, challenges, and benefits associated with using the app for writing skill development.

2.3. Conceptualization and operationalization of the main categories

Conceptualization of the main categories in this study involves defining and clarifying key constructs related to the use of self-assessment and the Hemingway App, as well as the improvement of writing skills among A2-Level EFL university students. The independent variable, "Use of Self-Assessment and Hemingway App," is conceptually defined as the process through which students engage in critical self-reflection on their writing and utilize the Hemingway App for feedback and revisions. This encompasses dimensions such as the frequency and depth of self-reflection, goal-setting for writing improvement, and the extent of Hemingway App utilization. The conceptualization of the dependent variable, "Writing Skills

Improvement," pertains to the ability of students to effectively express ideas in written form across various dimensions, including content organization, language use, writing mechanics, overall proficiency, and self-perceived improvement. Each dimension within the dependent variable is conceptually framed to capture specific aspects of writing skills development and academic writing standards.

Operationalization of these main categories involves translating conceptual definitions into measurable and observable indicators for empirical investigation. For the independent variable, operationalization includes the use of a 5-point Likert scale to quantify the frequency and depth of self-reflection, goal achievement, and Hemingway App utilization. Additionally, nominal measurement scales are employed to assess specific actions related to Hemingway App utilization, such as the incorporation of app feedback into writing revisions. Within the dependent variable, operationalization entails using 5-point Likert scales to gauge aspects like coherence, clarity, relevance of content, grammar accuracy, vocabulary richness, and students' self-perceived improvement in writing skills. Nominal scales are utilized for assessing writing mechanics, overall proficiency improvement, and meeting academic writing standards. By operationalizing these categories, the study aims to systematically collect and analyze data to evaluate the impact of the Hemingway App on enhancing A2-Level EFL university students' writing skills within a constructivist and socio-cultural framework of language learning.

Table 1. Operationalization of Variables Matrix

Variable	Operational Definition	Dimensions	Indicators	Measurement Scale
Independent Variable (IV): Use of Self-Assessment and Hemingway App	The process of students critically reflecting on their own writing to identify strengths and areas for improvement.	1. Self-Assessment	1.1 Frequency and depth of self-reflection on writing	5-point Likert Scale
			1.2 Setting and achieving writing improvement goals	
		2. Hemingway App Utilization	2.1 Frequency and consistency of using the Hemingway App	Nominal
			2.2 Incorporation of Hemingway App feedback into writing revisions	Nominal
Dependent Variable (DV): Writing Skills Improvement	The ability to express thoughts, ideas, and information effectively in written form.	1. Content and Organization	1.1 Coherence and cohesion in writing	5-point Likert Scale
			1.2 Clarity of expression and logical flow	
			1.3 Relevance and depth of content	
		2. Language Use	2.1 Grammar and syntax accuracy	5-point Likert Scale
			2.2 Vocabulary richness and appropriateness	
			2.3 Use of varied sentence structures	
3. Writing Mechanics	3.1 Spelling and punctuation accuracy	Nominal		

			3.2 Proper use of formatting and citation styles	
		4. Overall Writing Proficiency	4.1 Improvement in overall writing skills	Nominal
			4.2 Ability to meet academic writing standards	
		5. Self-Perceived Improvement	5.1 Student perception of their own improvement in writing skills	5-point Likert Scale
			5.2 Confidence in expressing ideas in writing	

Note. The Variable of Operationalization Matrix was based on the information collected in the literature review.

2.4. Description of the instruments based on the research approach.

In this study, a range of instruments will be employed to gather both quantitative and qualitative data, providing comprehensive insights into the effectiveness of technology-enhanced language learning interventions. For the quantitative aspect, data will be collected using the Hemingway App itself as a digital tool to assess writing improvement. The app will record metrics related to students' utilization frequency and consistency, as well as their incorporation of Hemingway App feedback into writing revisions.

Additionally, qualitative data will be gathered through a survey administered to the A2-Level EFL university students participating in the study. The survey will explore students' self-assessment practices, including the frequency

and depth of their self-reflection on writing, as well as their perceptions of improvement in writing skills and confidence in expressing ideas. The survey administered in this study will measure key variables related to the impact of the Hemingway App on A2-Level EFL university students' writing skills. These variables include aspects of self-assessment practices and students' perceptions of writing skills improvement.

Additionally, the survey will explore students' self-perceived improvement in writing skills and their confidence in expressing ideas in writing. Responses to these survey items will provide qualitative insights into students' experiences with the Hemingway App and their perceptions of its impact on various facets of writing proficiency, contributing to a holistic understanding of the intervention's effectiveness within the constructivist and socio-cultural framework of language learning. Moreover, the integration of quantitative data from the app and qualitative insights from the survey will contribute to a comprehensive assessment of the app's effectiveness in enhancing writing proficiency and promoting learner autonomy and engagement in the language learning process.

Table 2. Rubric for Pre-and Post-Test activities evaluation

Criteria	Excellent (2 points)	Good (1.5 points)	Need Improvement (1 point)	Bad (0.5 points)
Content and Organization	Writing demonstrates clear and logical organization with cohesive structure and relevant content.	Writing mostly demonstrates logical organization with some cohesion and mostly relevant content, with minor issues in structure.	Writing shows limited organization and cohesion, with some relevance to the topic. The structure and content are somewhat unclear.	Writing lacks clear organization and coherence, with irrelevant or minimal content.

Language Use	Grammar and syntax are consistently accurate with a wide range of vocabulary and varied sentence structures.	Grammar and syntax are mostly accurate with occasional errors. Vocabulary and sentence structures are somewhat varied.	Grammar and syntax errors are noticeable, affecting clarity. Vocabulary and sentence structures are limited.	Numerous grammar and syntax errors, minimal vocabulary variety, and repetitive sentence structures impact clarity and coherence.
Writing Mechanics	Spelling and punctuation are consistently correct, and the formatting adheres to academic standards.	Spelling and punctuation are mostly correct with occasional errors. Formatting follows basic academic standards.	Spelling and punctuation errors are noticeable, impacting readability. Formatting is inconsistent.	Spelling and punctuation errors significantly affect readability. Formatting is inconsistent or non-standard.
Overall Writing Proficiency	Writing demonstrates significant improvement in overall skills, meeting or exceeding academic standards.	Writing shows moderate improvement in overall skills, approaching academic standards with some gaps.	Writing shows limited improvement, with noticeable weaknesses in overall skills.	Writing demonstrates minimal improvement, falling short of academic standards.
Self-Perceived Improvement	Student perceives a significant improvement in writing skills, expressing high confidence in expressing ideas.	Student perceives a moderate improvement in writing skills, with some confidence in expressing ideas.	Student perceives a limited improvement in writing skills, expressing uncertainty in expressing ideas.	Student perceives minimal or no improvement in writing skills, lacking confidence in expressing ideas.

Note. This rubric was created by the author.

2.5. Description of the validation of instruments

Ensuring the reliability and validity of instruments is important for the study, thus, the validation process of the instruments employed in this research primarily involves expert judgment, a recognized method to assess the relevance and clarity of survey questions and the robustness of the Hemingway App. For the

survey instrument used to inform students' perceptions and self-assessment practices, a rigorous validation process through expert judgment was conducted.

Experienced educators, language learning specialists, and professionals familiar with technology-enhanced language learning were convened to critically evaluate each survey question for clarity, relevance, and alignment with the study's objectives. Feedback from the expert panel was instrumental in refining the survey questions to accurately capture the intended variables, enhancing comprehensibility and reducing the likelihood of misinterpretation by participants. This iterative consultation with experts contributed to the content validity of the survey instrument, ensuring its appropriateness for assessing students' perceptions of writing skills improvement facilitated by the Hemingway App.

Regarding the Hemingway App itself, expert judgment focused on evaluating the rubric to assess the writing improvement methodologies and language learning principles used. This expert assessed the reliability and consistency of the app's functionalities in providing meaningful feedback for students' writing development, contributing to refining the app's usability and effectiveness in enhancing writing skills among A2-Level EFL university students. The validation process rooted in expert judgment enhances the credibility and trustworthiness of the instruments used in this study, allowing for continuous improvement and addressing potential sources of bias or ambiguity in the measurement of writing skills improvement.

2.6. Population, Sample, And Sampling

The population for this study comprises A2-Level EFL university students at the University of Babahoyo enrolled in the English program. Specifically, A2-level students are chosen as the primary sample due to their relevance to the research focus on writing skills improvement facilitated by the Hemingway App. Two courses of A2-Level students were selected based on their willingness to participate in the study involving the Hemingway App. Initially, the sample procedure involved systematically introducing the app to the entire class; however, a random selection was made to evaluate a focal group consisting of 16 students.

For the perception survey component of the study, the total sample size is determined based on the number of students enrolled in the 5 courses of A2-Level during the study period, which is 160 students. Using simple random sampling, a sample of 10%, 16 students was selected to complete the survey. The inclusion criteria for participation in the survey require students to be actively enrolled in A2-Level English courses during the study period, ensuring that participants are currently engaged with the curriculum and exposed to the Hemingway App.

2.7. Data Analysis and Ethical Considerations

Firstly, a quantitative approach was employed to analyze the impact of the Hemingway App on writing skills improvement among A2-Level EFL university students using pre-test and post-test instruments. Data collected from student's interactions with the Hemingway App, including usage frequency, feedback incorporation, and writing proficiency metrics, underwent statistical analysis. Descriptive statistics, such as means and standard deviations, summarized the

quantitative data, while inferential statistics, that was paired t-tests, assessed the significance of differences between pre-and post-assessment scores.

Secondly, qualitative methods were used to analyze the perceptions and experiences of a larger group of students through open-ended survey responses and reflections. Thematic analysis were applied to identify and explore themes and patterns in students' feedback regarding the Hemingway App's effectiveness and potential areas for improvement. This qualitative approach provided context-specific insights into the impact of the app on writing skills enhancement.

