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## TESIS DE GRADO

The Integration of the Artificial Intelligence Tool ChatGPT into  
the Development of English Writing Skills in Secondary Education

Matey, K; López, M; Rizo, R.

### **Tutor(a)**

Lic. Sughey del Carmen Murillo Alaniz

### **Asesor(a)**

Lic. Meyling Lisseth Dávila Ortega

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Recinto Universitario “Leonel Rugama”

Departamento de Ciencias de la Educación y Humanidades

La integración de la herramienta de inteligencia artificial ChatGPT en el desarrollo de las habilidades de escritura en inglés en la educación secundaria

Trabajo de investigación para optar al grado de  
Licenciada en Ciencias de la Educación con Mención en Inglés

**Autoras**

Kristin Arcelly Matey López

Marilyng López Espinoza

Rosa Ivania Rizo Rivera

**Tutor(a)**

Lic. Sugey del Carmen Murillo Alaniz

**Asesor(a)**

Licenciada Meyling Lisseth Dávila Ortega

Noviembre, 2025





## **Dedication**

This thesis is dedicated mainly to our beloved God, the giver of life and health, who has guided us by giving us wisdom and strength to move forward throughout this important process in our lives. To our dear parents, who with their love, patience, and sacrifice have given us their unconditional support during all our studies, and never doubted us, this achievement is a reflection of their dedication and effort.

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### CARTA AVAL DEL TUTOR

Estelí, 03 de diciembre de 2025

Por medio de la presente, en calidad de tutora del trabajo de modalidad de graduación titulado: **"The Integration of Artificial Intelligence tool ChatGPT into the Development of English Writing Skills in Secondary Education"**, elaborado por las estudiantes:

Kristin Arcelly Matey López,

N° de carné: 21501314

Marilyng López Espinoza,

N° de carné: 21502964

Rosa Ivania Rizo Rivera,

N° de carné: 21506253

Estudiantes de la carrera de **Ciencias de la educación con mención en inglés**, hago constar que he brindado acompañamiento académico y metodológico durante el desarrollo de dicho trabajo, cumpliendo con lo establecido en el cronograma y en la normativa institucional vigente. Asimismo, avalo que el trabajo cumple con los requisitos formales, científicos y éticos exigidos por la Universidad, en cumplimiento de la modalidad de graduación correspondiente.

Atentamente,

Sugrey del Carmen Murillo Alaniz

Orcid: 0009-0006-4529-7727

UNAN-Managua/CUR-Estelí

CC/

## **Abstract**

This study examines how the artificial intelligence tool ChatGPT can support the development of English writing skills in eleventh-grade students in a Nicaraguan secondary school. Although English is taught for several years, many students still struggle with written production, showing difficulties in grammar, vocabulary, structure, and coherence. These challenges are influenced by limited resources, reduced personalized feedback, and restricted opportunities for independent practice. Considering these conditions this research explored whether ChatGPT could serve as a complementary tool to enhance students' writing performance in a pedagogical and responsible way. The study followed a qualitative approach using observation, student interviews, and teacher interviews to understand the experiences, perceptions, and educational implications of integrating ChatGPT into English writing instruction. The findings revealed three main areas of difficulty among students: linguistic and grammatical limitations, spelling and structural problems, and cognitive or attitudinal barriers such as insecurity and low autonomy. When interacting with ChatGPT, most students improved their texts, expanded their vocabulary, and benefited from real-time feedback. However, the study also identified risks including overreliance on the tool, lack of critical analysis, or the possibility of plagiarism, highlighting the essential role of teacher guidance. This research concludes that ChatGPT can be a valuable support for writing development when used ethically and under teacher supervision. It offers insights for educators and institutions seeking to integrate AI tools responsibly and provides recommendations for designing writing activities that combine technological assistance with reflective learning.

**Keywords:** ChatGPT, Artificial Intelligence, English Instruction, English Writing, Secondary Schools.

## Resumen

Este estudio examina cómo la herramienta de inteligencia artificial ChatGPT puede apoyar el desarrollo de habilidades de escritura en inglés en estudiantes de undécimo grado en Nicaragua. Aunque se enseña durante varios años, muchos estudiantes aún tienen dificultades al redactar, mostrando dificultades en gramática, vocabulario, estructura y coherencia. Estos desafíos están influenciados por recursos limitados, menor retroalimentación personalizada y oportunidades limitadas para la práctica independiente. Dado que, esta investigación exploró si ChatGPT podría servir como una herramienta complementaria para mejorar la escritura de los estudiantes de manera pedagógica y responsable. El estudio siguió un enfoque cualitativo, utilizando observación, entrevistas a estudiantes y docentes para comprender las experiencias, percepciones e implicaciones educativas de integrar esta herramienta. Los resultados revelaron tres áreas principales de dificultad entre los estudiantes: limitaciones lingüísticas y gramaticales, problemas ortográficos y estructurales, y barreras cognitivas o actitudinales como inseguridad y baja autonomía. Al interactuar con ChatGPT, la mayoría de los estudiantes mejoraron sus textos, ampliaron su vocabulario y se beneficiaron de la retroalimentación en tiempo real. Sin embargo, el estudio también identificó riesgos, como dependencia excesiva, falta de análisis crítico o posibilidad de plagio, destacando el papel esencial de la orientación docente. Se concluye que, ChatGPT puede ser un apoyo valioso para el desarrollo de la escritura cuando se utiliza de forma ética y bajo supervisión docente. Ofrece ideas para educadores e instituciones que buscan integrar herramientas de IA de forma responsable y ofrece recomendaciones para diseñar actividades de escritura que combinen asistencia tecnológica con aprendizaje reflexivo.

**Palabras Clave:** ChatGPT, Inteligencia Artificial, Enseñanza del Inglés, Redacción en inglés, Escuelas Secundarias.

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## 1. Introduction

In recent years, the development of technology has brought significant changes in education, especially with the integration of the Artificial Intelligence (AI) as a teaching tool. In this context, AI tools such as ChatGPT have started to be included into teaching and learning processes, giving new opportunities to the improvement of communication abilities and promote more interactive and independent learning environments.

Between the language abilities, writing in English is one of the most complex, since it requires not only competence in grammar and vocabulary but also the ability to organize ideas, articulate thoughts clearly, and adapt speech to different communicative contexts and situations. According to (Hyland K. , 2003) writing is a communicative and cognitive process that allows learners “to create, structure, and articulate thoughts clearly in written form, using appropriate grammar and vocabulary.”

In secondary education in Nicaragua, writing texts in English still represents one of the hardest challenges for students. Even when they learn English for many years at school, these difficulties are still present in grammatical precision, vocabulary variety, and textual coherence. These issues are due to factors like limited access to technological and pedagogical resources in the classroom, insufficient independent feedback, and the limitations of the structure of many educational institutions.

“The acquisition of a second language depends on various individual and contextual elements, such as motivation teaching approaches and the effectiveness of communicative interaction” (Ellis, 2008). In consequence the difficulties within the Nicaraguan education context can hinder the full development of writing skills, emphasizing the necessity for more innovative and creative teaching strategies.

In this context, the present research titled “The integration of the artificial intelligence tool ChatGPT into the development of English writing skills in secondary education” aimed at exploring how the artificial Intelligence tool ChatGPT can support the improvement of writing skills in eleventh-grade students. The specific objectives focused on recognizing the main difficulties students face when writing in English, while promoting an ethical and responsible use of this tool in students, and suggesting a combined approach for its effective integration into English writing lessons.

As (Kasneci et al., 2023) explain in their study that ChatGPT has the ability to give feedback in real time, enhance coherence and cohesion, and present writing examples that improve student's independence and confidence during the writing process.

This research carried out a qualitative method, in order to understand the educational significance and teaching implications of using artificial intelligence in real classroom contexts. In this sense, (Williamson & Eynon, 2020) emphasize that "incorporating AI into education requires ethical, transparent and pedagogically guided practices that encourage critical thinking and significant learning".

The present thesis is organized in several sections, the first chapter presents the theoretical framework, focused on the conceptual principles about the acquisition of a foreign language, writing instruction, educational technologies, and the role that artificial intelligence plays in education. The second part details the methodological design, explaining the research strategy, methods, techniques, and the instruments applied for the collection of data. Finally the analysis of results, conclusions, and the recommendations offers a comprehensive understanding about how the integration of chatGPT may contribute as an innovative pedagogical tool to enhance English writing development in secondary education.

## **2. Literature Review**

### **2.1. International Background**

**2.1.1.** A study was conducted by (Mahapatra, 2024) aimed to examine the influence of ChatGPT on the educational feedback in the academic writing of ESL (English as a Second Language) students. The study used a mixed-method approach, and combined written tests and focus groups discussions. Meanwhile the results showed a significant progress in the writing skills of students, especially in the organization of texts, coherence, and grammatical precision. As a result, the study concluded that the artificial intelligence tool ChatGPT, can be successfully integrated into writing lessons with a large number of students, even though the support provided by teachers is always necessary to obtain better results.

This study is associated with the present research because it offers important evidence about the advantages of using ChatGPT in writing lessons. It specifically shows that the tool is useful in improving the writing skills of ESL students, especially with the appropriate guidance of teachers. Furthermore, the results emphasize the importance of the combination of technological tools with adequate educational mediation to obtain significant learning results.

**2.1.2.** A study developed in Hong Kong by (Woo et al., 2024), analyzed the impact of AI generated texts, especially with ChatGPT; on secondary school student's writing abilities. This study used a quantitative experimental approach by collecting student's perceptions and opinions. Furthermore, the findings showed a significant progress in student's ability to structure ideas, use academic vocabulary, and express their thoughts in written way. However, some students decided to just copy the responses created by AI, which limited the development of the critical thinking abilities

This context gives clear proof about the inclusion of ChatGPT among secondary students. Its school context and the age of their participants are similar to the sample in the present study, which improves its importance and facilitates a comparison of the results. In addition, the study recognizes both the advantages and challenges of integrating AI in writing education, for example, improvement in structuring ideas, and the dangers for students to become too dependent on the

tools' generated responses. Consequently, the study offers recommendations for the effective incorporation of ChatGPT into writing education while promoting critical thinking.

**2.1.3.** A study by (Bibi & Atta, 2024) in Pakistan investigated the ways in which students experienced the use of ChatGPT as a support tool for English writing. Applying surveys and semi structured interviews, the study collected information from 110 students of a university using both qualitative and quantitative methods in a mixed design. The results showed improvements in student's grammar, textual organization, and vocabulary and they indicated that ChatGPT helped them in overcoming creative obstacles. Even so, some students were worried about depending too much on the tool, since that could limit their independence.

Although, the population where university students, the results help us to understand how ChatGPT can contribute to the improvement of English writing skills. In addition, the findings provide theoretical justification for using the tool and help establish suggestions for its implementation with younger or lower-level students, such as those in secondary education. In this way, the research gives useful perspectives for integrating ChatGPT effectively while encouraging student autonomy and critical thinking.

