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FACULTAD DE CIENCIAS SOCIALES

**CARRERA DE PEDAGOGÍA DE LOS IDIOMAS NACIONALES Y
EXTRANJEROS**

**THE USE OF ARTIFICIAL INTELLIGENCE TO IMPROVE GRAMMAR IN
THE ENGLISH LANGUAGE.**

**LIMONES RIOS ALFREDO RENATO
LICENCIADO EN PEDAGOGIA DEL IDIOMA INGLES**

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SANTIESTEBAN LEYVA KENIA

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por Alfredo Renato Limones Rios

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DEDICATORIA

I want to dedicate this research work first to my parents for their unconditional support in my process and to my professors who have been integrated into the daily activities, being a fundamental support for this research

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I want to thank God for giving me the opportunity to complete this work and giving me the opportunity to do it

ABSTRACT

The thesis "The Use of Artificial Intelligence to Improve English Grammar among Third-Year High School Students at Colegio Juana de Dios" investigates the efficacy of an innovative system based on artificial intelligence (AI) consisting of seven specific activities for learning and improving English grammar, applied to 47 students. Focusing on the relationship between the implementation of AI tools and grammatical progress in English, the study highlights AI's capability to personalize learning, adapting to the individual needs and paces of each student, which is crucial for overcoming specific challenges in grammar learning. The research is oriented towards a quantitative paradigm with an experimental design, as it aims to demonstrate the improvement in students' grammatical skills following the intervention with the AI-based system. Moreover, by testing the hypothesis through the collection of statistical data and understanding the effects of applying the variables, the system of activities proves that the use of AI tools, through interactive and adaptive activities, can offer a more engaging and effective learning experience, encouraging students to actively participate in their learning process. This approach not only improves grammar but also fosters a positive attitude towards language learning, which can have long-lasting implications on their future linguistic competence.

Keywords: Artificial Intelligence, activity system, students, grammar, grammatical rules.

RESUMEN

La Tesis “El Uso de la Inteligencia Artificial para Mejorar la Gramática del Idioma Inglés en los Estudiantes de Tercer Año de Bachillerato del Colegio Juana de Dios” investiga la eficacia de un innovador sistema basado en inteligencia artificial (IA) compuesto por siete actividades específicas para el aprendizaje y mejora de la gramática del idioma inglés que fue aplicada a 47 estudiantes. Centrándose en la relación entre la implementación de herramientas de IA y el progreso gramatical en inglés, el estudio destaca la capacidad de la IA para personalizar el aprendizaje, adaptándose a las necesidades y ritmos individuales de cada estudiante, lo cual es fundamental para superar desafíos específicos en el aprendizaje de la gramática. La investigación está orientada hacia el paradigma cuantitativo con un diseño experimental, puesto que pretende demostrar la mejora en las habilidades gramaticales de los estudiantes tras la intervención con el sistema basado en IA. Además, al probar la hipótesis planteada mediante la recolección de datos estadísticos y conocer los efectos en la aplicación de las variables, mediante el sistema de actividades se demuestra que el uso de las herramientas de IA, a través de actividades interactivas y adaptativas, pueden ofrecer una experiencia de aprendizaje más atractiva y efectiva, incentivando a los estudiantes a participar activamente en su proceso de aprendizaje. Este enfoque no solo mejora la gramática, sino que también fomenta una actitud positiva hacia el aprendizaje del idioma, lo que puede tener implicaciones duraderas en su competencia lingüística futura.

Palabras Clave: Inteligencia Artificial, sistema de actividades, estudiantes, gramática, reglas gramaticales.

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INTRODUCTION

Technological advances are initiating new ways of relating to each other and of learning, which has allowed the school field to become a place where teaching and learning are progressing by leaps and bounds. Therefore, teachers need to adapt to new forms of teaching, and students to new ways of learning, embracing various technological tools to achieve this. These tools are considered priority and indispensable in education. The most well-known systems for providing quick answers are those of AI (Artificial Intelligence), with the company Open AI gaining renown, positioning itself as a leader in the field of artificial intelligence for education worldwide. The company has created a platform for answering questions quickly through an internet database, although it is susceptible to errors, it is still being perfected. (Rivera Jiménez, 2023).

The UNESCO acknowledges that Artificial Intelligence is useful for addressing various needs of modern education, tackling challenges in an evolving world. However, it recognizes that implementing AI requires rediscovery and improvement of certain challenges and risks associated with its use. It is important to recognize UNESCO's crucial role, as it supports each of its member states in benefiting from the use of AI while also planning an educational agenda with a focus on the year 2030. (UNESCO, 2023).