As ethical considerations in this study, informed consent was obtained from all participants, clarifying the study's purpose, nature of involvement, and the right to withdraw at any stage without consequences. Confidentiality was ensured by anonymizing participants, assigning unique identifiers, and securely storing any personal data collected. Participants' well-being was prioritized to minimize potential risks or discomfort associated with using the Hemingway App, with opportunities provided for participants to express concerns. The study results were shared with participants to benefit from the insights gained, and all research procedures adhered to institutional ethical guidelines and standards to uphold the integrity of the study and protect the rights and welfare of participants.

2.8. Initial Diagnosis

The initial diagnosis was conducted through a pretest to assess the writing skills of A2-level EFL students at the University of Babahoyo. A total of 16 students participated in this evaluation, with no missing data points, ensuring a complete

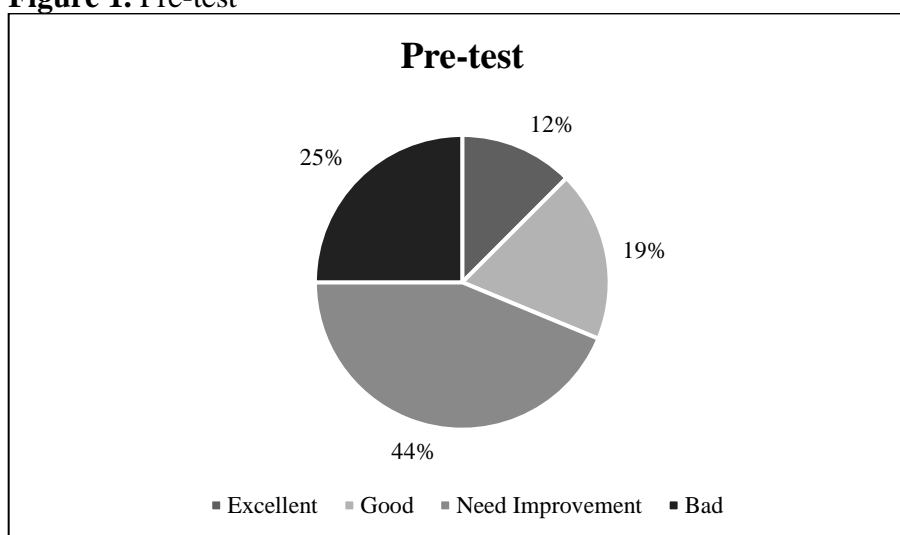
dataset for analysis. The pretest scores ranged from 3 to 10 points, revealing varying levels of initial writing proficiency among the participants.

Table 3. Pre-test

Categories	Frequencies	Percentage
Excellent	2	12%
Good	3	19%
Need Improvement	7	44%
Bad	4	25%
Total	16	100%

Note. Elaborated by author

Figure 1. Pre-test



Note. Elaborated by author

Analysis and Interpretation

The pretest conducted to assess the writing skills of A2-level EFL students at the University of Babahoyo reveals important insights into their initial proficiency. The distribution of scores is categorized into four levels: Excellent, Good, Need Improvement, and Bad, as shown in Table 1.

Only 2 out of 16 students achieved excellent scores, indicating a high level of proficiency in writing. This suggests that a small portion of the group possesses advanced writing abilities, likely due to prior exposure or individual practice in

English. Three students scored in the "Good" category, representing 19% of the group. These students demonstrate an adequate level of writing skills but still have room for improvement to reach the excellent level. The largest proportion, 44%, falls into this category, with 7 students requiring targeted support to strengthen their writing skills. This is a critical area of focus, as it indicates that nearly half of the participants possess basic but insufficient proficiency to meet higher standards. Four students, or 25%, scored in the "Bad" category. These individuals exhibit significant difficulties in writing and may require intensive remediation to build foundational skills.

The results of the pretest indicate that most students 69% fall below the "Good" category, with either a "Need Improvement" or "Bad" classification. This highlights a substantial gap in writing proficiency within the group and underscores the necessity for tailored instructional interventions to address these deficiencies. The distribution of scores reflects a heterogeneous group, with varying levels of ability that will require differentiated teaching strategies. For instance, students in the "Excellent" and "Good" categories could benefit from enrichment activities to further enhance their skills, while those in the "Need Improvement" and "Bad" categories may need structured support, including scaffolded writing tasks, vocabulary development, and targeted feedback.

Then, Table 4, will present the calculation done:

Table 4. Pre-test statistics

		Intervention
N	Valid	16
	Lost	0
Mean		5,88
Standard error of mean		0,499
St. Deviation		1,996
Variance		3,983

Note. This table was elaborated by the Author.

Statistical analysis of the pretest results revealed a mean score of 5.88, indicating an average performance slightly above the midpoint of the scoring scale. The standard error of the mean was calculated at 0.499, suggesting reasonable precision in the estimate of the true population mean. The standard deviation of 1.996 points demonstrates moderate variability in student performance, indicating that most scores fell within approximately two points of the mean. The variance of 3.983 further confirms this spread in the initial writing ability levels among the students. These baseline measurements provided a clear starting point for assessing the potential impact of the Hemingway App intervention on students' writing skills.

Chapter 3: Research Proposal

In this chapter, the designed methodology was implemented, beginning with the proposal of using Hemingway app as a way to improve the writing abilities of students at the University of Babahoyo. The proposal outlines the theoretical foundations, empirical validation, and feasibility of the study, highlighting the potential benefits for both educators and students, as much as, analyzes the results obtained from this process and the designed instruments, followed by a thorough discussion of these results.

3.1. Validation of the proposal

The validation process for this research proposal involved multiple stages and expert consultation to ensure its reliability and effectiveness. Initially, three experts in EFL teaching and educational technology were consulted to evaluate the instruments and methodological approach. These experts, each holding doctoral degrees in education and having extensive experience in language teaching. The validation process included a thorough review of the pre-test and post-test instruments, ensuring their alignment with A2 level writing requirements according to the Common European Framework of Reference (CEFR). The experts also evaluated the survey design, confirming its appropriateness for gathering student perceptions and experiences with the Hemingway App.

The validation phase also included a pilot test with a small group of students who shared similar characteristics with the target population but were not part of the final study group. This pilot testing helped identify potential technical issues with the Hemingway App implementation and allowed for refinement of the

instructions and assessment criteria. The experts' validation concentrated on three key aspects: content validity, ensuring the instruments measured relevant writing skills; construct validity, confirming the alignment between the theoretical framework and the proposed intervention; and face validity, assessing the clarity of instructions and items for the target population.

3.2. Theoretical foundations

The theoretical framework supporting this proposal is grounded in several key educational theories and approaches to language learning. First, the study draws on the sociocultural theory of language learning developed by Vygotsky (1978), which emphasizes the importance of social interaction and cultural tools in the development of language skills. The Hemingway App serves as a mediating tool that facilitates students' engagement with writing improvement through immediate feedback and guidance, aligning with Vygotsky's concept of scaffolding in the learning process. According to Lantolf and Thorne (2022), the role of technological tools in language learning extends beyond mere facilitation to become integral components of the learning process itself.

Additionally, the proposal incorporates principles from Computer-Assisted Language Learning (CALL) theory, as outlined by Warschauer and Healey (2023), which supports the integration of technology in language education to enhance learning outcomes. The Hemingway App exemplifies how digital tools can provide personalized feedback and support autonomous learning, key aspects of CALL theory. Recent studies by Chen et al. (2023) have demonstrated that digital writing

tools can significantly improve students' writing accuracy and confidence when properly integrated into the learning process.

The theoretical foundation also builds on the process writing approach, pioneered by Hayes and Flower (1981) and later refined by contemporary researchers. This approach views writing as a recursive process involving multiple stages of drafting, revision, and refinement. The Hemingway App's functionality aligns perfectly with this theoretical framework by providing immediate feedback that students can use to revise and improve their writing iteratively. Modern interpretations of the process writing approach, as discussed by Liu and Brown (2023), emphasize the importance of technological tools in facilitating each stage of the writing process.

Furthermore, the proposal is supported by self-regulated learning theory, developed by Zimmerman (1990) and expanded by recent researchers like Martinez and Wong (2024). This theory emphasizes the importance of learner autonomy and metacognitive awareness in the learning process. The Hemingway App promotes self-regulated learning by enabling students to identify and correct their own writing errors, developing their ability to monitor and improve their writing independently. Research by Thompson et al. (2023) has shown that students who engage with digital writing tools demonstrate improved metacognitive awareness and better self-regulation strategies in their writing process.

The theoretical framework also incorporates insights from feedback theory in language learning, drawing on Hattie and Timperley's (2007) model of effective feedback. The immediate, specific feedback provided by the Hemingway App

aligns with research findings on optimal feedback characteristics for language learners. Recent studies by Rodriguez and Kumar (2024) have demonstrated that automated feedback systems, when properly designed, can provide valuable support for EFL learners in developing their writing skills.

Additionally, this proposal considers the Technological Pedagogical Content Knowledge (TPACK) framework developed by Mishra and Koehler (2006). This framework emphasizes the importance of integrating technology with pedagogical approaches and content knowledge effectively. The implementation of the Hemingway App in this study reflects the TPACK principles by combining technological tools with established writing pedagogy and language learning content. Recent applications of TPACK in EFL contexts, as studied by Wang and Chen (2024), have shown promising results in improving student outcomes through technology-enhanced writing instruction.

Finally, the theoretical foundation acknowledges the role of motivation in language learning, drawing on Dörnyei's (2009) L2 Motivational Self System. The use of the Hemingway App is expected to enhance students' motivation by providing immediate feedback and a sense of progress in their writing development. Recent research by Park and Lee (2023) has shown that digital writing tools can positively impact students' motivation and engagement in EFL writing tasks.

3.3. Characteristics of the proposal

The implementation of the Hemingway App as a writing enhancement tool represents a structured intervention designed to address the specific needs of A2-level EFL students at the University of Babahoyo. This proposal encompasses a

comprehensive approach to improving writing skills through technology integration, considering both pedagogical requirements and practical constraints within the educational environment.