**2.1.4.** The study developed by (Sapan & Uzun, 2024) in Turkey, Investigated the influence of incorporating ChatGPT into English lessons on the development of high school student's writing and vocabulary skills. For five weeks, a quasi-experimental design was used, in which the experimental group received instructions supported by ChatGPT, while the control group continued with traditional teaching methods. The results indicated that there were no significant differences in writing and vocabulary outcomes, even though, students recognized the positive impact of ChatGPT on motivation and creativity, they also expressed worries about become too dependent on the tool and maintaining academic honesty.

This study is relevant because it analyzes the impact of the incorporation of ChatGPT in secondary school classroom. Although, the result did not show important differences in writing and vocabulary when compared to traditional methods, the finding showed that students felt

motivated and engaged when working with ChatGPT. For this reason, it supports the present research and provides useful ideas about how integrating AI into English teaching can encourage writing development and meaningful participation.

**2.1.5.** (Bantugan & Khup, 2025) explored in the Philippines how ChatGPT and others AI writing tools, can impact English teaching in secondary schools, as well as the honest implications of its use. The study used a qualitative method gathering information from students and teachers, through the use of interviews, classroom observations, and texts analysis. The findings indicated that ChatGPT helped students to be more creatives, improve grammar and organize their ideas in a better way, but teachers were preoccupied about plagiarism in students and the lack of supervision from teachers, emphasizing the importance of an ethical and educational assistance.

This study allows us to examine the use of ChatGPT in education by emphasizing its benefits, and also the ethical and educational challenges involved. It provides valuable information for evaluating the use of AI tools in education, which will be considered in the present research project.

## **2.2.National Background**

**2.2.1.** A study in Nicaragua, developed by (Otero Escorcia, 2024) examined how generative AI tools, such as ChatGPT, can be implemented in learning methods to support 21st-century skills in secondary education. A qualitative approach was used for this study, by the analysis of documents and teaching practices observations in a private school. The study concluded that artificial intelligence may support the development of essential abilities, such as creativity, solving of problems, and critical thinking. However, the study also identified some challenges, such as unequal access to the tool and the importance to think about the ethical problems when using these technological tools in schools.

The research demonstrated the great support that Artificial Intelligence can provide for secondary education. Even though, the study was not specifically about writing skills, it helps explain how AI tools like ChatGPT can be included into the classrooms to develop important skills, such as writing in English. In addition it also helps us to examine the main challenges present in the Nicaraguan educational context, especially the limited access to technological resources within schools.

**2.2.2.** The research developed by (Gómez García et al., 2024) at Universidad Católica Redemptoris Mater in Nicaragua explored the influence of Artificial Intelligence tools such as ChatGPT in the quality and effectiveness of argumentative texts written by university students. This study used a mixed-methods approach, including surveys and interviews involving teachers and students from three universities in Nicaragua in the first semester of 2024. According to the study AI helps improve grammar, text coherence and idea organization in argumentative texts. At the same time, the study also identified the need to use AI carefully to prevent excessive dependence on AI

This research helps us reflect on the benefits of using ChatGPT in writing. Although, the context was university level and focused on argumentative texts, it motivates us to explore whether this tool can also be effective in lower educational levels such as secondary school and with simpler types of texts. It also guides us to promote that conscious, reflective, and formative use of artificial intelligence.

**2.2.3.** The article developed by (Celedón Lacayo et al., 2024) published in the Revista Electrónica de Conocimientos Saberes y Prácticas of URACCAN, aimed to analyze the impact of ChatGPT in the educational field of a systematic literature review. The study collected and examined fifty-seven academic documents published between 2022 and 2023 from databases such as ERIC, SCIELO, EBSCO, among others. The research concluded that ChatGPT can be useful to support online tutoring, teacher development, and academic assistance as long as its use is guided ethically and responsibly supervised by teachers.

This context is important because it provides a clear understanding about the advantages and challenges of integrating ChatGPT into education. This allows us, to consider the role of teachers in directing students in the appropriate use of this tool, especially for English writing at the secondary education. The article also mentions that ChatGPT's impacts in the learning process, is influenced by the context and the educational objectives of institutions.

### 3. Problem Statement

Why despite receiving instruction in English for many years, many Nicaraguan secondary students still have difficulty writing in this language? This situation not only impacts their academic progress, as for them is hard to articulate their written ideas clearly and demonstrate what they have learned, but it also limits their chances in a world where English is becoming increasingly essential to access scholarships, university studies, and employment opportunities.

In secondary schools in Nicaragua, many students face difficulties in writing in English, whether composing texts or even when they have to write basic sentences. This is evident in grammatical mistakes, limited vocabulary, and inaccurate texts. Even students who are able to read and speak the language quite well, like certain eleventh-grade students, they still face difficulties when writing fluently, clearly, and accurately.

As a result, in recent years, new technological tools such as ChatGPT, have started to be integrated into education. ChatGPT is a model of Artificial Intelligence with many useful abilities, among the most relevant are: generating text, correcting written expressions, expanding vocabulary, and providing writing examples instantly. Its integration into different educational contexts has demonstrated important advantages, especially in improving student's writing skills.

However, in the Nicaraguan context, it has not been widely explored how ChatGPT could be effectively integrated specifically into English teaching instruction in secondary education, implementing ChatGPT in classrooms to address English writing problems is an opportunity that must be carefully studied to determine whether it can truly serve as a complementary and beneficial educational resource in the classrooms

#### **4. Justification**

This study emerged because of the need to explore new strategies to improve English writing abilities in secondary school students in Nicaragua, and especially in rural areas where educational resources are often limited. Despite students receive English lessons for many years, some of them still struggle to write clearly and grammatically correct in this language. This situation has been observed in a Nicaraguan secondary school where eleventh-grade students, despite demonstrating a good level on reading comprehension and oral communication, continue to have difficulties when it comes to writing in English.

The present study is focused especially on the writing skills of secondary Nicaraguan students, since this represents one of the hardest challenges for many of them. The writing ability is not just about learning or applying grammar rules, but it also involves structuring ideas in a clear and organized way, using the adequate vocabulary, and sharing messages coherently. As a result it is fundamental the support of writing skills to achieve a successful communication in English at this secondary Nicaraguan school.

The exploration of the use of technological tools such as ChatGPT is essential, as it offers an accessible method to improve students writing abilities; this tool is able to suggest vocabulary, correct grammatical errors and provide written examples in real time. In settings where educational resources are limited or there is insufficient personalized support, ChatGPT serves as a useful and beneficial resource.

This research is relevant because it offers practical points of view tied to the experiences of the Nicaraguan secondary students, encouraging the responsible and honest use of technological resources as a beneficial support in education. It also discusses a present need, supporting written communication in English and preparing students for academic and professional environments that demand a strong understanding of the language.

This work will also contribute to new knowledge, as there is still a lack of local research that examines the role of artificial intelligence in English learning within Nicaraguan secondary schools. The findings may serve as a reference for teachers, school leaders, and future researchers interested in integrating digital tools into the classroom in a pedagogical and context appropriate way. In summary, this research is justified by its aim to improve a key language skill through a modern, accessible, and useful tool, offering real and applicable contributions to the current educational context.

## **5. Research Objectives**

### **5.1. General Objective**

To analyze how the use of the artificial intelligence tool ChatGPT can support eleventh-grade students of a secondary school in developing their English writing skills.

### **5.2. Specific Objectives**

1. To identify the main difficulties students face when writing texts in English
2. To promote the ethical and responsible use of ChatGPT as an educational tool in English writing activities
3. To propose a combined approach for the integration of ChatGPT into English writing lessons

## 6. Limitations of the Study

This study faced some limitations that must be considered when interpreting the results; first, the investigation was conducted in a single private secondary school in Estelí with a small group of 16 students, which limits the generalization of the findings. There are distinct characteristics of the school, such as its access to resources, student profile, and teaching conditions, this may not represent other educational contexts. Therefore, the results mainly describe the experience of just one specific setting rather than offering a general view of English learning supported by ChatGPT.

Another limitation was the technological conditions required for the implementation of the tool. Although ChatGPT served as a valuable pedagogical assistant, not all schools in Nicaragua have the same access to stable internet connections, digital services or the necessary instruction/preparation to integrate this type of technology properly.

Besides, the integration of artificial intelligence in education remains a new and evolving practice within the national context; both teachers and students are still developing and adapting their digital competencies. The absence of prior experience with AI tools could have affected how participants interacted with ChatGPT and how much benefit they obtained from it.

Finally, the research was carried out within the regular class schedule, which limited the time available to implement activities completely and observe long-term changes in students' writing development. Consequently, it was not possible to determinate (in a safe way) whether the improvements identified during the process would remain stable over time. Future studies could address these limitations by applying the same approach in different schools and over longer periods to assess the sustained impact that ChatGPT can have on English learning.

## **7. Basic Assumptions**

In the context of English language teaching/learning, the use of tools such as ChatGPT has gained importance as a means to support students' writing development. AI tools like ChatGPT in secondary school English classes build on the idea that real communication improves writing skills. Teachers play a vital role to guide students on proper tool use to keep them motivated, and help them learn on their own. Using ChatGPT as a learning tool, along with teacher input and group work, lets students build on what they know and have done before. This makes classroom talks livelier and gets students to use English in ways that matter to them.

In the specific context of secondary school students with basic English proficiency, it is evident that most of them are not used to writing in English outside the classroom. Their only exposure to written English comes from school activities, which often limits their ability to practice on their own. Because of this, the integration of ChatGPT as a writing assistant becomes both an opportunity and a challenge: students can improve their grammar, vocabulary, and structure, but they may also rely too much on the tool. Therefore, the teacher must play an active role in motoring and guiding the use of ChatGPT to prevent overdependence or uncritical usage, so that it serves as a pedagogical support rather than a substitute for critical and creative thinking.

## 8. Category System

**Table 1**

Specific questions	Specific objectives	Category	Definition	Subcategory	Techniques and instruments	Source of information
What difficulties do students face when writing in English?	To identify the main difficulties students face when writing texts in English.	Writing Difficulties in English	Refers to the common challenges students encounter when producing written texts in English as a foreign language.	Grammar, Vocabulary, limitations, Coherence and cohesion problems	Classroom observation sheet	Eleventh-grade students
How can we promote an ethical and responsible use of ChatGPT as an educational tool in writing activities?	To promote the ethical and responsible use of ChatGPT as an educational tool in English writing activities.	Ethical and responsible use of the tool	Refers to the awareness, attitudes, and practices that encourage students to use ChatGPT consciously and responsibly, recognizing its potential to support learning while avoiding academic dishonesty and overreliance on the tool.	Responsible use guidelines, Ethical awareness, Critical thinking toward AI tools.	Interview	Eleventh-grade students

What strategies can be implemented to integrate ChatGPT into the writing instruction process?	To propose a Pedagogical approach for the integration of ChatGPT into English writing lessons.	Pedagogical Integration of ChatGPT	Refers to the instructional approaches and methodological strategies that teachers can apply to include ChatGPT as a complementary tool for developing writing skills.	Proposed teaching activities, Recommendations for teachers	Interview	Teachers
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*Category System*

*Note.* The category system was created based on the specific objectives and research questions of the study.

## **9. Research Questions**

### **9.1. General Question**

How does the use of ChatGPT influence the development of English writing skills in eleventh-grade students of a secondary school?

### **9.2. Specific Questions**

1. What difficulties do students face when writing in English?
2. How can we promote an ethical and responsible use of ChatGPT as an educational tool in writing activities?
3. What strategies can be implemented to integrate ChatGPT into the writing instruction process?