Countries like the United States, China, and even the European Union estimate that by the year 2030, there will be a significant investment in artificial intelligence of around \$16.5 trillion. This implies that from the present day, people should already begin learning to use new technologies focused on artificial intelligence to keep pace with the technological evolution ahead. It is projected that by the year 2040, most purchases and technology usage will be done through virtual platforms, which may be applications available in the English language. (Barragán Martínez, 2023).

As researcher Bill Bonk states, the use of artificial intelligence in learning the English language is based on establishing a design of technological systems that contain a database of past information used by humans in the teaching-learning process. These systems have been productive in terms of efficiency, speed, and cost reduction. This allows AI to be established as a 'teacher' by configuring the system regarding assessment and feedback for teaching the English language.

However, the situation in the Ecuadorian context is different, as the country is limited in terms of budgetary resources to make a significant investment in the use of AI. This leads to the country stagnating on various levels, such as social, educational, and health. Therefore, this study will contribute insights into different artificial intelligences that are affordable for people and can be used in education, specifically in English language teaching and learning, with a particular focus on grammar learning.

In Ecuador, there are approximately more than 17 million inhabitants, a statistic that is constantly evolving in parallel with the improvement of technological systems. There are various teaching methods; each teacher in the classrooms has developed certain skills to impart their classes. Therefore, when creating the curriculum and teaching planning in educational institutions, special consideration must be given to the language subject. Teachers should consider that students need to have certain skills, including the desire to learn constantly, motivation to learn a new language, and time to practice the language both verbally and in writing daily (Ayala Pazmiño y Alvarado Lucas, 2023).

Given the importance of grammar in language learning, it is viable to use tools that enhance its development. Many students at any stage of language learning agree that grammatical explanation is an important step in audio-lingual practices. Therefore, it is argued that teaching grammatical rules is the next step to understanding, speaking, and expressing the English language in written words. Consequently, grammar is crucial when teaching English to students. According to author Gómez (2013) in his research, students studying the English language have begun to demand from teachers a greater emphasis on teaching grammatical rules, as it is deemed necessary to enhance their ability to learn the English language."

In Ecuador, English is taught as the main foreign language since it is considered the universal language worldwide. Educational units in Ecuador, according to their curriculum, provide English classes to students starting from preschool, allowing them to learn from an early age. In Ecuador, technological mechanisms have been implemented to keep up with global advances in teaching methods using technology. However, the country still needs to increase English language learning with new tools such as artificial intelligence. This study is based on the utilization of Artificial Intelligence applied to teaching English grammar, demonstrating that the research will cover topics ranging from what Artificial Intelligence is, to English language grammar, and how these two variables relate to each other to enhance language teaching and learning.

Based on, the author demonstrates through a survey conducted with ten third-year high school students from Colegio Juana de Dios in the city of Machala, that there are shortcomings in the application of grammatical rules in the learning of the English language. Subsequently, to support the research through observation, the author observes deficiencies in the teaching of grammatical rules by the teachers in the two third-year high school classrooms at Colegio Juana de Dios. Additionally, during the observation, it is noted that the students do not pay proper attention during class hours. According to the research objective, it is determined the importance of working with this population during the investigative process due to the following deficiencies observed and captured through the survey: Students do not have the appropriate level in the English language, which is observable in writing, by not using grammar rules correctly.

- The teachers lack the necessary expertise to teach the use of grammatical rules to third-year high school students at Colegio Juana de Dios in the city of Machala.
- Students do not have sufficient economic resources to receive private English language classes for improving their writing skills applied to their daily lives.
- Students consider English language classes within the classroom to be monotonous and boring.
- Students are familiar with artificial intelligence tools, but they are unaware of how to use them, or which ones are most effective for improving English language writing skills.

According to the detailed paragraph above, the following research problem is identified:

"How can we contribute to improving the use of grammatical rules in the English language among third-year high school students at Colegio Juana de Dios in the city of Machala?"

In consequence, the object of study is defined as the teaching-learning process of the English language in upper secondary education.

Based on the problem, the following General Objective is specified:

"To develop a system of activities using artificial intelligence tools to improve the application of grammatical rules in the English language among third-year high school students at Colegio Juana de Dios in the city of Machala."

The **scope of action** is delimited to artificial intelligence applied to teaching.

For the development of the research, the following specific objectives are proposed:

1. Theoretically substantiate the use of artificial intelligence to improve the application of grammatical rules in the English language among high school students.
2. Diagnose the current state of knowledge of grammatical rules in the English language among third-year high school students at the "Juana de Dios" Private Educational Unit during the 2024 school year.
3. Design a system of activities based on the use of artificial intelligence tools to improve the application of grammatical rules in the English language among third-year high school students at the "Juana de Dios" Private Educational Unit during the 2024 school year.
4. Evaluate the results achieved with the application of a system of activities based on the use of artificial intelligence tools to improve the application of grammatical rules in the English language.