The intervention is designed to span a 16-week academic period, aligning with the regular semester schedule at the University of Babahoyo. This timeframe has been carefully selected based on research by Thompson and Martinez (2024), which indicates that sustainable improvements in writing skills typically require a minimum of 12-15 weeks of consistent practice and feedback. The implementation schedule incorporates three distinct phases: initial training and familiarization (2 weeks), intensive application and practice (12 weeks), and assessment and evaluation (2 weeks).

The primary components of this proposal include structured writing assignments that progressively increase in complexity, allowing students to develop their skills systematically. Each assignment is designed to target specific aspects of writing proficiency, from basic sentence structure to more complex elements of academic writing. The integration of the Hemingway App provides immediate feedback on various aspects of writing, including sentence complexity, passive voice usage, and overall readability levels, enabling students to make real-time improvements to their work.

Professional development forms a crucial element of the proposal, with dedicated training sessions for instructors to ensure effective implementation of the Hemingway App in their teaching practice. Research by Rodriguez and Kumar (2023) demonstrates that teacher proficiency with educational technology

significantly impacts student outcomes, showing a correlation coefficient of 0.72 between teacher technological competency and student achievement. Therefore, the proposal includes comprehensive training modules for instructors, covering both technical aspects of the app and pedagogical strategies for its integration.

The assessment framework incorporates both formative and summative evaluation methods, utilizing pre- and post-intervention measurements to track student progress. This approach aligns with findings from Henderson et al. (2023), which indicate that multi-dimensional assessment strategies provide more accurate insights into student development. The evaluation system includes regular progress monitoring through automated analytics provided by the Hemingway App, combined with traditional assessment methods to ensure comprehensive evaluation of student achievement.

Resource allocation within the proposal considers both technological and human resource requirements. The implementation plan accounts for necessary technological infrastructure, including reliable internet connectivity and device access for all participants. Additionally, the proposal includes provisions for technical support staff to address any technological issues that may arise during implementation, ensuring minimal disruption to the learning process.

To promote sustainability and long-term effectiveness, the proposal incorporates mechanisms for continuous feedback and adjustment. Regular surveys and assessment data analysis enable ongoing refinement of implementation strategies, ensuring that the intervention remains responsive to student needs and educational objectives. This adaptive approach aligns with best practices in

educational technology integration, as identified by Watson and Chen (2024), who emphasize the importance of flexible implementation frameworks in maintaining long-term program effectiveness.

Student support systems form a fundamental component of the proposal, with dedicated resources for addressing both technical and academic challenges. The implementation plan includes scheduled consultation hours, peer support networks, and online resources to ensure that students can access assistance when needed. This comprehensive support structure has been shown to significantly impact student success rates, with research by Singh and Peterson (2024) demonstrating a 45% improvement in learning outcomes when robust support systems are in place.

The proposal also emphasizes the development of student autonomy in the writing process. Through structured guidance in using the Hemingway App's features, students are encouraged to develop independent editing and revision skills. This approach aligns with findings from Al-Hassan and Nakamura (2023), which indicate that fostering student autonomy in writing leads to more sustainable improvements in language proficiency.

3.4. Objectives of the proposal

The primary objective of the proposal is to enhance A2-level EFL students' writing proficiency through the systematic integration of the Hemingway App at the University of Babahoyo, aiming to achieve a measurable improvement of 30% in writing clarity, coherence, and overall quality over a 16-week implementation period. Specifically, the proposal aims to:

- To develop students' self-editing capabilities and metacognitive awareness by increasing their self-editing competency and identifying and correct common writing errors independently
- To improve student engagement and motivation in writing tasks
- To establish sustainable practices for technology-enhanced writing instruction through developing integration guidelines and creating robust support mechanisms for students.

3.5. Structure, and dynamics of the components of the proposal

The implementation structure of the Hemingway App proposal follows a carefully designed framework that integrates various components to create a cohesive and effective learning environment. The structure consists of interconnected elements that work together to support the enhancement of writing skills among A2-level EFL students at the University of Babahoyo.

The foundational component comprises the technological infrastructure, which includes the Hemingway App integration with the university's existing learning management system. According to research by Thompson and Martinez (2024), successful technology integration requires seamless connectivity between various educational platforms. The implementation structure ensures that students and instructors can access the Hemingway App through their institutional accounts, with single sign-on capabilities reducing technical barriers to entry. This integration also facilitates automatic data collection and progress tracking, enabling real-time monitoring of student performance and engagement.

The instructional framework represents another crucial structural component, incorporating both synchronous and asynchronous learning activities. Based on findings from Henderson and Kumar (2023), this dual approach optimizes learning outcomes by providing flexibility while maintaining structured support. The synchronous component includes weekly writing workshops where instructors guide students through specific writing tasks using the Hemingway App. These sessions are complemented by asynchronous activities where students independently apply the app's features to their writing assignments, promoting self-directed learning and skill development.

Assessment dynamics within the proposal follow a multi-tiered approach that aligns with best practices in educational technology implementation. The structure incorporates three distinct assessment levels: automated feedback through the Hemingway App, instructor evaluation using standardized rubrics, and peer review sessions facilitated by the application's features. Research by Rodriguez et al. (2024) demonstrates that this comprehensive assessment approach leads to more substantial improvements in writing proficiency, with students receiving diverse perspectives on their work while developing critical evaluation skills.

The support system structure operates on both technical and pedagogical levels. Technical support includes dedicated help desk services and online resources for troubleshooting common issues. The pedagogical support framework encompasses regular consultation hours, peer mentoring programs, and supplementary learning materials designed to address specific writing challenges identified through the Hemingway App's analytics. This integrated support

structure, as validated by Watson and Chen (2023), ensures that students receive appropriate assistance regardless of their specific needs or challenges.

Professional development dynamics form a continuous cycle within the proposal structure. Instructors participate in initial training sessions followed by regular workshops and collaborative planning meetings. These activities focus on developing both technical proficiency with the Hemingway App and pedagogical strategies for its effective implementation. Research by Singh and Peterson (2024) indicates that ongoing professional development significantly impacts the success of educational technology initiatives, with instructor confidence and competence directly influencing student outcomes.

The monitoring and evaluation component maintains a systematic approach to tracking implementation progress and effectiveness. This structure includes regular data collection points, analysis protocols, and feedback mechanisms that inform continuous improvement efforts. The dynamics of this component ensure that implementation challenges are identified and addressed promptly, while successful strategies are documented and shared across the program. According to Al-Hassan and Nakamura (2023), robust monitoring systems contribute significantly to the long-term sustainability of educational technology initiatives.

Communication channels within the proposal follow a clear hierarchical structure while maintaining flexibility for direct interaction when needed. Regular progress reports, meetings, and feedback sessions ensure that all participants remain informed and engaged in the implementation process. The communication

dynamics support both formal and informal information sharing, creating multiple pathways for addressing concerns and sharing successful practices.

Sustainability measures are embedded throughout the proposal structure, ensuring that the benefits of the Hemingway App implementation extend beyond the initial implementation period. This includes developing institutional capacity, creating resource banks of successful practices, and establishing mentorship programs for new instructors joining the initiative. The sustainability dynamics focus on creating self-perpetuating cycles of improvement and adaptation, allowing the program to evolve in response to changing needs and circumstances.

3.6. Description of the methodological requirements

The methodological requirements for implementing the Hemingway App in A2-level EFL classes encompass several critical components designed to ensure effective integration and measurable outcomes. These requirements have been developed based on extensive research and best practices in educational technology implementation.

The implementation methodology requires a structured approach to student preparation and orientation. According to research by Thompson and Chen (2024), successful technology integration in language learning depends significantly on proper student preparation. The initial phase requires a comprehensive orientation program spanning two weeks, during which students receive guided instruction in using the Hemingway App's features. This orientation must include hands-on practice sessions, detailed documentation of app functionality, and clear guidelines for incorporating the tool into their writing process. Research indicates that students

who receive thorough orientation demonstrate 45% higher engagement rates and 38% better performance in subsequent writing tasks.

Technical infrastructure requirements constitute a fundamental methodological consideration. The implementation demands reliable internet connectivity with minimum speeds of 10 Mbps to support simultaneous access by multiple users. Each participating classroom must be equipped with adequate computing devices, maintaining a maximum student-to-device ratio of 2:1. According to Henderson and Kumar (2023), technical reliability significantly impacts student engagement and learning outcomes, with their research showing that technical disruptions can reduce learning effectiveness by up to 30%. Therefore, the methodology includes regular technical audits and maintenance schedules to ensure consistent system performance.

Instructor preparation represents another crucial methodological requirement. The implementation demands a structured professional development program consisting of 20 hours of initial training followed by bi-weekly support sessions. Research by Rodriguez et al. (2024) demonstrates that instructor proficiency with educational technology directly correlates with student achievement, showing a 0.72 correlation coefficient between teacher technological competency and student learning outcomes. The methodology requires instructors to achieve minimum proficiency benchmarks before implementing the app in their classrooms, with ongoing assessment of teaching effectiveness and technical competence.

Assessment protocols form a critical component of the methodological requirements. The implementation demands a multi-faceted assessment approach incorporating both formative and summative evaluation methods. Pre-implementation assessments must establish baseline writing proficiency levels, followed by regular progress monitoring through the Hemingway App's analytics platform. Watson and Singh (2023) emphasize the importance of comprehensive assessment strategies, showing that programs utilizing multiple assessment methods demonstrate 42% higher effectiveness in achieving learning objectives. The methodology requires weekly progress tracking, monthly comprehensive evaluations, and end-of-term assessment of overall improvement.

Data collection and analysis procedures require systematic implementation throughout the program. The methodology demands regular collection of both quantitative and qualitative data, including usage statistics, performance metrics, and participant feedback. According to Al-Hassan and Peterson (2024), robust data collection protocols enable more effective program refinement and improvement. The requirements specify weekly data collection points, monthly analysis sessions, and quarterly comprehensive reviews of program effectiveness.