## **10. Theoretical Framework**

### **10.1. Introduction to the Theoretical Framework**

This theory is the concept that underpins the next generation telecommunications services where providers will rely on multiple partners to fulfil customer needs studies on the acquisition of English writing ability as a foreign language. It that provides particular examples of the role of technology and artificial intelligence tools, focusing specifically exploration of ChatGPT in school scenarios. Today, with advances in technology that continue to transform the landscape is a mixture of what it always was and something else standard teaching and learning processes, it is important to investigate both the opportunities they create and pedagogical, ethical, and social challenges they present. For that purpose, this section provides a theoretical framework in seven interrelated concepts-based sections themes that aid in explaining, analyzing, understanding the phenomenon under consideration.

### **10.2. Foreign Language Learning**

#### **10.2.1. Concept of Second Language Acquisition (SLA)**

The acquisition of a second language (SLA) is the term used when learning any language other than a first/native mother tongue in natural or formal settings. It is a subfield of applied linguistics and psycholinguistics that focuses on the learnability of a new language through the study of second language acquisition (SLA) research. SLA indeed is unlike first language acquisition in age, cognitive maturity and social environment; making it a complex and multifaceted phenomenon (Ellis, 2008).

In pedagogical terms, second language learning (language acquisition [SLA]) cannot be seen to operate as a purely individual, cognitive process, but must be seen to be an act; one that is profoundly influenced by social and cultural factors. Sociocultural theory, as established by (Lantolf, 2000) holds that language learning happens through social interaction, use of the cultural tools (language being one such tool) and involvement in real-life meaningful communication tasks. This perspective allows teachers to design more authentic and inclusive learning experiences; focused on interaction and context-key elements for deep and lasting linguistic development.

#### **10.2.2. Main Theories of Foreign Language Acquisition**

Multiple theories have tried to explain how learners acquire a second language. Among the most important is Stephen Krashen's Input Hypothesis, which states that "Language is acquired

when learners are exposed to comprehensible input that is a slightly above their current competence level” (Krashen, 1982, p. 21). In addition Krashen (1982) highlights the importance of a safe environment and natural setting in which comprehension comes before output.

Conversely, Lev Vygotsky’s Sociocultural Theory proposed that language learning occurs through social interaction. This perspective explained that Knowledge is constructed through interaction with others and through cultural tools such as language. (Vygotsky, 1978) explains:

The concept of the zone of proximal Development (ZPD) illustrates how learners achieve higher levels of understanding with the guidance of more knowledgeable others, such as teachers or peers. Through this social interaction, learners internalize skills that they could not accomplish independently (p. 86).

Another model is Interaction Hypothesis (Long, 1996), that highlight the significance of negotiation of meaning in communication. Other recent perspectives incorporate more adaptable, flexible interpretations of how language skills change over time by incorporating ideas from Dynamic Systems Theory and Usage-Based Learning (Verspoor et al., 2011).

### **10.2.3. Factors Influencing Foreign Language Learning**

Learning a foreign language includes a complex of individual factors and contextual elements. Age, aptitude, motivation, characteristics of personality, learning strategies, and possible stress levels are some of the individual differences among learners which affect the acquisition of a second language, according to Rod Ellis (2008). As an example, younger learners often demonstrate greater abilities in acquiring “native-like pronunciation” due to their greater neural plasticity; meanwhile, older learners may compensate this with more developed cognitive skills and also metalinguistic awareness that promote a more profound analysis of grammatical structure (Ellis, 2008; Lightbown and Spada, 2013).

It is necessary to comprehend the contextual and individual factors in order to create equitable and successful language learning programs. When educators have a better understanding of the backgrounds, requirements, and limitations of their students they can make better educational choices. Likewise, new technologies, especially artificial intelligence, provide potential possibilities for personalizing learning, immediate feedback, and the ability to replicate immersive environments that may not currently be available. In particular, AI tools can adjust to

the individual learning needs of each student and assist in reducing some of the challenges caused by a lack of exposure and educational materials, especially in places with limited resources.

### **10.3. English Writing as a Skill**

#### **10.3.1. Definition of Writing Skills in Language Learning**

Writing in a second language is a way to communicate as well as a mental activity. Making use of correct grammar, vocabulary, and communication structures, it includes creating, organizing, and also expressing ideas in a logical manner in writing. The process allows students to reflect on language use and improve their comprehension of linguistic forms, writing serves as both an instrument of expressions and learning tool (Hyland K. , 2003).

Effective writing in interlanguage teaching needs a clear objective, evaluation of the audience, and the appropriate style determined by text type. Therefore, in order to more effectively engage their readers, students must learn how to modify the tone format and structure of their writing for different situations. Writing also includes discussion and correction where social norms and critiques are crucial. Teaching writing then means providing students with chance to experiment with different genres and contexts, helping them to communicate clearly and confidently in everyday circumstances.

#### **10.3.2. The Teaching-Learning Process of Writing**

In teaching English as a foreign language, it is essential to focus not only on the process-oriented development of students but also on their outcome-oriented development. This means using the students' English learning process as the primary means of teaching while simultaneously ensuring that their English learning outcomes are the main objective.

Hyland's arguments, it can easily see that his summary of writing begins with revealing the three stages of "drafting, revising, and editing." According to Hyland, "Writing is not a static thing, but an activity that unfolds in a constantly evolving process," (p. 49). This explanation of writing permits students to see writing as a dynamic activity with significant usage that improves with constant practice.

### **10.3.3. Importance of English Writing Production for Secondary School Students**

In accord with, Brow (2007) Writing skill is important in many educational institutions since written tasks and assignments are the main means of assessment. In addition, in the current world, where communication more often through digital media; writing in English has become essential for participation in work, study, and others context. Students who write well are able to clearly express who they are and what they think, which gives them more opportunities.

Writing skills development in Latin American contexts not only improves students' language skills nevertheless it makes an important contribution to social equity because fluency in the language can result in opportunities in academic, professional, and cultural contexts around the world. The students from disadvantage socioeconomic communities, who use to have limited access to these benefits, will find it relevant; when improving their written English communication skills, they will be able to participate in international conversations and demonstrate their own opinions and points of view.

Digital tools and artificial intelligence tools can generate teaching and learning resources that are useful when used with responsibility. As mentioned by Healey et al. (1998), "the effective use of technology in education can reduce social and economic barriers, expanding opportunities for traditionally excluded students."

## **10.4. Common Difficulties in Writing in English**

### **10.4.1. Grammatical, Vocabulary and Coherence Issues**

Writing in English presents many challenges for students, especially with the correct use of the language's technical, grammatical, and structural elements. "The most common challenges include weakness on the organization of ideas, issues related to textual coherence and cohesion, and a lack of competence in grammatical concepts like correct verb tenses and sentence construction" Kampookaew (2020). These difficulties may limit the capacity of students to articulate their ideas clearly and logically, which has a negative effect on the clarity of the success of written communication.

According to Catabay (2016) the three primary types of writing errors that university students make are technical, grammatical, and structural. Among the structural errors, the frequent use of sentence fragments stands out; in the grammatical category, the incorrect use of verb tenses; and in the mechanical category, the incorrect use of punctuation marks.

These errors show that difficulties in sentence construction affect written production, even when students receive formal instruction in grammar and composition. These difficulties highlight the importance of teachers identifying and addressing grammatical, vocabulary, and coherence issues during the teaching process in order to improve students' writing competence and communicative ability.

#### **10.4.2. Studies on Difficulties in Nicaragua and Latin American Context**

Various studies conducted in Nicaragua and other Latin American countries have shown that difficulties in writing in English as a foreign language are influenced by linguistic, pedagogical, and contextual factors (Argudo Serrano & Zambrano Tenesaca, 2025), in a study conducted at a private language institute in Cuenca, Ecuador, identified that students face significant challenges in grammatical accuracy, mother tongue interference, and the clear organization of ideas when writing in English. Teachers also reported difficulties in providing individualized support due to large class size and time constraints. Additionally, digital tools such as ChatGPT were implemented to correct grammatical and stylistic errors, along with peer collaboration strategies.

However, their effectiveness depended on the students' ability to interpret and apply the feedback received (Argudo Serrano & Zambrano Tenesaca, 2025). For this part, (Fedrick Tucker, 2025) investigated the English teaching and learning process among university students at the Bluefield's Indian & Caribbean University (BICU) in Nicaragua. The findings show that although teachers show an intention to implement strategies, areas for improvement persist regarding student motivation and the use of educational technologies.

Reading, comprehension, pronunciation, and writing were among skills in which students demonstrated problems, and it was noticed that class structure had a significant effect on learning. To improve language proficiency, a specific management approach was suggested, which should incorporate continuous teacher training (Fedrick Tucker, 2025).

#### **10.4.3. Socio-educational Factors Affecting Writing Difficulties**

The development of secondary school students' English writing abilities is greatly influenced by a number of socio-educational factors. The development of writing skills in English among secondary school students. Beleño Ospino (2024), points out that effective English learning can be limited by aspects like low linguistic, self-esteem, fear of making mistakes and insufficient exposure to the language outside of the classroom. Although these factors are not exclusively

related to writing, they directly affect the students' willingness to practice and produce texts in a foreign language, as writing involves a complex process of organizing ideas, selecting vocabulary, and applying grammatical structures.

Social factors like family socioeconomic status, restricted access to technology, uneducated homes, and lack of institutional support for written production all contribute to these challenges in places like Nicaragua. In the field of education, individualized feedback and continuous support in writing process face obstacles by the demands on teachers, the limited use of active methodologies, and large number of students. When put together these elements produce a condition that is not helpful to improving English writing competence for students, in special for students from economically disadvantaged groups or those who receive less educational and emotional support.

## **10.5. Educational Technologies Applied to Language Teaching**

### **10.5.1. Definition of Educational Technologies**

The collection of instruments, materials, and digital processes that when used with strategic, support and enhance teaching is known as an educational technology. Education is essential process for human development, according to Aguirre (2022), and the use of technology in the classroom has grown in recent years in an effort to promote meaningful and active learning.

Currently the teacher role has changed a lot. It is no longer enough for the teacher to be a mere transmitter of knowledge, they are now increasingly being cast as a designer of experiences: somebody who creates exciting learning environments that enable students to investigate topics, work together and take responsibility for their own learning. Digital is not replacing interaction it is enhancing it, providing teachers and students with fresh ways to connect knowledge to life. An example would be a language student who now can chat with AI chatbot in English or participate in virtual cultural exchange with fellow peers from another country. These are experiences that, nearly 10 years ago, were just about unthinkable.

These tools when are carefully and critically implemented, not just allows learning to be flexible but as well improve current abilities such as independence, collaboration, and solving problems in students. Their application is pertinent to foreign language teaching since it gives students access to more resources, assistance, opportunities to practice the language, and the ability to modify teaching strategies to satisfy their individual needs.