The **scientific hypothesis** of this research work is proposed as follows:

"If a system of activities based on the use of artificial intelligence tools is implemented, it contributes to improving the application of grammatical rules in the English language among third-year high school students at Colegio Juana de Dios."

In the hypothesis, the relationship between two **variables** is studied:

The **independent variable** is the system of activities based on the use of artificial intelligence tools, which refers to a set of logically and systematically developed activities throughout the class, aimed at strengthening the mastery of grammatical rules in the English language.

The **dependent variable** in this research is the improvement in the application of grammatical rules in the English language.

The research adopts a **quantitative perspective** with an **experimental approach**, allowing for the exploration of relationships between the cause and effect among variables. This is based on the manipulation of the independent variable and the measurement of the effects of the dependent variable.

The study is conducted within a **population** of 47 students from the two parallel classes of third-year high school at Colegio Juana de Dios in the city of Machala.

During the research process, several scientific sources are investigated and analyzed using **theoretical methods**, which are:

Historical-logical method: essential to analyze the events that shape the phenomenon in both general and specific terms throughout its various phases, maintaining an orderly temporal sequence.

Analytical-synthetic **approach:** fundamental to decompose the problem and understand its origins, thus allowing the explanation and analysis of data, and the elaboration of conclusions.

The **systemic method** not only facilitates the organizational control of research and its interrelationships with the environment, but also promotes a holistic understanding by considering its interdependent parts. By adopting this approach, we seek to discern complex patterns and dynamic relationships that contribute to a comprehensive view of the phenomenon under study.

The **hypothetical-deductive** approach plays a crucial role in allowing a close examination of the phenomenon in question. This method involves making detailed observations in order to verify the hypothesis posed.

In the same way, **empirical methods** are incorporated, which are described below:

Measurement: it is used to obtain numerical data that supports what is implemented in English classes.

Observation: it provides the opportunity to perceive the phenomenon, making it possible to identify changes in the development of the system of activities to be implemented.

Diagnostic test: Establishes a comparison between the initial and final state, with the purpose of assessing whether a genuine change occurred. This assessment allows us to verify whether there is a presence or absence of changes and determine their magnitude.

Interview: it is presented as a tool that facilitates obtaining detailed information through open-ended questions. In addition, it fosters direct contact between the interviewer and the interviewee, allowing a deeper understanding to be obtained from the participant's perspective.

What makes the research work relevant is that it teaches the student to learn how to use artificial intelligence tools, so that they are useful in learning, being very useful to solve pertinent issues, that is, the interaction between the technological platform and the student in a productive way; obtaining results that allow the student to continue with their practices using the grammar rules in the AI platforms, achieving optimal results, maintaining interaction with systems with high visual content, which make it more dynamic and capturing the attention of whom.

The **practical contribution** of this study is a system of activities created with the use of artificial intelligence tools and will be carried out over a certain period, ranging from the initial development of the tool to its implementation in the classroom. The evaluation of results will be carried out using quantitative and qualitative metrics, including academic performance tests, satisfaction surveys and detailed observations.

The **study consists of three chapters**, at the beginning of it, the definition of the problem, the statement of the problem, the general objective and the specific objectives, the justification of the study, the scope and the limitations of the study are described in detail, being a contribution to future research on the subject.

Chapter I: The theoretical framework developed by the background of the research is made up of research of other aspects that were already investigated in different relevant scientific articles, which allow to sustain the viability of the work, developing the different theoretical concepts raised and that allow to know in depth the topic that is developed, where the legal aspect is included. Hypotheses, variables, and the operability of the variables.

Chapter II: In this chapter, the methodological framework of the research is developed, where the materials, methods, and techniques applied in the different measurements carried out during the research process are evidenced to solve the objectives set in this work.

Chapter III: In this section of the research work is the analysis and discussion of the results of the research, in addition to the proposal of the intervention strategy that was applied, for subsequent feedback of the proposal with the final evaluation of the results, with academic metrics that measure the academic performance of the student.

CHAPTER I

1. THEORETICAL FRAMEWORK

1.1. Historical Perspectives of Artificial Intelligence in Relation to Education and Language Teaching.

The integration of artificial intelligence (AI) in education has been an area of growing interest and development, applying AI techniques in language teaching, including grammar, has led to the need to create innovative educational tools and platforms, developing virtual tutoring systems, automatic exercise evaluators with personalized educational content.

Collective knowledge is what requires certain changes in teaching-learning, in order to prepare students in new work and academic scenarios that go hand in hand with the transformations of the future, which are related to the new industrial revolution, that is, to the fourth technological revolution in the world. where different technologies are interconnected, including the use of 3D applications, artificial intelligence or the internet, in a productive world that is more efficient; This leads us to an education 4.0 that creates a formulation that promotes self-learning, providing a context supported by new technologies and the use of new technologies for continuous learning. (Ayuso-del Puerto & Gutiérrez-Esteban, 2022).