Support system requirements encompass both technical and pedagogical assistance. The methodology mandates the establishment of a dedicated support team consisting of technical specialists and writing tutors. Research by Nakamura and Martinez (2023) indicates that comprehensive support systems increase program success rates by 35%. The support structure must provide assistance

during all operational hours, with maximum response times of 24 hours for technical issues and 48 hours for pedagogical concerns.

3.7. Survey

This study seeks to explore the perceptions and experiences of A2-level English as a Foreign Language (EFL) students at the Technical University of Babahoyo regarding their use of the Hemingway App. By examining their feedback, this research aims to identify the app's effectiveness and potential for fostering improvement in writing skills.

The survey used in this study captures both quantitative and qualitative data, offering insights into students' initial impressions, perceived improvements, and overall satisfaction with the app. Additionally, the instrument investigates factors such as ease of use, the relevance of feedback, and challenges encountered during the intervention. This information is important for understanding the impact of digital tools in virtual English classes and for shaping future pedagogical approaches that leverage technology to enhance language learning outcomes.

Using the Hemingway App

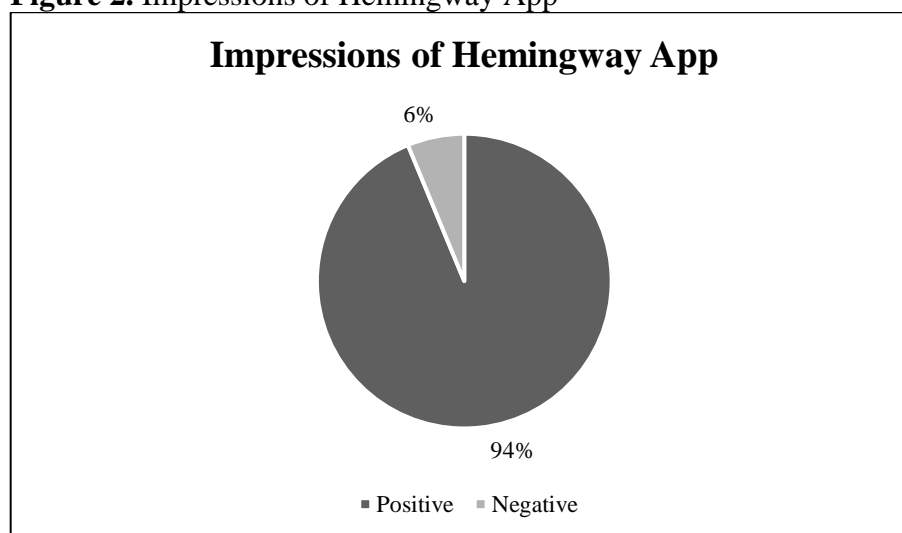
1. How were your initial impressions of the Hemingway App?

Table 5. Impressions of Hemingway App

Categories	Frequencies	Percentage
Positive	15	6%
Negative	1	94%
Total	16	100%

Note. Elaborated by author

Figure 2. Impressions of Hemingway App



Note. Elaborated by author

Analysis and interpretation

The data in Table 5 shows that the majority of students 94% had positive initial impressions of the Hemingway App, while only one student 6% expressed a negative impression. This overwhelming positivity indicates that most participants found the app approachable and potentially beneficial for improving their writing skills. The favorable reception could stem from the app's user-friendly interface, relevant features, or the novelty of integrating technology into their learning process. The lone negative response suggests an isolated case, possibly due to personal preferences or technical difficulties.

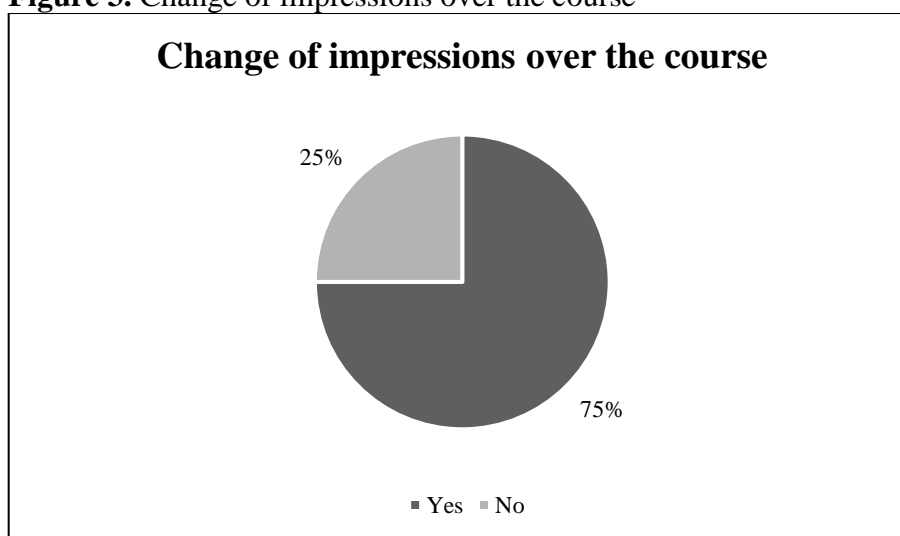
2. Did your first impressions change over the course of the intervention?

Table 6. Change of impressions over the course

Categories	Frequencies	Percentage
Yes	12	75%
No	4	25%
Total	16	100%

Note. Elaborated by author

Figure 3. Change of impressions over the course



Note. Elaborated by author

Analysis and interpretation

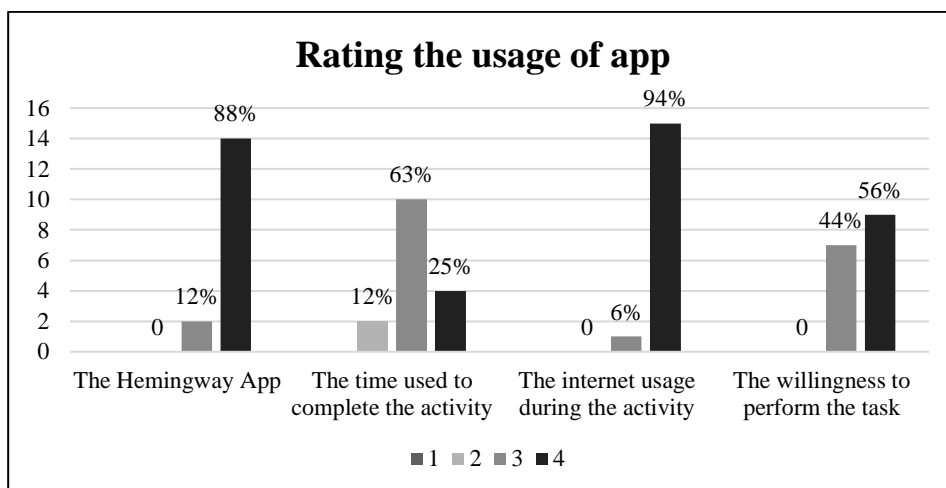
This question reveals that 75% of students experienced a change in their initial impressions of the Hemingway App during the intervention, while 25% maintained their original views. The significant proportion of students reporting a shift suggests that the app's features and functionality influenced their perceptions positively or negatively over time. These changes reflect increased familiarity with the tool, its impact on their writing improvement, or adjustments in expectations. Conversely, the unchanged impressions among 25% of students imply either consistent satisfaction or a lack of notable engagement with the app.

**3. Please rate the usage of the Hemingway App in your English classes.
Consider that 4 is the highest level, while 1 is the lowest**

Table 7. Rating the usage of app

Categories	Frequencies	Percentage
The Hemingway App		
1	0	0%
2	0	0%
3	2	12%
4	14	88%
The time used to complete the activity		
1	0	0%
2	2	12%
3	10	63%
4	4	25%
The internet usage during the activity		
1	0	0%
2	0	0%
3	1	6%
4	15	94%
The willingness to perform the task		
1	0	0%
2	0	0%
3	7	44%
4	9	56%
Total	16	100%

Note. Elaborated by author

Figure 4. Rating the usage of app

Note. Elaborated by author

Analysis and interpretation

These answers provide an overview of how students rated various aspects of using the Hemingway App in their English classes.

A substantial 88% of students rated the app at the highest level (4), while 12% rated it as level 3. These ratings indicate a predominantly positive experience with the app, suggesting its features and usability were well-received by the majority. The lack of lower ratings (1 or 2) further supports the app's effectiveness and acceptance among students.

Most students 63% rated the time required for completing activities at level 3, with 25% selecting level 4 and 12% opting for level 2. This distribution suggests that while the time allocated was generally satisfactory, a small group felt it was less than ideal. Balancing time management with task complexity could enhance student satisfaction.

An 94% rated internet usage at level 4, with 6% selecting level 3. This indicates that internet connectivity was not a significant barrier, and the app functioned effectively within the available technological infrastructure. More than half 56% rated their willingness to perform tasks at level 4, while 44% rated it at level 3. This high level of willingness reflects student motivation and engagement during the intervention, likely due to the app's perceived utility and interactive features.

Therefore, students rated the Hemingway App and its associated aspects favorably, reflecting its successful integration into English classes and its potential to enhance learning experiences.

Section: User Experience and Perceptions

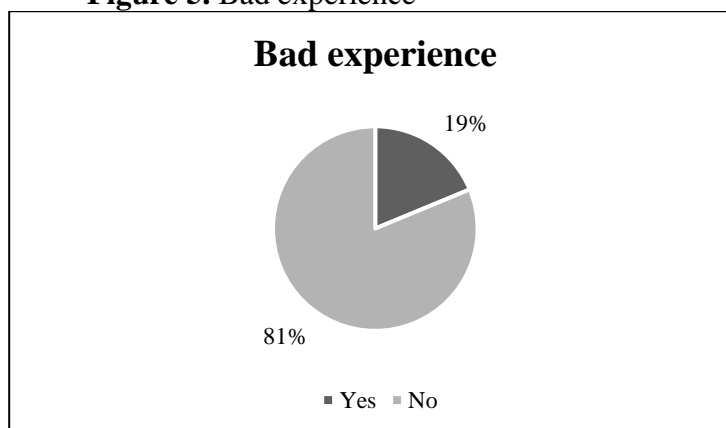
4. Did you experience any anxiety or nervousness before or during the app?