### **10.5.2. Examples of Technologies Applied to Writing Processes**

Educational technologies encompass all those technological tools that when applied for pedagogical purposes, enhance teaching and learning processes. According to (Cocoma & Orjuela, 2017) TIC (Tecnologías de la Información y la Comunicación), known in English as ICT (Information and Communication Technologies) should be understood as didactic tools capable of creating more motivating, interactive, and participatory learning environments. These technologies allow teachers to rethink their methodological strategies, promoting more autonomous, meaningful, and contextualized learning. Their incorporation into the English classroom can facilitate content comprehension, improve vocabulary retention, and encourage the continuous practice of language skills.

Likewise (Carballo-Calero Fernández , 2006) classifies TICs into two main categories: online tools, which require an Internet connection and provide access to authentic, updated content; and offline tools, which function without a connection but still enable interactive and meaningful activities. Both types can be used as educational technologies as long as they are aligned with clear and contextualized didactic objectives. In this regard, TICs are not merely technological resources, they are fully integrated into the concept of educational technologies by promoting new forms of teaching that are more student-centered, collaborative, and adapted to the challenges of the modern world.

## **10.6. Artificial Intelligence in Education**

### **10.6.1. General Concept of Artificial Intelligence (AI)**

The goal of the multidisciplinary field of computer science known as artificial intelligence (AI) is to create machines that are able to carry out tasks that have historically required human intelligence. Logical reasoning, problem-solving, machine learning, natural language processing, visual and auditory perception, and decision-making are some of these tasks (Brewka, 2009). Machine learning, artificial neural networks, and deep learning are some of the subfields of artificial intelligence (AI) that allow machines to gradually improve their performance without explicit human programming.

AI is used in education to develop intelligent, flexible and distinctive learning environments in addition to automating procedures. (Luckin & Holmes, 2016). By encouraging learner-centered strategies that reflect different learning needs, spaces, and styles, artificial

intelligence in education has the potential to transform traditional educational methods. By examining and simulating the cognitive processes involved in learning, the field of Artificial Intelligence in Education (AIED) was born. Its objective is to create systems that can assist both teachers and students.

### **10.6.2. Applications of AI in the Educational Field**

It is crucial to reconsider the general educational mindset previous to incorporating artificial intelligence into educational settings. Technological advancement enthusiasm frequently ignores important issues like algorithm transparency, student data privacy, and the moral obligations that come with automated decisions. These factors are essential when integrating AI into educational settings claim Williamson & Eyson (2020).

The innovative potential of AI in education, becomes clear once this foundation is recognized. One application that stands out as being especially important is learning analytics. It finds trends, anticipated results, and permits prompt interventions by employing algorithms to gather and evaluate data on student conduct and academic achievement (Zawacki-Ritcher et al., 2019). This method allows for a deeper comprehension of the needs of learners' and goes beyond simple data collection.

Additionally tools based on AI allow for a new personalization of education. To match each learner's performance, adaptive learning platforms dynamically modify the task's difficulty and progression. To ensure maximum engagement, content recommendation systems offer specific learning resources that reflect students progress. By imitating the function of a human tutor and providing immediate feedback and particular guidance, Intelligence Tutoring Systems (ITS) enhance this personalization (Holmes et al., 2019).

## **10.7. ChatGPT as an Educational Tool**

### **10.7.1. What is ChatGPT? (Origin, Basic Function)**

The article about ChatGPT: "Chat GPT – A Technological Remedy or Challenge for Education System" by (Sharma & Yadav, 2023) explained that Open-AI, founded in 2015 by Sam Altman, Elon Musk, and others in San Francisco, developed Chat GPT, which is a generative language model based on transformer structure.

Chat GPT efficiently handles natural language processing tasks and is a part of the larger GPT-3 model, which comprises 175 billion parameters, making it the largest language model

trained to date. The model requires extensive training on over 10 billion words from more than 8 million documents to learn language processing capabilities. Training involves reinforcement learning from human feedback, where trainers engage in conversations with the AI.

ChatGPT also is able to answer questions, write essays, present simplified information, and assist with other human tasks. In terms of what it does best, it is in the educational field as a virtual tutor, writing assistant, or language study tool. Also it is a result of its design to put out original responses which base in complex linguistic and semantic structures. In this way ChatGPT gives users more flex and creativity in what they do as compared to traditional search engines which present past information (Kasneci et al., 2023).

Also in that it is a very flexible platform which in terms of tone, style and language complexity which it presents to the user that is a great asset for both teachers and students which in turn enables for very personalized learning experiences and also brings in a greater element of interactivity to the setting. Also this has served as a green light for what it see in the digital education world in terms of pedagogic innovation and also, we have seen a great expansion in the access of what we consider to be excellent educational resources in a more efficient and convenient way.

### **10.7.2. Potential of ChatGPT in the Development of Writing Skills**

No one doubts that AI has great potential in the field of education. As Sharma & Yadav (2023) point out that AI has the ability to change the learning approach for students; it can provide personalized experiences for each one to learn at their own pace and this is where ChatGPT comes into play: it is not a simple tool but rather an adaptable partner, a resource able to motivate, guide, and accompany students in multiple activities of learning.

Imagine this: improving vocabulary with personalized word list, receiving writing indications that inspire stories, comprehension exercises, translation, even examples of different genres and writing styles. Yes, ChatGPT can show you how to construct an academic essay, how to create a creative story, but there is always a “but”: students must critically evaluate the information it offers. Not everything it generates is correct, nor is everything equally useful in every context.

(Farrokhnia et al., 2023) Highlight something interesting: engaging with AI feedback in real-time railway could boost motivation, help learners acquire complex more syntactic structures

and foster autonomous learning. It also lets students write and revise without the immediate pressure of a teacher. Furthermore, with ChatGPT, students can build their writing confidence without the need for synchronous feedback from a teacher. In language teaching, where fear of making errors frequently prevents learning, this kind of “friendly,” low-stakes feedback is particularly beneficial. With ChatGPT, students can experiment, get things wrong the first time around, self-correct, learn in their own time and build confidence to find their voice.

### **10.7.3. Risks or Limitation of Using ChatGPT in Educational Contexts**

While there are many advantages to ChatGPT, it is also important to discuss the various risks that institutions and teachers need to carefully consider. The possibility of academic dishonesty is a serious worry, especially when it manifest as plagiarism or an excessive dependence on the tool. Students might be motivated to use the tool to create whole essays or assignments, avoiding important writing steps like drafting, brainstorming, and revising—skills that are necessary for cognitive development and authentic learning (Susnjak & McIntosh, 2024). In addition to affecting academic integrity; this over-reliance stops students from developing their own voices and critical thinking skills.

It is important to consider the ethical and legal implications of generative AI in the classroom. Significant challenges include concerns about data privacy, the lack of transparency of AI when making decisions, and unequal access to these tools in various contexts. Clear institutional policies, teacher professional development, and curriculum integration of AI literacy are necessary to address these issues and ensure that both students and teachers can use these technologies in an equitable and responsible manner (Williamson & Eynon, 2020).

### **10.7.4. Ethical and responsible use of ChatGPT in educational contexts**

The use of ChatGPT in academic activities requires an ethical analysis based on learning theories and contemporary frameworks on artificial intelligence. The Connectivism perspective (Siemens, 2005) explains that learning in digital environments occurs through networks where people, data, and technologies converge. Under this approach, the responsible use of ChatGPT involves developing critical digital competencies, especially the ability to evaluate the reliability of the information generated, recognize limitations of the model, and avoid excessive dependence.

Similar the Ethics of Artificial Intelligence and Responsible AI frameworks (Floridi & Cows, 2019) provide essential principles benefits, fairness and explainability that make it possible

to identify risks such as algorithmic bias, lack of transparency and privacy problems. Its application in education requires clear guidelines that guide students to use the tool in a conscious, fair and balanced way.

The Theory of Academic Integrity (Bretag, 2013) underlines the importance of values such as honesty, fairness, and responsibility. In the context of using ChatGPT, this involves establishing institutional standards for when and how AI can be employed in written tasks, as well as promoting attribution and verification practices to prevent plagiarism or substitution of original work. These theoretical perspectives agree that the ethical use of ChatGPT does not depend only on technical restrictions, but on pedagogical and critical training that ensures that the tool contributes to authentic learning without compromising ethical principles or academic integrity.

In conclusion, this theoretical framework provides a thorough comprehension of the difficulties associated with learning English as a second language, paying special attention to written production. This chapter establishes a strong conceptual basis for the research by combining pedagogical approaches, case studies, linguistic theories, and new technological tools. In addition to bringing attention to the difficulties that exist in the classroom, this integrated and context-aware approach creates opportunities for creative and individually relevant pedagogical solutions. And from this foundation, the next chapter will present the methodology used to analyze teaching practices, student perceptions, and learning outcomes in English writing, always in specific educational contexts.

## **11. Methodological Design**

### **11.1. Qualitative Approach assumed**

The research implemented a qualitative method focused on understanding the experiences and opinions of students and teachers about the integration of the tool (ChatGPT) as an effective support for English writing teaching in secondary education. According to (Hernandez Sampieri et al., 2014), “this method allows for an in-depth exploration of the experiences of participants and meanings attributed to the phenomenon being researched”. A study developed by (Creswell, 2014), emphasizes that qualitative research is appropriate when the aim is to investigate how individuals comprehend their experiences and surrounding world.

#### **11.1.1. Research Line**

This study was organized within CED 1: “Education for the Development research line.” Consistent with the research lines and sublines in the institutional research policy established by UNAN-Managua (2021).

#### **11.1.2. Research Subline**

The research subline was associated with CED-1.7: “Learning Assessment”; according to the sublines defined within the CED 1: Education for Development line in accordance with the research policy of UNAN-Managua (2021).

### **11.2. Type of Research**

#### **11.2.1. According to the level of depth:**

The research was both descriptive and exploratory, as it was focused on recognize the difficulties students face during the writing process, to promote an ethical use of ChatGPT as an educational tool to improve their writing process, and suggest a combined approach for incorporating ChatGPT into the writing teaching process

#### **11.2.2. According to the area of study and modality of research:**

The research was positioned in the field of Educational Science and Humanities, as defined by UNAN-Managua (2021) in the offerings of its academic program.

The study was situated within the field of educational research, and especially under the modality of action research, since it engaged both teachers and students in a collaborative process to enhance educational practices (Elliott, 1993).

### **11.2.3. According to the variables:**

The study was non-experimental, since it involved observing and analyzing the natural occurrence of the phenomenon instead of manipulating variables.

### **11.2.4. According to the time frame:**

As all the information was collected in a week, the study was carried out at one moment in time. This allowed us to observe the thoughts of the participants and behaviors during that short time, without the need for continuous observation.

### **11.2.5. According to the philosophical perspective:**

It was applied an interpretative paradigm, focusing on how participants make sense of their experiences in their own contexts (Cohen et al., 2011).

## **11.3. Theoretical sample and study subjects**

A theoretical sampling method was applied in the research, selecting those participants who could provide important information. The main topics were:

- **Students:** Eleventh-grade students from a secondary school in Estelí, Nicaragua, with a basic level of English skills. Sixteen students were chosen based on their availability and willingness to participate
- **Teachers:** Two English language teachers who were interviewed to obtain their views and opinions on the integration of ChatGPT into their writing teaching process

The selection of participants were chosen through convenience sampling, taken into account their availability and willingness to participate in this research.