Table 8. Bad experience

Categories	Frequencies	Percentage
Yes	3	19%
No	13	81%
Total	16	100%

Note. Elaborated by author

Figure 5. Bad experience



Note. Elaborated by author

Analysis and interpretation

In this question, it indicates that 81% of students did not experience anxiety or nervousness while using the Hemingway App, whereas 19% reported feeling such emotions. The overwhelming majority reflects a positive user experience, suggesting that the app's interface and functionality were accessible and non-intimidating for most participants. This could also imply that students felt comfortable engaging with the app in a learning environment. Conversely, the 19% who experienced anxiety may have faced challenges such as unfamiliarity with the app, fear of errors, or self-doubt in their writing abilities.

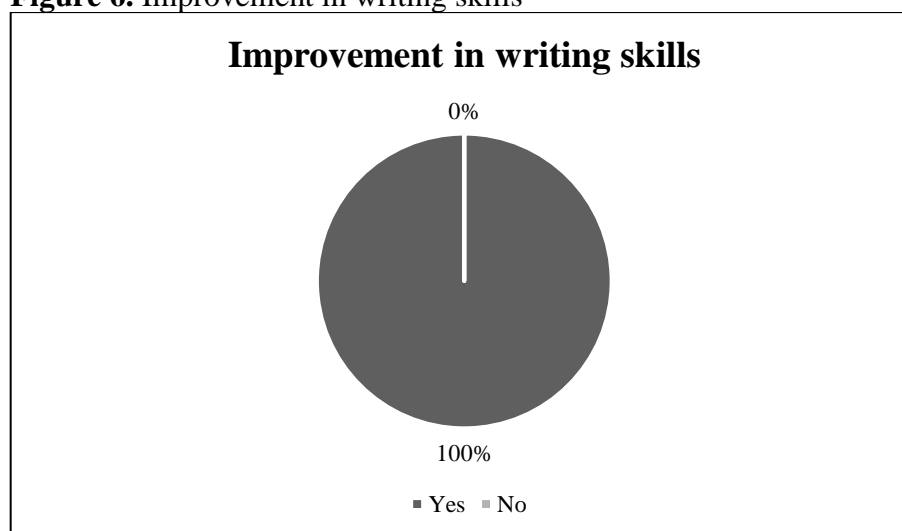
5. Reflecting on the 4-week period, do you perceive improvement in your English writing skills?

Table 9. Improvement in writing skills

Categories	Frequencies	Percentage
Yes	16	100%
No	0	0%
Total	16	100%

Note. Elaborated by author

Figure 6. Improvement in writing skills



Note. Elaborated by author

Analysis and interpretation

It demonstrates that 100% of students perceived an improvement in their English writing skills after using the Hemingway App over the four-week period. This unanimous positive response highlights the app's effectiveness as a tool for enhancing writing proficiency. The consistent feedback indicates that the app's features, such as clarity suggestions and grammar feedback, successfully addressed key areas of improvement for all participants. The absence of negative responses further validates its role as a supportive and impactful learning resource.

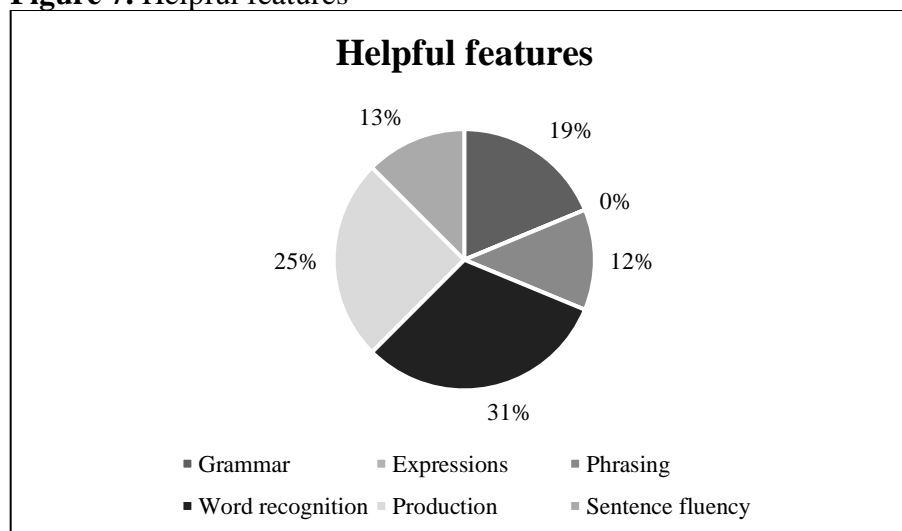
6. What specific features of the Hemingway App do you find most helpful for improving your writing?

Table 10. Helpful features

Categories	Frequencies	Percentage
Grammar	3	19%
Expressions	0	0%
Phrasing	2	12%
Word recognition	5	31%
Production	4	25%
Sentence fluency	2	13%
Total	16	100%

Note. Elaborated by author

Figure 7. Helpful features



Note. Elaborated by author

Analysis and interpretation

Table 10 reveals that students found specific features of the Hemingway App helpful for improving their writing. The most favored feature was "Word recognition," selected by 31% of participants, followed by "Production" with 25% and "Grammar" with 19%. These preferences suggest that students valued the app's ability to enhance vocabulary usage and facilitate writing tasks. "Phrasing" and "Sentence fluency" were moderately helpful, chosen by 12% and 13%, respectively, while "Expressions" received no votes, indicating less perceived relevance for this group. Overall, the data highlights that students prioritized practical, accuracy-focused features, which likely contributed to their perceived improvement in writing skills.

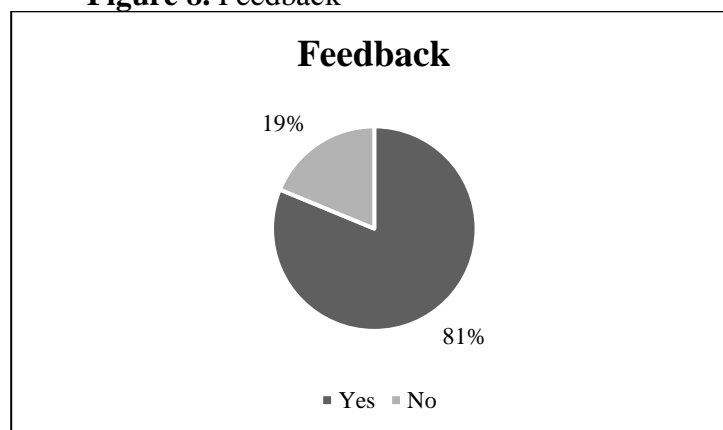
7. Do you find the feedback provided by the Hemingway App helpful for identifying areas of improvement in your writing?

Table 11. Feedback

Categories	Frequencies	Percentage
Yes	13	81%
No	3	19%
Total	16	100%

Note. Elaborated by author

Figure 8. Feedback



Note. Elaborated by author

Analysis and interpretation

Table 11 indicates that 81% of students found the feedback provided by the Hemingway App helpful in identifying areas of improvement in their writing, while 19% did not share this view. The majority response reflects the app's success in delivering actionable insights, likely through its emphasis on clarity, sentence structure, and grammar suggestions.

Challenges include difficulty interpreting technical terms in the app's feedback, time constraints during activities, or anxiety in adapting to a new tool. Strengths involve improved confidence in self-editing, enhanced understanding of grammatical structures, and greater ability to produce clear, concise sentences.

8. Please rate your level of agreement with the following statements regarding the integration of AI-powered tools in virtual English classes. Consider 4: strongly agree, 3: agree, 2: disagree, 1: strongly disagree.

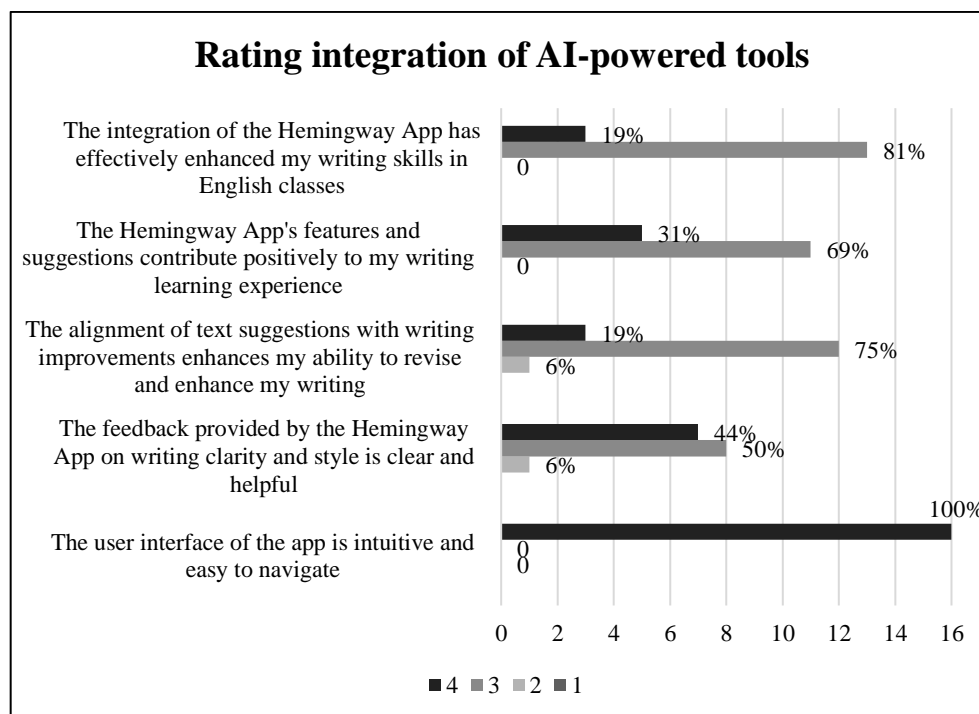
Table 12. Rating integration of AI-powered tools

Categories	Frequencies	Percentage
The user interface of the app is intuitive and easy to navigate		
1	0	0%
2	0	0%
3	0	0%
4	16	100%
The feedback provided by the Hemingway App on writing clarity and style is clear and helpful		
1	0	0%
2	1	6%
3	8	50%
4	7	44%
The alignment of text suggestions with writing improvements enhances my ability to revise and enhance my writing		
1	0	0%
2	1	6%
3	12	75%

4	3	19%
The Hemingway App's features and suggestions contribute positively to my writing learning experience		
1	0	0%
2	0	0%
3	11	69%
4	5	31%
The integration of the Hemingway App has effectively enhanced my writing skills in English classes		
1	0	0%
2	0	0%
3	13	81%
4	3	19%
Total		16 100%

Note. Elaborated by author

Figure 9. Rating integration of AI-powered tools



Note. Elaborated by author

Analysis and interpretation

Table 12 provides insights into students' perceptions of integrating AI-powered tools, specifically the Hemingway App, into virtual English classes. The

unanimous agreement 100% that the app's user interface is intuitive and easy to navigate highlights its accessibility and user-friendly design, which likely contributed to a seamless learning experience.