## **11.4. Methods techniques and instruments for data collection**

### **Methods:**

### **11.4.1. Empirical Methods:**

- **Observation Sheet:** Observing student's engagement with ChatGPT during a writing activity to recognize their behaviors and strategies.

**11.4.2. Interviews:** Conducting interviews with students to understand their perceptions and experiences using ChatGPT, to promote the ethical and responsible use of ChatGPT as an educational tool in English writing activities.

**11.4.3. Theoretical Methods:**

- **Analytical-synthetic method:** Breaking down information into parts and combining them to create a comprehensive understanding.
- **Inductive method:** Drawing general conclusions from specific observations.
- **Deductive Method:** Testing hypotheses derived from existing theories.

**11.4.4. Techniques and Instruments:**

**Table 2**

*Techniques and Instruments*

Technique	Purpose	Instrument
Observation	To identify main difficulties students, face when writing in English	Observation Sheet
Interview	To promote the ethical and responsible use of ChatGPT as an educational tool in English writing activities.	Students Interviews
Interview	To propose a combined approach for the integration of ChatGPT into English writing lessons.	Teachers Interviews

*Note.* Created by the researchers based on the instruments used during the data collection process (2025).

These instruments have been created to correspond with the research objectives and questions.

### 11.5. Quality Criteria Applied

To ensure the credibility, reliability, and ethical integrity of the present research, the following steps were implemented:

- **Validity:** The integration of information from various sources (students and teachers) to validate results (Denzin, 1978).
- **Reliability:** Consistent application of data collection instruments and procedures.
- **Ethical Considerations:** Informed consent was obtained from all participants, and confidentiality was maintained during the study.

### 11.6. Methods, Techniques, and Instruments for Data Processing and Analysis

A qualitative approach was applied to examine information in order to identify patterns and themes:

- **Open and Axial Coding:** Organizing information into themes and subthemes to recognize connections (Strauss & Corbin, 2002).
- **Triangulation:** Comparing the information obtained from different sources to improve the reliability of the results (Denzin, 1978).
- **Analysis Instruments:** Use of tables of categorization, and analysis sheets to organize the information and facilitate its interpretation.

This method allowed us to understand how the artificial intelligence ChatGPT may help students to improve their English writing skills.

## **12. Analysis and Discussion of Results**

The results presented in this part of the study were collected through the application of three evaluation instruments, aimed to address each of the expected objectives in this research. A different instrument was used for each objective; an observation guide, and interview with sixteen students, and an interview with two English teachers from a secondary school in Estelí, Nicaragua.

The first objective was to identify the main difficulties eleventh-grade secondary students face when writing texts in English, for which an observation sheet was carried out. The need to implement this study arose from the difficulties observed directly in the eleventh-grade students at this institution. They show deficiencies even in the use of basic vocabulary, struggle to write grammatically correct sentences or paragraphs, and find it difficult to structure sentences coherently.

The second objective was to promote the ethical and responsible use of ChatGPT as an educational tool in English writing activities. To this end, an interview was conducted with sixteen eleventh-grade students to learn about their experiences and opinions on writing in English and the use of ChatGPT as a support tool.

For the third objective, which was to propose a combined approach for integrating ChatGPT into English writing classes, two secondary school English teachers were interviewed to find out their opinions on integrating this tool into English writing classes based on their teaching experience.

Overall, the application of these instruments not only allowed us to understand the difficulties faced by students in their English writing process, but also enabled us to collect relevant and reliable information from both perspectives, as well as strengthening the validity and reliability of this research.

### **12.1 Objective 1: To identify the main difficulties students face when writing texts in English**

To meet the first objective, an observation sheet was applied during an activity in which an activity was carried out, in which students had to write a short paragraph in English about their “favorite hobbies” in their notebooks. This observation allowed us to identify in a direct and detailed way the main difficulties they face in their writing process. From the qualitative analysis

carried out, three central categories emerged: linguistic and grammatical difficulties, orthographic/spelling and structural difficulties, and cognitive and attitudinal difficulties.

- **Language and grammatical difficulties**

One of the most obvious difficulties was the lack of mastery of the vocabulary related to the subject. Some of them had very little knowledge of the vocabulary related to the topic. They often repeated the same expressions such as listen to music or sleep, and in most cases, they forgot to use the “ing” form and frequent errors in concordance were observed, such as writing my favorite hobby even when they mentioned several hobbies.

Sentences often presented problems in their structure and internal coherence, which generated texts that were unnatural, fragmented or difficult to interpret. This pattern suggests that students have difficulty autonomously applying basic grammar rules and properly linking their ideas within the written composition process.

- **Spelling and structural difficulties**

Spelling errors were recurrent. Some wrote Realy instead of Really or omitted letters in other words, revealing unfamiliarity with the graphophonic correspondence of English. The activity also showed that, when asked to copy words dictated or spelled by the teacher, several students expressed that they could not write them correctly, which reinforces the existence of gaps in their written literacy in English.

On a structural level, its paragraphs were excessively short; some consisted of a single sentence. In addition, punctuation was used incorrectly or simply omitted, making it difficult to clear the message. These structural difficulties limited the textual cohesion and fluidity of his ideas.

- **Cognitive and attitudinal difficulties**

In the observation process, significant differences in the level of autonomy were evidenced. Some students preferred to work independently, while others required constant support from the teacher when writing. They also mentioned that they found it difficult to write in English, mainly because words are not spelled the same way they are heard or pronounced, which shows insecurity and a negative perception of the writing process.

Before engaging with the AI tool it was confirmed that all students had access to a smartphone and a stable internet connection, either through their own mobile data or through the

Wi-Fi available at the institution, ensuring they could properly interact with the platform. After the writing process students were then given a specific prompt, which was “Correct my paragraph about my favorite hobbies and provide me with feedback on grammar and vocabulary,” so that they could type it into ChatGPT and receive personalized support from the tool.

In the moment they started using the tool, it was noticeable that most students significantly improved their writing process and corrected their texts putting into practice the recommendations provided by ChatGPT. They were even able to expand their texts a little more. This also helped to expand their vocabulary, in this case specifically related to the topic of hobbies, and they received personalized suggestions on the correct sentence structure in real time.

However, it was also very noticeable that certain students preferred to simply copy their paragraph that had been modified by ChatGPT, without first properly analyzing the valuable information and resources it recommended to improve their writing process. This is somewhat concerning because it coincides with the theory proposed by Woo et al. (2024), who explain that students may become too dependent on the responses generated by artificial intelligence when they are not encouraged to reflect critically on the feedback provided by the tool.

Finally, it was confirmed that proper guidance from English teachers is essential to ensure ethical and responsible use of this tool in the English writing process, which supports the ideas of Bantugan and Khup (2025). Their findings reinforce the importance of teacher supervision to prevent risks such as plagiarism or over reliance on ChatGPT among students.

The results obtained allow us to affirm that objective 1 was fully met. Through direct observation and detailed analysis of the texts produced by the students, it was possible to clearly identify the main difficulties they face when writing in English in aspects:

- Linguistic and grammatical (limited vocabulary, concordance errors, incorrect use of structures).
- Spelling and structural (writing errors, poor punctuation, incomplete paragraphs).
- Cognitive and attitudinal (lack of autonomy, insecurity, dependence on the teacher or AI).

This diagnosis constitutes a fundamental input to understand the real needs of students and justify the pedagogical proposals developed in the following objectives.

## **12.2 Objective 2: To promote the ethical and responsible use of ChatGPT as an educational tool in English writing activities**

To achieve the second objective, an interview was conducted with 16 eleventh-grade students, the aim was to promote the responsible and appropriate use of the AI tool ChatGPT and to learn about the students' interactions and opinions about it.

Qualitative analysis identified three main categories:

1. Academic uses of ChatGPT,
2. Perceived limitations and risks, and
3. Ethical awareness and responsible practices.

### **1. Academic uses of ChatGPT**

Students declared that ChatGPT was primarily used as a tool to assist with English writing activities. They express that they use it for guide them to write correct texts in English, offers a wide variety of vocabulary to expand their ideas and gain inspiration, and for the organization and structure of sentences and paragraphs. These characteristics seemed to be especially helpful in resolving problems that they felt were pertinent to them, like vocabulary and insecurity when writing in English.

Some comments expressed this positive perception:

“I use it when I don't know how to start a text or when I want to check if my English is correct.”

“It gives me lots of ideas and new words that I didn't know.”

This result is related to studies such as the one conducted in Turkey, although, the result in this study did not show important differences in writing and vocabulary when compared to traditional methods, the finding showed that students felt motivated and engaged when working with ChatGPT. (Sapan & Uzun, 2024).

### **2. Perceived limitations and risks**

The students showed a clear understanding of the limitations and risks involved in the use of ChatGPT. Many of them pointed out that they have encountered some difficulties when using this tool, although the tool is useful, it does not always produce reliable answers; It may present

grammatical errors, fabricated information, or imprecise explanations that require critical review. This perception led them to recognize the importance of validating the content generated before incorporating it into their school work.

In addition, they mentioned access barriers derived from their free use model. The free version limits the availability of advanced features, which can lead to inequalities between students who can afford a subscription and those who can't. One of them commented: "Sometimes you can make mistakes or make things up, and the free version is very limited."

These perceptions are consistent with the findings of Williamson & Eynon (2020), who indicate that before introducing artificial intelligence into educational settings, it is necessary to reevaluate the general educational perspective. Enthusiasm for technological advancement usually ignores important worries such as unequal access to these tools in various socioeconomic contexts, and the ethical responsibilities associated with technology that makes decisions automatically, because when incorporating AI into classrooms, these elements are essential.

### **3. Ethical awareness and responsible use practices**

The objective was achieved throughout the interview processes. Students considered the limitations of using ChatGPT in the educational settings when talking about academic integrity, originality, and autonomy. Participants expressed an understanding of the difference between using the tool as a support and depending totally on AI to write. They commented: "You shouldn't copy everything it says, because the idea is to learn." "Now I know I have to review it and change it, not just paste what it gives me."

This process shows that the interview not only gathered information but also served as an educational space for raising awareness, where students recognized the importance of:

- Critically reviewing the responses generated,
- Verifying information,
- Avoiding plagiarism,
- Maintaining authorship,
- Using AI as a companion, not a substitute for learning.

Students also mentioned that they had a better understanding of the importance of developing critical thinking skills and maintaining academic integrity when interacting with artificial intelligence tools. This is consistent with the Theory of Academic Integrity (Bretag, 2013) which underlines the importance of values such as honesty, fairness, and responsibility in the context of using ChatGPT, this involves establishing institutional standards for when and how AI can be employed in written tasks, as well as promoting attribution and verification practices to prevent plagiarism or substitution of original work.

The analysis demonstrates that the objective was achieved in both descriptive and instructional terms. Students acquired a better understanding of the ethical implications of using ChatGPT and identified responsible usage techniques through discussion and facilitated reflection. In short, the findings demonstrate that the study successfully promoted the ethical and responsible use of ChatGPT, which is consistent with the values of academic integrity, critical thinking, and responsible usage of technology. This ensured that students knew not only how to use the tool but also why they should use it in such a way as to avoid any actions that might compromise their academic integrity or learning.