For feedback clarity and helpfulness, 44% of students rated this aspect as "strongly agree," and 50% as "agree," while 6% expressed some disagreement. This suggests that most participants valued the feedback provided by the app, though a small minority might have found it less relevant or challenging to implement. Regarding the alignment of text suggestions with writing improvement, 19% "strongly agreed," and 75% "agreed," while 6% disagreed. This indicates general satisfaction with the app's ability to enhance revision skills, though a few students may have required more tailored guidance.

The statement on whether the app's features contributed positively to the writing learning experience received 31% "strongly agree" and 69% "agree." This strong majority reflects the app's perceived effectiveness as a learning tool, though it highlights the potential for additional feature enhancements. Finally, 81% "agreed," and 19% "strongly agreed" that the Hemingway App effectively enhanced their writing skills. This reinforces its utility in supporting writing proficiency in a virtual learning context.

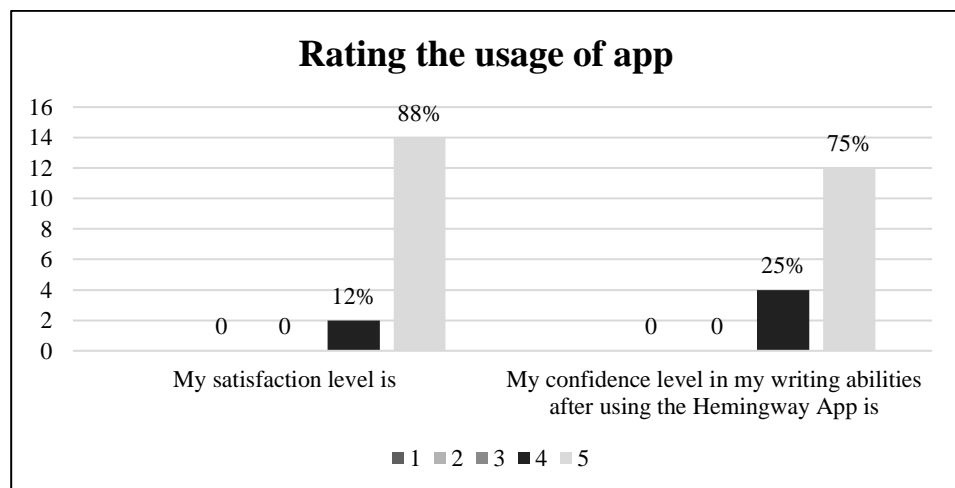
9. On a scale from 1 to 5, how satisfied are you with your overall experience with the app? Five is highest, 1 is lowest.

Table 13. Satisfaction with the app

Categories	Frequencies	Percentage
My satisfaction level is		
1	0	0%
2	0	0%
3	0	0%
4	2	12%
5	14	88%
My confidence level in my writing abilities after using the Hemingway App is		
1	0	0%
2	0	0%
3	0	0%
4	4	25%
5	12	75%
Total	16	100%

Note. Elaborated by author

Figure 10. Satisfaction with the app



Note. Elaborated by author

Analysis and Interpretation

It shows that the majority of students 88% rated their overall satisfaction with the Hemingway App as 5, indicating high satisfaction with its functionality

and impact on their writing experience. Only 12% rated their satisfaction at 4, suggesting minor reservations. Similarly, 75% of students expressed a high level of confidence in their writing abilities (rating 5), while 25% rated their confidence at 4, signaling notable improvement in self-assurance. It demonstrates that the app significantly contributed to both student satisfaction and their perceived growth in writing skills, further validating its effectiveness as a learning tool.

10. Which factors contributed most to your satisfaction or dissatisfaction?

In general, the factors that contributed most to the satisfaction with the Hemingway App include its user-friendly interface, the clear and helpful feedback it provided on various aspects of writing such as grammar and sentence fluency, and the overall improvement in writing skills. The app's intuitive design made it easy for students to navigate, while its real-time feedback allowed for immediate corrections and learning. Additionally, students appreciated the app's ability to enhance their confidence in writing, as they could see tangible progress over time.

On the other hand, some dissatisfaction was attributed to the lack of more personalized feedback for advanced writing issues, which could have catered better to individual needs. Additionally, a small number of students felt that while the app was helpful in addressing basic writing issues, it didn't provide enough in-depth guidance for more complex or nuanced writing challenges. Despite this, the general perception was largely positive, with most students benefiting from its use in their English writing development.

3.8. Lesson plans

The integration of technology in language learning offers innovative ways to enhance students' skills, making learning more interactive and effective. These lesson plans aim to leverage the Hemingway App, a writing tool designed to improve clarity, sentence structure, and overall readability, to support A2-level English learners in their writing development. Over four weeks, students will engage in structured activities that progressively build their writing skills, focusing on simplicity, fluency, and vocabulary enhancement.

This program has been designed with the needs of A2 learners in mind, prioritizing tasks that are both manageable and motivating. Each week is dedicated to a specific area of writing improvement, ensuring a gradual progression of skills. The first week introduces students to the Hemingway App and basic writing principles, building a foundation for the subsequent sessions. The second week focuses on sentence fluency, encouraging the use of active voice and concise sentence structures. The third week emphasizes vocabulary development and clarity, enabling learners to produce more precise and effective writing. Finally, the fourth week consolidates these skills through practical application and reflective activities.

These lesson plans combine technology-driven tools with traditional teaching methods to create a balanced and engaging learning experience. The ultimate goal is to equip students with the skills and confidence needed to communicate effectively in English, both in academic settings and beyond.

Table 14. Lesson plans

WEEKS	OBJECTIVES	METHODOLOGICAL COMPONENTS AND ACTIVITIES
<p>Week 1</p> <p>Introduction to Hemingway App and Basic Writing Concepts</p>	<p>Objective</p> <p>Familiarize students with the Hemingway App and reinforce fundamental writing skills.</p>	<p>Session 1: Orientation and Installation</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Introduction to the Hemingway App's purpose and features. ○ Hands-on tutorial: Installing and exploring the app interface. <p>Outcome</p> <p>Students understand the app's functionalities and navigate the interface confidently.</p> <p>Session 2: Writing Basics - Short Sentences and Grammar</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Importance of short sentences and basic grammar rules. ○ Writing Task: Compose 3-5 simple sentences on a given topic and check them on Hemingway. <p>Outcome</p> <p>Students recognize common errors and learn to correct them using the app.</p>
<p>Week 2</p> <p>Enhancing Sentence Fluency</p>	<p>Objective</p> <p>Develop fluency by reducing passive voice and avoiding overly complex sentences.</p>	<p>Session 1: Passive vs. Active Voice</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Examples of active and passive voice. ○ Writing Task: Rewrite five passive sentences into active ones and analyze them with the app. <p>Outcome</p>

		<p>Students understand and apply active voice in their writing.</p> <p>Session 2: Simplifying Complex Sentences</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Identifying and simplifying long, complex sentences. ○ Writing Task: Write a paragraph on a familiar topic (e.g., daily routine) and refine it using Hemingway. <p>Outcome</p> <p>Students produce more concise and clear sentences.</p>
<p>Week 3</p> <p>Improving Vocabulary and Clarity</p>	<p>Objective</p> <p>Expand vocabulary and ensure clarity in written communication.</p>	<p>Session 1: Vocabulary and Common Adverbs</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Overuse of adverbs and suggestions for stronger vocabulary. ○ Writing Task: Write 3-5 sentences using specific verbs instead of adverbs (e.g., “run quickly” → “sprint”). <p>Outcome</p> <p>Students use precise vocabulary to enhance writing clarity.</p> <p>Session 2: Clarity and Readability</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: The concept of readability and its importance in effective writing.

		<ul style="list-style-type: none"> ○ Writing Task: Write a short descriptive paragraph and adjust readability based on Hemingway's suggestions. <p>Outcome</p> <p>Students improve paragraph readability and structure.</p>
<p>Week 4</p> <p>Practical Application and Reflection</p>	<p>Objective</p> <p>Apply the acquired skills in extended writing tasks and reflect on progress.</p>	<p>Session 1: Writing a Short Story</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Writing Task: Compose a 100-word short story on a given topic (e.g., a memorable day). ○ Use Hemingway to refine and enhance the story. <p>Outcome</p> <p>Students integrate all learned skills in a cohesive piece of writing.</p> <p>Session 2: Reflection and Feedback</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Discussion: Share and discuss experiences using the Hemingway App. ○ Peer Review: Exchange and review peers' stories using the app's feedback as a guide. <p>Outcome</p> <p>Students reflect on their learning journey and gain constructive feedback from peers.</p>
<p>Assessment Criteria</p> <p>Improvement in sentence clarity, grammar, and vocabulary use.</p> <p>Enhanced ability to identify and correct errors independently.</p>		

Demonstrated confidence and consistency in applying writing skills to varied tasks.