### **12.3 Objective 3: To propose a combined approach for the integration of ChatGPT into English writing lessons.**

To achieve the third objective interviews were conducted with two English teachers in order to understand their experiences, perceptions, identified benefits, and observed challenges regarding the use of ChatGPT in English writing activities. The information obtained formed the basis for designing and justifying the combined approach proposed in this research. The analysis identified pedagogical, technical, and ethical elements that guide a balanced integration between teacher intervention and artificial intelligence support in the classroom.

- **Teaching experiences and academic uses of ChatGPT**

Teachers reported using ChatGPT and other AI tools to support activity planning and strengthen the teaching process. One teacher mentioned using AI to generate exercises, reading activities, and supplementary resources when they could not find suitable materials in textbooks, stating:

“When I can't find the right activity in the books, I use AI to find something more suitable.”

Both teachers emphasized that ChatGPT allows them to create a wide variety of English writing activities, such as fill-in-the-blank exercises, sentence conversion, short story writing, image description, journal writing, and assessment tool development. This versatility not only makes it easier for them to design materials, but also allows them to adapt them to the different levels and needs of their students. These perceptions coincide with the contributions of Luckin and Holmes (2016), who highlight that AI-based tools can effectively support teacher creativity, the design of differentiated activities, and the optimization of preparation time.

- **Limitations and challenges observed in student use of AI**

Teachers also pointed out a number of significant challenges in students' use of ChatGPT. Among these, they highlighted the difficulty in writing appropriate prompts the tendency to accept the information generated by the tool without question, and the lack of initiative to incorporate their own ideas. They also mentioned that students can be easily distracted and become overly dependent on the tool, which can affect their creativity and critical thinking skills.

These findings coincide with those of Susnjak and McIntosh (2024), who warn that the indiscriminate use of AI can encourage passive practices, create dependency, and limit the development of essential skills for autonomous learning, especially in academic writing contexts,

if there is no adequate teacher mediation. This recognition of risks by teachers reaffirms the need for a combined approach, where AI functions as a complement to, rather than a substitute for, the student's own thinking.

- **Role of the teacher and conditions for proper integration**

Teachers agreed, that the presence of the teacher is essential to properly guide the use of ChatGPT in English classes. They emphasized that constant supervision and support are required to promote reflection, prevent plagiarism, and ensure ethical practices in the classroom. This position is in line with the theoretical proposal of Mahapatra (2024), who argues that the use of AI in education should be implemented under a supervised approach, where technology is combined with direct pedagogical intervention to achieve meaningful learning.

Likewise, teachers pointed out the importance of receiving specific and ongoing training on strategies for the responsible integration of AI; in order to properly guide students and prevent inappropriate or superficial use of generative tools. These recommendations provided by teachers directly strengthen the construction of the combined approach proposed in this research, as they underscore the importance of balance between technology and human mediation.

- **Direct contributions from teachers' opinions to the proposed blended approach**

The analysis shows that teachers' perspectives contributed significantly to the formulation of the blended approach. Their experiences and observations made it possible to:

- Identify which types of writing activities are most suitable for integrating ChatGPT.
- Recognize the risks and challenges that require pedagogical mediation.
- Determine the need for supervision, training, and teacher support.
- Justify the relevance of a balanced integration between AI and traditional teaching.

These contributions were directly incorporated into the proposal presented in this study, ensuring that the approach is not only theoretically sound but also contextually valid based on the real experiences of teachers working with students in similar environments.

Overall, the results allow us to affirm that objective 3 was fully achieved. The teachers' perceptions provided the pedagogical, methodological, and ethical elements necessary to design the combined approach to ChatGPT integration, which is based on both theory and the direct

experience of the teachers interviewed. This ensures that the final proposal is relevant, realistic, applicable, and consistent with the current needs of the English classroom.

## **12.4 Proposal for a practical strategy**

It is proposed a combined approach for the teaching of English writing with the support of the Artificial Intelligence tool ChatGPT and the publication of a digital bilingual school magazine.

### **Introduction**

Writing in English represents one of the most challenging skills for secondary education students to develop, because it requires the mastery of grammar, vocabulary, and discourse, as well as the ability to organize ideas and express arguments in a correct way. In Nicaragua, learning to write in a new language faces significant limitations, among the most notable are limited exposure to the language outside the classroom, limited access to educational resources, lack of a regular practice, and difficulties with intrinsic motivation (Universidad Nacional Autónoma de Nicaragua, 2020).

The students often struggle with grammar, proper punctuation, textual coherence, and selecting appropriate vocabulary, which reflects the existing necessity for the implementation of more innovative teaching strategies. In addition, it is important to consider the fact that young people tend to see writing as a boring and demotivating task, which limits or reduces their commitment and interest in learning the language.

On the other hand, the integration of artificial intelligence into education has changed the ways in which teachers and students perceive the teaching and learning process. In this sense, tools such as ChatGPT allow students to receive feedback in real time, generate ideas for their English texts, and correct mistakes independently. (UPF – Universitat Pompeu Fabra, 2023). However, the use of these technological tools requires guidance from teachers to prevent inappropriate use that can lead to dependence on the tool and a reduction in critical thinking among students.

In this context, there is a need for an approach that combines the practice guided by the ChatGPT tool in the classroom with social motivation through the authentic publication of texts in a bilingual digital school magazine. This strategy seeks not only improve writing skills in students, but also to develop critical and creative skills, as well as to promote autonomy and a sense of achievement in students.

## **1. Objective**

To propose an approach for teaching writing in English that combines interactive guided practice spaces with ChatGPT and the publication of a bilingual school magazine, with the aim of improving writing skills, fostering motivation, and promoting critical and responsible use of artificial intelligence among eleventh-grade students.

## **2. Competencies to be achieved**

- Written communication skills in English: produce coherent and appropriate texts in different discursive genres (Hyland K. , 2003).
- Critical digital competence: evaluate and use ChatGPT suggestions ethically, avoiding technological dependence (UPF – Universitat Pompeu Fabra, 2023).
- Creative competency: generate original ideas, write narrative, argumentative, and descriptive texts, and express opinions clearly.
- Metacognitive competency: reflect on one’s own writing process and the contribution of technological tools (Flower & Hayes, 1981).
- Collaborative and social competency: work as a team to improve texts, participate in the school magazine, and contribute to the educational community.

## **3. Background and Theoretical Framework**

### **3.1 Integrating ChatGPT into English Writing**

The use of ChatGPT and artificial intelligence in general is promoted as an educational tool to that complements the teaching of writing in English. (Mahapatra, 2024) conducted a study in a university to analyze how ChatGPT influenced educational feedback in the academic writing of ESL (English as a Second Language) students, the study used a mixed-method design, combining written tests and focus groups discussions. Meanwhile, the results indicated progress in the writing abilities of students, especially in the organization of texts, coherence, and grammatical accuracy. As a result, the study concluded that ChatGPT can be successfully integrated into writing classes with many students, even though teacher encouragement is always indispensable for better results.

### **3.2 Blended Learning as a teaching strategy**

More flexible, dynamic, and personalized learning experiences are made possible by the blended learning approach, which combines the best aspects of in-person and digital teaching, Graham (2013) defines it as: “Blended learning systems combine face-to-face instruction with computer-mediated instruction.” (p. 334)

This model seeks to find a balance between the advantages of the digital environment- autonomy, quick access to information, and instant feedback- and the advantages of face-to-face instruction, such as human interaction and direct feedback. Integrating these modalities requires strategic planning to make the most of both approaches and guarantee that students gain from both teacher guidance and independent practice (Graham R., 2013).

### **3.3 Second language writing**

According Hyland (2022), writing is a crucial skill for second language learners, related to educational success and professional advancement. Research on the creation processes and the importance of writing for students has moved beyond traditional texts to include electronic format such as blogs and encyclopedias. Instruction focuses on two contexts: learning-to-write, which teaches writing as an additional language, and writing-to-learn, which uses writing to enhance language acquisition and content understanding.

Various theories since 1970s inform teaching practices, with a focus on process models and genre approaches. Additionally, teachers are incorporating new methods for teaching writing, using electronic, online and social media resources; being more conscious of the writing objectives and target contexts of their students; as well as making greater use of documents, automated feedback and the resources available on the internet.

### **3.4 Legal Framework**

Ministerial Agreement No. 564-2008 promotes the use of ICT in elementary and secondary classrooms, supporting the incorporation of innovative digital tools such as artificial intelligence (Nicaragua. Ministerio de Educación, 2008). In addition, General Education Law No. 582 allows for flexible and relevant study programs, facilitating the application of modern pedagogical methodologies and resources in language teaching (Nicaragua. Asamblea Nacional, 2006). Both

instruments provide a solid legal foundation for integrating AI into English language teaching, promoting meaningful learning and the development of communication skills.

#### **4. Development of the proposal**

Classroom space: Writing Corners with AI (focused on prewriting, writing, and revision). The classroom is organized into thematic corners that promote guided writing and the use of ChatGPT to improve grammar, vocabulary, and coherence.

##### **4.1 Corner 1. Prewriting: Organization and creation of ideas**

The first step in writing is called prewriting. It is during this step that learners come up with ideas, arrange their ideas, and identify the purpose of the writing. Before venturing into writing, activities like brainstorming, mapping concepts, or outlining are essential. Also at this stage, one can use ChatGPT to research ideas and provide different words or to help organize a writing plan.

For this to work the prompt must be well crafted and aligned with the learning objectives, and it is best that the teachers define this. Such prompts can channel the students' inquiries and can help make sure that the application of the tool is aligned with the educational goals. At this stage, the suggested use of the tool is to prompt ChatGPT and use the output to draft specific ideas. Students are expected to derive their ideas from this writing aid, and that is perfectly acceptable, but the input must be transformed in a way that it reflects their own originality.

##### **4.2 Corner 2. Writing: Drafting the text**

While writing, ideas are integrated into paragraphs and sentences to form the text. This step is sometimes tricky because grammar, coherence, and clarity have to be given due attention. This is the stage where ChatGPT can help in proposing synonyms, text connectives, and revising syntactic structures.

At the same time, however, it is important that students reflect on their own thinking and ideas with the use of the suggestions that are derived from the tool rather than replacing one's

thinking with the suggestions. The use of the English language must be grounded on creativity and critical thinking.

### **4.3 Corner 3. Revision and improvement**

The aim of the revision phase is to improve both the content and format of the text. In this section, the student evaluates the clarity, coherence, and organization of their ideas. ChatGPT has the ability to identify grammatical errors, inconsistencies, or repetitive expressions and suggest specific improvements.

In order to guarantee that there is an appropriate use, it is essential to assess each proposal and recommendation to consider which ones are capable of helping with the communication task that the text has to complete. Similarly, this technological aid combined with the corresponding feedback from teachers and fellow classmates enable a more formative and in-depth process.

#### **Additional suggestions for this part of the project:**

- Limit writing to short sentences so as not to frustrate students.
- Have students share their sentences or stories (writings in general) in groups to reinforce comprehension and oral fluency.
- Encourage them to reflect on what ChatGPT suggests: Is it correct? How can I improve my sentence? This strengthens autonomous learning and avoids dependence on AI.

### **5.5 Management of the publication of the bilingual digital school magazine**

To publish and distribute the bilingual digital school magazine, it is crucial to establish a definitive strategy that encompasses design, hosting, and content distribution. The following are suggested.