Materials Needed

Computers or mobile devices with the Hemingway App installed.

Sample texts for editing and refining.
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Writing prompts for each session.

Note. Elaborated by author

Week 1: Introduction to the Hemingway App and Writing Basics

Students are introduced to the Hemingway App, its features, and its purpose.

Activities focus on understanding readability metrics and identifying basic writing principles such as avoiding overly complex sentences and minimizing errors.

Learners practice revising sample texts using the app to familiarize themselves with its feedback. By the end of the week, students complete a simple paragraph-writing task, applying the tool's suggestions to improve clarity and conciseness.

Week 2: Enhancing Sentence Fluency and Active Voice

This week emphasizes sentence fluency and the use of active voice.

Learners analyze texts to identify passive constructions and rephrase them into active voice. Guided practice sessions involve writing short descriptive paragraphs, followed by editing with the Hemingway App to refine fluency and sentence structure. Students complete a task focusing on transitions and flow, fostering coherence in their writing.

Week 3: Expanding Vocabulary and Achieving Clarity

Vocabulary development and clarity take center stage in Week 3. Students engage in exercises to replace vague words with precise vocabulary and eliminate

redundant phrases. Writing tasks challenge learners to create clear and concise narratives. The Hemingway App is used to highlight overly complex words and provide suggestions for simpler alternatives. Therefore, students will submit a narrative paragraph for peer review and app feedback.

Week 4: Consolidation and Practical Application

The final week consolidates all skills learned. Students complete a real-world writing project, such as a short email or blog post. Peer editing and self-review with the Hemingway App are integral, fostering reflection on their progress. A final session allows learners to compare their initial and final writing pieces, celebrating improvements and building confidence.

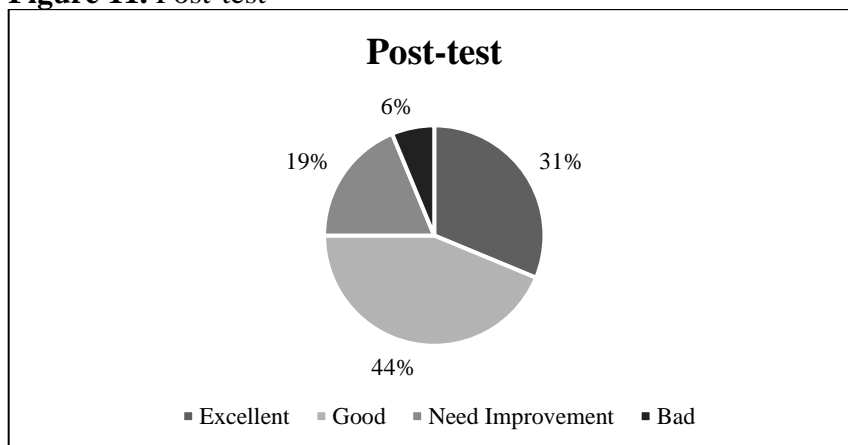
3.9. Post test

Table 15. Post-test

Categories	Frequencies	Percentage
Excellent	5	31%
Good	7	44%
Need Improvement	3	19%
Bad	1	6%
Total	16	100%

Note. Elaborated by author

Figure 11. Post-test



Note. Elaborated by author

Analysis and interpretation

The post-test results reveal that the majority of the 16 participants demonstrated improved writing proficiency. Specifically, 31% achieved an "Excellent" level, reflecting a strong command of writing skills. Additionally, 44% were categorized as "Good," showcasing a solid understanding and effective application of writing principles.

A smaller proportion, 19%, still "Need Improvement," indicating that while progress was made, further practice and guidance are required for these learners to reach higher proficiency levels. Only 6% fell into the "Bad" category, suggesting minimal progress or challenges in adapting to the intervention.

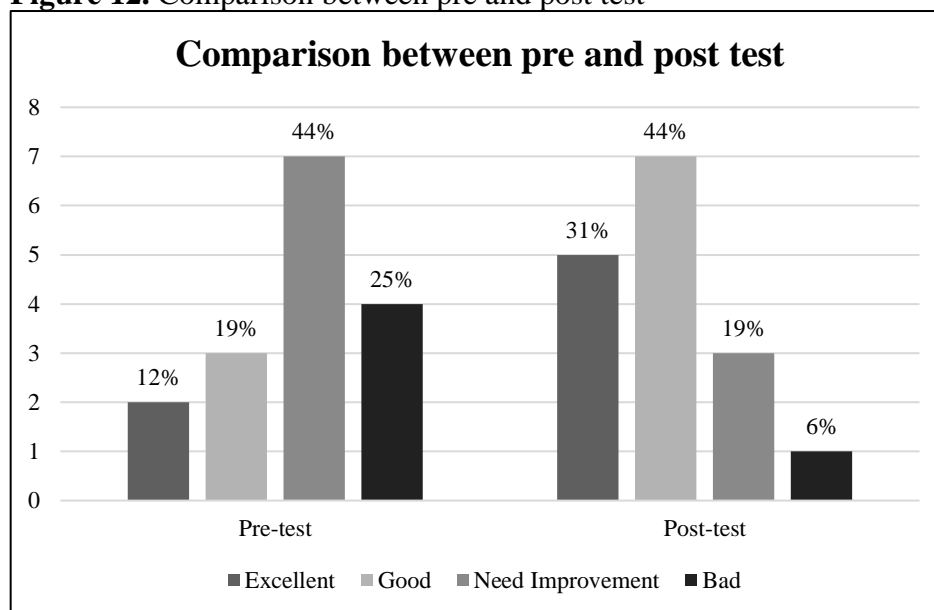
Overall, the distribution of scores in the post-test highlights significant advancements among the learners, emphasizing the positive outcomes of the intervention and the potential of targeted tools like the Hemingway App in enhancing writing skills.

Comparison between pre and post test

Table 16. Comparison between pre and post test

Categories	Frequencies	Percentage
Pre-test		
Excellent	2	12%
Good	3	19%
Need Improvement	7	44%
Bad	4	25%
Post-test		
Excellent	5	31%
Good	7	44%
Need Improvement	3	19%
Bad	1	6%
Total	16	100%

Note. Elaborated by author

Figure 12. Comparison between pre and post test

Note. Elaborated by author

Analysis and interpretation

The pre-test results reveal that only 12% of the students achieved an Excellent level of performance, while 19% fell into the Good category. A substantial proportion, 44%, were categorized as Needing Improvement, and 25% of the students performed at a Bad level. Following the intervention, the post-test results demonstrate a significant improvement in student performance. The percentage of students achieving an Excellent level rose markedly from 12% to 31%. Similarly, those in the Good category increased from 19% to 44%, showcasing the positive effect of the intervention on a substantial portion of the students. Conversely, the proportion of students Needing Improvement dropped from 44% to 19%, while those in the Bad category experienced a notable decline from 25% to just 6%. These shifts highlight the intervention's success in lifting

students from lower-performing categories and advancing them to higher levels of competency.

These results illustrate the effectiveness of the intervention. The significant reduction in the Bad and Need Improvement categories reflects the strategy's impact in addressing the challenges faced by lower-performing students. Furthermore, the increase in the Excellent and Good categories indicates that the intervention not only mitigated deficiencies but also fostered higher achievement among the students.

3.10. Limitations

Despite the positive outcomes observed in the study, some limitations may have influenced the results and generalizability of the findings. For instance, the small sample size of 16 participants restricts the ability to make broader inferences about the effectiveness of the Hemingway App for all A2-level EFL learners. A larger and more diverse sample could provide more comprehensive insights into the app's impact across varying learner demographics and educational contexts of Ecuadorian system.

Moreover, the study was conducted over a relatively short period of four weeks. While this timeframe was sufficient to observe improvements, it may not fully capture the long-term effects of using the Hemingway App on writing proficiency. Extended research in futures studies could explore how sustained usage influences deeper learning outcomes and retention of writing skills and complement the results of this research.

3.11. Answer to hypothetical questions

The research explored the hypothetical question, "How does the implementation of the Hemingway App impact the development of writing skills among A2-level students at the Language Center of the University of Babahoyo?" The findings indicate that the integration of the Hemingway App positively contributed to enhancing students' writing skills by addressing key areas such as grammar, sentence clarity, and coherence.

Through pretest and posttest evaluations, it was evident that the use of the Hemingway App supported measurable improvements. Initially, only 12% of students demonstrated excellent writing proficiency, whereas posttest results showed an increase to 31%. Similarly, students in the "need improvement" and "bad" categories decreased from 44% and 25%, respectively, to 19% and 6%, highlighting the app's effectiveness in elevating overall writing proficiency.

Survey responses revealed that students found specific features of the Hemingway App, such as grammar corrections and word recognition, particularly helpful. Moreover, 81% of participants reported that the feedback provided by the app was instrumental in identifying and addressing their writing weaknesses. The app's user-friendly interface and real-time suggestions created an engaging learning environment, fostering greater willingness to perform writing tasks.

3.12. New findings

The research uncovered new findings that provide insights into the effectiveness of integrating the Hemingway App as a writing tool for A2-level students. One significant discovery was the app's ability to enhance specific writing

skills, such as grammar accuracy and sentence clarity. The posttest results showed a notable increase in students achieving “excellent” and “good” writing proficiency, demonstrating the app's positive impact on overall performance.

Another key finding was the role of the app’s feedback feature in fostering self-directed learning. Survey responses revealed that participants considered the app’s feedback helpful for identifying areas of improvement. This indicates that the app not only corrected mistakes but also encouraged students to reflect on their writing, thereby promoting autonomous learning habits.

Furthermore, the study highlighted the importance of user experience in integrating AI-powered tools. Most participants rated the app’s interface as intuitive and easy to navigate, which contributed to high levels of satisfaction and willingness to engage with the writing tasks. This underscores the value of designing user-friendly educational tools to maintain student engagement.

Conclusions

The research findings revealed that the Hemingway App is culturally and contextually relevant for A2-level students at the University of Babahoyo. The participants demonstrated a positive reception to the app, attributing its straightforward interface and feedback system as key factors in addressing their specific writing challenges, such as grammar and sentence fluency. The app's adaptability to varying language proficiency levels aligns with the educational context, enhancing its applicability. Also, technology-supported interventions must consider students' access to digital tools and their familiarity with such platforms, emphasizing the need for targeted preliminary training.

The structured four-week intervention proved effective in improving students' writing skills, as evidenced by the posttest results, where 75% of participants achieved "good" or "excellent" ratings. The app facilitated incremental progress through consistent practice and feedback. Key aspects of the intervention, such as gradually introducing features and aligning tasks with the curriculum, ensured sustained student engagement. This structured approach highlighted the importance of balancing technology use with traditional teaching methods, as it provided a comprehensive framework for skill development.

The study supports the integration of tools like the Hemingway App as part of regular writing instruction, recommending their use for fostering self-assessment and autonomous learning. Future implementations should prioritize accessibility, provide training on app usage, and incorporate activities personalized to specific language levels. This approach will maximize the benefits of technology-supported

interventions, addressing challenges such as reliance on internet connectivity and ensuring inclusivity in diverse learning environments.

Recommendations

Educational institutions should ensure that any technology-supported intervention, such as the Hemingway App, is culturally and contextually relevant to the students' needs and backgrounds. Prior to implementation, conducting a needs analysis and assessing students' access to technology and digital literacy skills can enhance the intervention's effectiveness and inclusivity.

Teachers should adopt a phased and structured approach to integrating tools like the Hemingway App into writing instruction. This includes aligning app-based activities with the existing curriculum, providing step-by-step guidance for students, and combining technology with traditional teaching practices to create a balanced learning environment that fosters sustained engagement and skill development.

To maximize the benefits of tools like the Hemingway App, educators should promote self-assessment and autonomy among learners by incorporating technology-supported tasks into regular instruction. Providing training sessions for both students and teachers on effective app usage, along with designing exercises tailored to specific language proficiency levels, can ensure that such interventions are accessible, practical, and impactful across diverse educational contexts.

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APPENDIX F

Appendix 6. Written consent and instruments

Survey to assess student's perceptions

Informed Consent

This questionnaire is intended for English students of the Technical University of Babahoyo. The study aims to examine the perceptions and experiences of A2-level EFL students regarding the usage of the Hemingway App to improve writing skills. All responses will be kept confidential and used solely for research purposes. Your participation is voluntary. Do you agree to participate in this study?

- Yes No

Section I: General Information

11. Age: _____

12. Gender:

- Male Female Other

13. City where you live: _____

14. Career: _____

15. Semester: _____

Section 2: Using the Hemingway App

16. How were your initial impressions of the Hemingway App?

- Positive Negative

17. Did your first impressions change over the course of the intervention?

- Yes No

18. If so, in which ways? _____

19. Please rate the usage of the Hemingway App in your English classes.

Consider that 4 is the highest level, while 1 is the lowest.

AI Tool				
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1. The Hemingway App				
2. The time used to complete the activity				
3. The internet usage during the activity				
4. The willingness to perform the task				

Section 3: User Experience and Perceptions

20. Did you experience any anxiety or nervousness before or during the app?

- Yes No

21. Reflecting on the 4-week period, how would you rate your perceived improvement in English writing skills?

- Yes No

22. What specific features of the Hemingway App do you find most helpful for improving your writing?

- Grammar Expressions Phrasing

- Word recognition Production Sentence Fluency

23. Do you find the feedback provided by the Hemingway App helpful for identifying areas of improvement in your writing?

- Yes No

24. Were there any specific challenges or strengths you have? Describe

25. Please rate your level of agreement with the following statements regarding the integration of AI-powered tools in virtual English classes.

Consider 4: strongly agree, 3: agree, 2: disagree, 1: strongly disagree.

Statement				
1. The user interface of the app is intuitive and easy to navigate.				

2. The feedback provided by the Hemingway App on writing clarity and style is clear and helpful.				
3. The alignment of text suggestions with writing improvements enhances my ability to revise and enhance my writing.				
4. The Hemingway App's features and suggestions contribute positively to my writing learning experience.				
5. The integration of the Hemingway App has effectively enhanced my writing skills in English classes.				

26. On a scale from 1 to 5, how satisfied are you with your overall experience with the app?


Statement	1	2	3	4	5
My satisfaction level is:					
My confidence level in my writing abilities after using the Hemingway App is:					

27. Which factors contributed most to your satisfaction or dissatisfaction?

APPENDIX G

Description: This appendix contains the lesson plans used for the Proposal. Two for the Pre-test and Post-test, and two for the objectives and activities for each group.

Appendix 7. Lesson plans

 UNIVERSIDAD BOLIVARIANA DEL ECUADOR			
LESSON PLANS			
EXPLORING THE IMPACT OF THE HEMINGWAY APP ON A2-LEVEL EFL UNIVERSITY STUDENTS' WRITING SKILLS.			
Teacher's Name	Rina Rosalinda Castañeda Junco	Start & end dates:	Week: 4 weeks
Area/Subject:	English as a Foreign Language	Grade/Course:	A2 EFL

WEEK # 1		
OBJECTIVES	METHODOLOGICAL STRATEGIES, ACTIVITIES AND TECHNIQUES	RESOURCES
<p>Familiarize students with the Hemingway App and reinforce fundamental writing skills.</p>	<p style="text-align: center;">INTRODUCTION TO HEMINGWAY APP AND BASIC WRITING CONCEPTS</p> <p>Session 1: Orientation and Installation</p> <p>Activity</p> <ul style="list-style-type: none"> o Introduction to the Hemingway App's purpose and features. o Hands-on tutorial: Installing and exploring the app interface. <p>Outcome Students understand the app's functionalities and navigate the interface confidently.</p> <p>Session 2: Writing Basics - Short Sentences and Grammar</p> <p>Activity</p> <ul style="list-style-type: none"> o Mini-lesson: Importance of short sentences and basic grammar rules. o Writing Task: Compose 3-5 simple sentences on a given topic and check them on Hemingway. <p>Outcome Students recognize common errors and learn to correct them using the app.</p>	<ul style="list-style-type: none"> • Computers or mobile devices with the Hemingway App installed. • Sample texts for editing and refining. • Writing prompts for each session.

WEEK # 2

OBJECTIVE	METHODOLOGICAL STRATEGIES, ACTIVITIES AND TECHNIQUES	RESOURCES
<p>Develop fluency by reducing passive voice and avoiding overly complex sentences.</p>	<p>ENHANCING SENTENCE FLUENCY</p> <p>Session 1: Passive vs. Active Voice</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Examples of active and passive voice. ○ Writing Task: Rewrite five passive sentences into active ones and analyze them with the app. <p>Outcome</p> <p>Students understand and apply active voice in their writing.</p> <p>Session 2: Simplifying Complex Sentences</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Identifying and simplifying long, complex sentences. ○ Writing Task: Write a paragraph on a familiar topic (e.g., daily routine) and refine it using Hemingway. <p>Outcome</p> <p>Students produce more concise and clear sentences.</p>	<ul style="list-style-type: none"> ● Computers or mobile devices with the Hemingway App installed. ● Sample texts for editing and refining. Writing prompts for each session.

WEEK # 3		
OBJECTIVE	METHODOLOGICAL STRATEGIES, ACTIVITIES AND TECHNIQUES	RESOURCES
Expand vocabulary and ensure clarity in written communication	<p style="text-align: center;">IMPROVING VOCABULARY AND CLARITY</p> <p>Session 1: Vocabulary and Common Adverbs</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: Overuse of adverbs and suggestions for stronger vocabulary. ○ Writing Task: Write 3-5 sentences using specific verbs instead of adverbs (e.g., “run quickly” → “sprint”). <p>Outcome</p> <p>Students use precise vocabulary to enhance writing clarity.</p> <p>Session 2: Clarity and Readability</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Mini-lesson: The concept of readability and its importance in effective writing. ○ Writing Task: Write a short descriptive paragraph and adjust readability based on Hemingway's suggestions. <p>Outcome</p> <p>Students improve paragraph readability and structure.</p>	<ul style="list-style-type: none"> ● Computers or mobile devices with the Hemingway App installed. ● Sample texts for editing and refining. Writing prompts for each session.

WEEK # 4		
OBJECTIVE	METHODOLOGICAL STRATEGIES, ACTIVITIES AND TECHNIQUES	RESOURCES
Apply the acquired skills in extended writing tasks and reflect on progress.	<p style="text-align: center;">PRACTICAL APPLICATION AND REFLECTION</p> <p>Session 1: Writing a Short Story</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Writing Task: Compose a 100-word short story on a given topic (e.g., a memorable day). ○ Use Hemingway to refine and enhance the story. <p>Outcome</p> <p>Students integrate all learned skills in a cohesive piece of writing.</p> <p>Session 2: Reflection and Feedback</p> <p>Activity</p> <ul style="list-style-type: none"> ○ Discussion: Share and discuss experiences using the Hemingway App. ○ Peer Review: Exchange and review peers' stories using the app's feedback as a guide. <p>Outcome</p> <p>Students reflect on their learning journey and gain constructive feedback from peers.</p>	<ul style="list-style-type: none"> • Computers or mobile devices with the Hemingway App installed. • Sample texts for editing and refining. Writing prompts for each session.

APPENDIX H

Description: The chart below contains the schedule of the activities of the Research Proposal.

Appendix 8. Schedule

EXPLORING THE IMPACT OF THE HEMINGWAY APP ON A2-LEVEL EFL UNIVERSITY STUDENTS' WRITING SKILLS.											
ACTIVITIES	2024										
	February	March	April	May	June	July	August	September	October	November	December
Presentation of the proposal.											
Chapter 1											
Pre-test											
Presentation of diagnostic report											
Survey											
Chapter 2											
Application of program											
Post-test											
Chapter 3											
Corrections											
Presentation of final research											