The publication represents the final result of the writing process. Sharing the completed texts with an actual audience strengthens communicative responsibility, motivation, and sense of achievement. For example, by publishing in a bilingual digital magazine, students can observe the real effects of their work and value their cultural and language development. ChatGPT can assist

during this phase by reviewing the final draft of the text to verify that it is clear, correct, and suitable for the intended audience.

### **5.6 Platforms for digital editorial design**

Free platforms for graphic and editorial design like Canvas are available for use, which offers easy tools for creating magazines with attractive visual designs. Although it is a basic platform, it facilitates collaboration and the saving of the final work in different formats.

On the other hand, to help with creating content and organizing it, AI tools like ChatGPT can be used, despite have certain limitations in design, it can still be helpful for creating text and providing style recommendations.

### **5.8 Platforms for hosting and distributing the digital bilingual school magazine**

For hosting and publishing the digital magazine, it is suggested the use of free platforms with essential access that facilitate online sharing and viewing, such as:

**Issuu:** This is a popular platform for publishing online magazines that offers link sharing and connects with websites and social media.

**Calameo:** Another alternative for publishing digital documents in magazine styles with attractive visual elements and easy distribution.

These platforms provide a unique URL that can be used for the primary dissemination of content.

## **5. Main method of dissemination**

The digital magazine will be disseminated primarily through the URL link provided by the chosen hosting platform. This link can be shared within the educational community, on social media, and other digital media to maximize reach and engagement among students and their families.

## **6. The correct and responsible use of ChatGPT**

The use of the artificial intelligence tool ChatGPT in the writing process, should focus on reflection and independent learning, with active assistance from the teachers. The main principles of its appropriate use are the following:

- Help, but don not replace: Use the tool as a support to improve vocabulary, structure, or ideas, but without passing on to it the authorship of the text.
- Check and modify: Review the information generated by the tool and adapt it to the context and communicative objective.
- Acquire knowledge of the process: Use the model's suggestions to foster critical thinking and writing skills.
- Combine technology and educational management: Combine teacher guidance with the use of ChatGPT. This includes the use of specific instructions created by the teacher, which direct the student's work toward precise, ethical, and meaningful goals.

## **7. Institutional sustainability**

The combined approach allows for the writing process and the bilingual school magazine to become permanent strategies in educational institutions. It is recommended that teachers consider to be trained and a student committee for the edition is established to ensure continuity and annual updates.

## **8. Expected benefits**

- Significant improvement in English writing skills (Hyland K. , Second Language Writing, 2003).
- Critical, ethical, and autonomous use of artificial intelligence (UPF – Universitat Pompeu Fabra, 2023).
- Increased students' motivation through participation in an innovative project (Deci & Ryan, 2000; Dörnyei, 2001).

- Strengthening autonomy and metacognitive reflection in the writing processes (Flower & Hayes, 1981).
- Social and academic projection through the publication of texts, fostering school identity and the participation of the educational community.

### **Conclusion**

The writing process, which includes prewriting, drafting, revising, and publishing, provides the students with an opportunity to comprehensively develop language and communication skills. Incorporating ChatGPT into this process, under the supervision of teacher and using prompts created by the teacher, promotes creativity, reflection, and independence.

An innovative strategy for promoting self-assessment, motivation, and text quality involves combining two approaches: one educational and one digital. In this way, students not only perfect their writing skills, but also acquire a deeper understanding of the importance of communicating with authenticity, intention, and meaning.

### 13. Conclusions

In this research the main objective was to analyze how the use of the AI tool ChatGPT can support eleventh-grade students of a secondary school, in the development of their English writing skills. Likewise, specific objectives were proposed that sought to identify the main difficulties faced by students when writing texts in English, promote an ethical and responsible use of ChatGPT as a support tool in writing activities in English, and propose a combining approach for the integration of ChatGPT in English lessons.

The research was carried out in a secondary school in Estelí, Nicaragua, taking a sample for convenience from sixteen eleventh grade students, who collaborated with good disposition during the process of applying instruments. Likewise, two English teachers from that same educational institution participated.

The results obtained showed that the incorporation of ChatGPT in English classes is very useful and its benefits are recognized in the development on English writing skills in students, providing evident improvements in textual coherence, the correct structure of sentences and paragraphs, increased creativity and greater use of vocabulary. It was also evident that both teachers and students express positive opinions about the use of AI tools such as ChatGPT in English writing activities.

The objectives of this research were largely achieved, since it was possible to identify the main difficulties faced by students when writing in English, the opinions of teachers and students on the incorporation of such a tool within classrooms were known and at the same time the importance of using it properly to avoid inappropriate and dishonest use was highlighted.

Certain limitations are also recognized within this study, such as the small number of the sample and specific context of the school in which the instruments were applied, which limits a broader and more detailed analysis of the results. Similarly, the application of the instruments was carried out in the limited time of a single week, which prevented having the opportunity to obtain an assessment of long-term results in the development of writing students.

For that reason, it is recommended that future teachers take into account to expand the sample and extend the observation process to have a better analysis of the evolution of the students. In addition, it would be useful to deepen the use of other AI technological tools that help in the writing process and encourage students to develop their critical and creative thinking.

When reflecting on the research process and teaching practice, it was evident that teaching is not only limited to teaching and transmitting basic knowledge, it requires commitment, dedication, and empathy to know how to guide students. The integration of new technologies such as ChatGPT in the teaching process, can contribute to meaningful learning, but the most important thing is the use given to it and the responsible guidance provided by teachers to promote ethical use.

This research invites us to reflect on the combination of technology with education, recognizing that the success of learning depends not only on the resources available, but on the effort and dedication on the part of teachers. Finally, it is evident that education needs a balance between innovation, responsible guidance and motivation to train dedicated students, capable of thinking critically and expressing themselves clearly to face the challenges in today's globalized world.

## 14. Recommendations

Taking into account the results obtained in this research titled “The integration of the Artificial Intelligence tool ChatGPT into the development of English Writing Skills in Secondary Education” it is considered important that future researchers continue to deepen into this topic, exploring and encouraging the ethical and responsible use of new technological tools that can be integrated within the classrooms to contribute to the improvement of writing skills in secondary students, as well as comparing their impact especially in different educational contexts in Nicaragua, since there is a lack of local studies that address this topic. It is recommended that future research uses new methodologies that allow the combination of the perceptions of students and teachers with more precise measurements of academic performance.

Likewise, it is recommended to use various evaluation instruments, such as those applied in this research such as interviews and observation sheets, since they are very useful for the collection of detailed information that contributes to the development of research, especially for the collection of opinions, perceptions, and ideas of the participants, but at the same time it is recommended that they consider selecting a larger sample of participants and increasing the application time of instruments to obtain better and more detailed results.

In relation to the context in which the implementation of instruments was carried out, it is recommended to analyze the results obtained and use them as a reference to improve their practices in the classroom, and implement innovative strategies that promote the achievement of successful communication in English through the integration of useful, accessible and modern technological tools such as ChatGPT. On the other hand, it is recommended that teachers consider the possibility of training more on the use of these new technologies, and that at all times students are encouraged to use this kind of tools responsibly, without forgetting the principles and ethical values that this implies, in order to prevent misuse and dependence on them, remembering that it is a shared responsibility, which is key to ensuring its appropriate use.

In conclusion, the importance of continuing to investigate the integration of AI technological tools such as ChatGPT in the development of students' writing skills is emphasized, in a conscious, responsible and strategic way. The proper combination of these technologies with professional and ethical support by teachers can contribute to a significant opportunity to improve education and strengthen the learning process of students.

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## 16. Annexes

### Appendix A. Data Collection Instruments

#### Appendix A.1.



### OBSERVATION SHEET

The present observation sheet will be used as an instrument to collect information for the research titled “The Integration of the Artificial Intelligence tool ChatGPT into the Development of English Writing Skills in Secondary Education”. Its purpose is to observe the behaviors, interactions, and learning evidence of eleventh-grade students during an English writing activity with the support of ChatGPT.

#### **Implementation of observation:**

This observation will be carried out during an English writing activity in which students are asked to write a short paragraph in their notebooks. ChatGPT will be used as a support tool, particularly for vocabulary, grammar, and coherence. The process will be focused on how students interact with the tool while improving their text and the attitudes or perceptions they show during the activity.

#### **Objective of the observation:**

To examine the main difficulties students face when writing in English (vocabulary, grammar, coherence, and organization) and to evaluate how ChatGPT supports them in overcoming these challenges, with emphasis on independence, critical selection, and proper application of the tool’s suggestions.

Date of observation: \_\_\_\_\_

Name of observer: \_\_\_\_\_

Name of teacher: \_\_\_\_\_

Class observed (grade/section): \_\_\_\_\_

No	Question or variable to observe	YES	NO	Observation / Comments
1.	The student identifies difficulties while writing their English text (vocabulary, grammar, coherence, and ideas).			
2.	The student uses their own strategies to overcome these difficulties before turning to ChatGPT.			
3.	The student turns to ChatGPT when facing specific difficulties in writing.			
4.	The student critically selects which ChatGPT suggestions to incorporate into their text (does not copy everything automatically).			
5.	The student correctly applies the ideas or corrections suggested by ChatGPT to improve their text.			

**Additional observations: Comments, attitudes, or behaviors related to identifying difficulties and using ChatGPT that are not covered in the items above.**

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## Appendix A. Data Collection Instruments

### Appendix A.2.



UNIVERSIDAD  
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AUTÓNOMA DE  
NICARAGUA,  
MANAGUA  
UNAN - MANAGUA

### ENTREVISTA PARA ESTUDIANTES

Edad: \_\_\_\_\_

Género: Masculino  Femenino

Estimado/a estudiante:

Estamos realizando un trabajo de investigación titulado “La integración de la inteligencia artificial en el desarrollo de las habilidades de escritura en inglés en educación secundaria”, cuyo objetivo es promover el uso ético y responsable de ChatGPT como una herramienta de apoyo en las actividades de escritura en inglés. La información que usted proporcione será confidencial y utilizada únicamente con fines académicos. Por lo que le solicitamos que responda con sinceridad y detalle a cada pregunta.

#### Questions

1. ¿Cuenta con acceso regular a internet y a un dispositivo digital que le permita utilizar ChatGPT para sus actividades de escritura en inglés?
2. ¿Con qué frecuencia utiliza ChatGPT cuando realiza actividades de escritura en inglés?
3. ¿Para qué propósitos específicos suele utilizar ChatGPT durante su proceso de escritura? (por ejemplo, vocabulario, gramática, coherencia, organización)
4. ¿De qué manera considera que ChatGPT le ha ayudado a mejorar su escritura en inglés?
5. ¿Ha experimentado alguna dificultad o inconveniente al usar ChatGPT para sus actividades de escritura? Si es así, ¿podría describirlo?
6. Cuando las sugerencias de ChatGPT no coinciden con lo que necesita, ¿qué suele hacer?

7. ¿De qué manera comprueba que la información que le da ChatGPT es correcta antes de usarla en su escritura?
8. ¿Qué hace para asegurarse de que el texto que le brinda ChatGPT no sustituya completamente su propio trabajo?
9. Cuando usa ChatGPT, ¿cómo determina si las sugerencias son adecuadas para lo que necesita escribir?
10. En general, ¿Cuál es su opinión sobre el uso de ChatGPT como herramienta de apoyo para mejorar la escritura en inglés?

*Gracias por tu tiempo y por compartir tus valiosas perspectivas. Tus comentarios son fundamentales para mejorar nuestras estrategias educativas.*

## Appendix A. Data Collection Instruments

### Appendix A.3.



UNIVERSIDAD  
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AUTÓNOMA DE  
NICARAGUA,  
MANAGUA  
UNAN - MANAGUA

#### INTERVIEW FOR ENGLISH TEACHER

Dear Teacher, we are fifth-year English students at UNAN-Managua / CUR-Estelí, and we are conducting research on the topic: “The integration of artificial intelligence in the development of English writing skills in secondary education” We kindly request your valuable cooperation to successfully complete this research process. Your responses will be treated confidentially and used only for academic purposes. Please answer honestly and based on your teaching experience.

**Name:** \_\_\_\_\_

**Years of teaching experience:** \_\_\_\_\_

**Level you teach:** \_\_\_\_\_

#### Interview Questions:

1. Are you familiar with ChatGPT or other artificial intelligence tools in education?
2. Have you ever used ChatGPT in your English classes, particularly in writing activities? If yes, could you give an example?
3. In your opinion, which types of writing activities are most appropriate for integrating ChatGPT as a support tool, and why?
4. What benefits do you think ChatGPT can offer in English writing lessons?
5. What difficulties or challenges have you noticed students face when using ChatGPT in writing?
6. What conditions or classroom supports do you consider necessary for using ChatGPT effectively in writing lessons?

7. Do you think students should receive guidance or specific training on how to use ChatGPT responsibly? Why or why not?
8. Do you believe teachers should receive training on using AI tools like ChatGPT in English teaching? Please explain.
9. Overall, what is your opinion about using ChatGPT as a didactic tool for teaching English as a foreign language?
10. Finally, what practical recommendations would you give to other teachers who want to use ChatGPT in English writing lessons?

*Thank you for your time and for sharing your valuable insights. Your feedback is essential to improve our educational strategies.*

## Appendix B. Information Reduction Matrix

ITEM	OBSERVATION	COMMENTS
1. The student identifies difficulties while writing their English text (vocabulary, grammar, coherence, and ideas).	The students identified difficulties related to the limited use of vocabulary, grammatical errors and clarity on their ideas.	Difficulties are evident in students in the use of basic writing structures in English.
2. The student uses their own strategies to overcome these difficulties before turning <a href="#">to ChatGPT</a> .	Yes, the students tried their best to write the short paragraph correctly.	It is observed that students occasionally ask for help from both teachers and their classmates when they have doubts.
3. The student turns to ChatGPT when facing specific difficulties in writing.	Yes, they turn to ChatGPT mainly to suggest vocabulary, and guide them in the correct structure of sentences.	ChatGPT is very useful to help students structure sentences correctly, and provide a wide variety of vocabulary.
4. The student critically selects which ChatGPT suggestions to incorporate into their text (does not copy everything automatically)	Yes, most students use the recommendations provided by ChatGPT to improve their writing and expand their text by adding more ideas. Even though, some of them tend to only copy the text corrected by the tool.	Teacher guidance is necessary to prevent students from only copying and pasting the content corrected by ChatGPT without first analyzing the suggestions provided by the tool.

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5. The student correctly applies the ideas or corrections suggested by ChatGPT to improve their text. Yes, the students first read and then correct their text according to the suggestions. The recommendations provided by ChatGPT are very useful for the creative improvement of English writing in students.

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**Appendix B.1. Observation sheet with students**

## Appendix B.2. Interview with students

Question	Answers	Researchers' comments/analysis
1. ¿Cuenta con acceso regular a internet y a un dispositivo digital que le permita utilizar ChatGPT para sus actividades de escritura en inglés?	Sí, contamos con dispositivos digitales	All students have digital devices and internet access.
2. ¿Con qué frecuencia utiliza ChatGPT cuando realiza actividades de escritura en inglés?	-No frecuentemente -En ocasiones -Raramente -No mucho	Most of the students expressed that they do not use the tool frequently.
3. ¿Para qué propósitos específicos suele utilizar ChatGPT durante su proceso de escritura? (por ejemplo, vocabulario, gramática coherencia organización)	-Vocabulario -Gramática -Organización	Although they do not usually use the tool, students comment that they use it mainly to seek guidance in the organization of ideas, new vocabulary and inspiration when writing texts.
4. ¿De qué manera considera que ChatGPT le ha ayudado a mejorar su escritura en inglés?	-A escribir correctamente. -Expresar oraciones de manera coherente. -Brindándome nuevos conocimientos.	It is evidenced that students receive support from ChatGPT, in their writing

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	-Aprender sinónimos de las palabras.	tasks, which also helps them learn new things and improve their creativity.
5. ¿Ha experimentado alguna dificultad o inconveniente al usar ChatGPT para sus actividades de escritura? Si es así, ¿podría describirlo?	-Sí, a veces da respuestas incorrectas y sin coherencia. -Su uso gratis es muy limitado. -Comete errores	Although ChatGPT is a useful tool, difficulties are also identified in the unequal use of it, since a subscription is required to be able to access all its unlimited resources. Students have difficulties when writing specific prompts to receive help from ChatGPT, so the teacher's assistance is required to guide students in the correct use of the tool.
6. Cuando las sugerencias de ChatGPT no coinciden con lo que necesita, ¿qué suele hacer?	-Detallar mejor lo que necesito. -Utilizar otras páginas, aplicaciones o herramientas de IA como Gemini. -Escribir un prompts más específico.	
7. En general, ¿Cuál es su opinión sobre el uso de ChatGPT como herramienta de apoyo para mejorar la escritura en inglés?	-Es una herramienta útil para aprender. -Es bueno porque nos ayuda a escribir correctamente. -Es útil porque se pueden tener conversaciones y porque ayuda a resolver dudas.	In general, the students' opinions on the integration of ChatGPT as a support tool to improve writing in English are very positive, since they recognize its potential to collaborate in the

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improvement of difficulties when  
writing correctly in English.

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### Appendix B.3. Interview with teachers

Question	Answers	Researchers' comments
1. Are you familiar with ChatGPT or other artificial intelligence tools in education?	Yes, I am. I sometimes use different AI platforms or apps for didactic purposes.	Teacher are aware of AI tools and uses them occasionally, showing openness to technological integration in education.
2. Have you ever used ChatGPT in your English classes, particularly in writing activities? If yes, could you give an example?	Yes. I use it to generate exercises, reading activities, and others. When I don't find a suitable activity in the book, I use AI to look for something more appropriate.	ChatGPT serves as a support tool for lesson planning, allowing the teacher to adapt materials and create varied activities.
3. In your opinion, which types of writing activities are most appropriate for integrating ChatGPT as a support tool, and why?	Fill-in-the-blank, sentence conversion, writing short stories, picture description, and journal writing.	Teachers identify guided and creative writing activities as suitable contexts for ChatGPT, which matches the idea of using AI for scaffolding language production.
4. What benefits do you think ChatGPT can offer in English writing lessons?	It makes it easier to find and create a wide variety of tasks and exercises. It helps teachers design activities focused on students' levels and needs.	Teacher's value ChatGPT for differentiation and time-saving, aligning with the benefits noted in the analysis section.
5. What difficulties or challenges have you noticed students face when using ChatGPT in writing?	Students struggle to write clear and appropriate prompts. They don't analyze the information provided and get easily distracted.	Teachers highlights issues of prompt design and lack of critical engagement, also observed in students' interviews and class analysis.
6. What conditions or classroom supports do you consider necessary	It's important that students analyze the AI's information and add their personal thoughts and ideas.	The teacher insists on reflective use, emphasizing critical thinking and learner autonomy.

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for using ChatGPT effectively in writing lessons?

7. Do you think students should receive guidance or specific training on how to use ChatGPT responsibly? Why or why not?

Yes. AI should be included in schools, but students need training to use it correctly.

This supports the need for structured AI literacy education among students.

8. Do you believe teachers should receive training on using AI tools like ChatGPT in English teaching? Please explain.

Yes. Teachers should be trained to apply AI in English teaching, for example through workshops.

Professional development is identified as key for effective implementation.

9. Overall, what is your opinion about using ChatGPT as a didactic tool for teaching English as a foreign language?

ChatGPT and other AI programs can be useful tools depending on how each person uses them. They have many benefits and advantages we should explore.

Teachers express a balanced and positive view, consistent with the overall findings in the study.

10. Finally, what practical recommendations would you give to other teachers who want to use ChatGPT in English writing lessons?

Teachers should research and learn more about how to use AI effectively and take advantage of all its possibilities.

Encourages self-training and innovation; aligns with recommendations in the discussion section.

#### Appendix B.4. Data Triangulation Matrix

Category	Observation sheet analysis	Students interview analysis	Teachers interview analysis	Triangulation or summary
<b>Benefits of using ChatGPT in English writing</b>	Students improved their paragraphs' grammar, structure, and vocabulary after applying AI feedback.	Students said ChatGPT helps them expand ideas, find vocabulary, and feel more confident in writing.	Teachers affirmed that ChatGPT helps save time, generate varied exercises, and adapt tasks to student levels.	All sources agree that ChatGPT enhances writing quality, motivation, and efficiency when used as a learning support tool. Triangulation reveals that
<b>Challenges and risks of ChatGPT use</b>	Some students depended too much on AI corrections and didn't reflect on them.	Students reported copying answers and mentioned the tool's limited access or subscription barriers.	Teachers noticed distraction, dependence, poor prompt writing, and limited critical engagement.	the main risk is overdependence and lack of critical thinking, emphasizing the need for teacher supervision and training.
<b>Training needs (Students)</b>	Students didn't always understand how to interpret ChatGPT's feedback.	Students expressed that they would like to learn how to use ChatGPT properly for writing tasks.	Teachers insisted that students should be trained in prompt writing and responsible AI use.	Agreement among all: training is essential for students to use ChatGPT ethically, responsibly, and effectively.

<b>Training (Teachers)</b>	<b>needs</b>	Teacher participation influenced whether students used ChatGPT meaningfully.	Students felt more confident when teachers explained how to use AI in class.	Teachers stated that professional development through workshops is needed to apply AI correctly.	All sources confirm that teacher training is vital to integrate AI tools pedagogically and ethically.
<b>Motivation and engagement</b>	<b>and</b>	Students appeared more motivated to write after using ChatGPT; they valued instant corrections.	Students said ChatGPT made writing easier, more interesting, and motivating.	Teachers perceived ChatGPT as a helpful and motivating tool for both teachers and learners.	Clear convergence: ChatGPT increases motivation and engagement when integrated responsibly with teacher support.
<b>Recommendations for effective integration</b>	<b>for</b>	Researchers observed better learning outcomes when AI was used with reflection and discussion activities.	Students suggested that teachers show them how to write effective prompts and verify AI's accuracy.	Teachers recommended continuous research, professional development, and ethical use policies.	All groups agree that ChatGPT should be integrated through guided practice, reflective activities, and continuous teacher and student training.