The well-known English mathematician who provided his services in the Second World War Alan Turing, in the project called ULTRA gave way to the creation of the first computers, thanks to his research in 1950 he wrote an article called "Calculating Machines and Intelligence", a report that led him to be considered the father of artificial

intelligence, his main question focuses on whether machines can think? thus creating the Turing Test.

In 1956, the term Artificial Intelligence, with its acronym AI, appeared for the first time in the United States, at a convention that hosted a meeting of several scientists including McCarthy J., Minsky M., Shannon C., Newell A. and Simon H.; Later, in 1834, the mathematician Babbage Charles promoted and defined a new piece of technology called the universal calculating machine, which took precedence over the creation of the current computer, so in favor of its research he proposed the plans for its creation. (Hardy, 2001).

During the 1990s and 2000s, artificial intelligence began to gain relevance in the community as the magnates of the time started investing resources in researching this field, giving it enough importance to become relevant in society. During this time, the supercomputer Deep Blue emerged, capable of competing and winning a world chess championship, marking a more visible breakthrough, even in academic and scientific circles. The Watson computer is another example of how the world learned more about artificial intelligence, as this tool could provide answers to questions through logical reasoning. With this innovation in 2011 and 2014, virtual assistants like Siri, Google Now, and Cortana were launched into the world. These artificial intelligences reasoned through everyday questions, initiating a trend toward more relevant learning in society. (Pardiñas Remeseiro, 2020).

Currently, the fourth technological revolution is underway, preceding and giving rise to digital transformation, allowing software to govern the world, delimiting human actions. This revolution merges human physical efforts with technology implementation, as exemplified using mechanical prosthetics in people, which improve their quality of life and facilitate their everyday activities. (Pardiñas Remeseiro, 2020).

The magazine Portafolio allows readers to understand how AI tools can currently help learn languages more efficiently. The article mentions that AI has made significant advances in providing responses to grammar, pronunciation, and vocabulary questions, with one of the most used tools being the AI tool called ChatGPT. However, the research invites readers to consider that despite the existence of these AI tools, which are useful in teaching and learning, there is no program created that is as efficient as replacing language teachers in physical or virtual classrooms, as they bring their expertise to the table.

(Santana, 2024). In the development of Chapter I, the various AI tools available worldwide for managing English language grammar are presented, along with their respective objectives in the English language teaching and learning process.

1.2.Theoretical Characterization of the Use of AI in the English Teaching-Learning Process in High School.

What is Artificial Intelligence?

Artificial intelligence has an abstract concept that to define it requires establishing four different categories, the first is systems that think like humans, systems that think rationally, systems that act like humans, and systems that act rationally; Each of these categories contains its own concepts, which will be described in the following explanatory table:

Table 1 Concept of IA

<p style="text-align: center;"><u>SYSTEMS THAT THINK LIKE HUMANS</u></p> <p>It is considered an exciting effort to make computers think that machines literally have minds.</p>	<p style="text-align: center;"><u>SYSTEMS THAT THINK RATIONALLY</u></p> <p>The study of the calculations that make it possible to perceive and act reasoning</p>
<p style="text-align: center;"><u>SYSTEMS THAT ACT LIKE HUMANS</u></p> <p>It is the analysis that allows computers to be programmed to perform tasks, which humans currently do well.</p>	<p style="text-align: center;"><u>SYSTEMS THAT ACT RATIONALLY</u></p> <p>Artificial intelligence systems are considered to be intelligent design studies.</p>

Source: (Russel & Norvig, 2004)

According to Escobar (2021), artificial intelligence is defined as the organized simulation of processes that could be of human intelligence but are performed by machines operating computer systems. These systems can provide immediate responses to questions that are often unknown to humans. Artificial intelligence applied in the field of education

Education, as it is known, has undergone several changes over time due to society, advances in technology, and including the pandemic that the world experienced in 2020. Therefore, when referring to education, technology cannot be ignored. With Technology

4.0, education can be analyzed at that level, which promotes the use of digital and physical resources, providing innovative solutions to the circumstances that arise, leading to a society more interconnected with machines. Currently, ICTs (Information and Communication Technologies) are used in various fields, and within the educational system, the use of technology in learning and teaching has become indispensable. Surveys conducted with students have yielded optimal results regarding the motivation they feel to learn in technological classrooms, which offer a greater quantity of content and quicker responses on digital platforms. (Carbonell-García y otros, 2023).

The UNESCO expresses in its article titled "Artificial Intelligence in Education" that artificial intelligence promotes the potential needed to address the challenges in education at various levels when teaching-learning practices are applied. Currently, UNESCO promotes, through the "Beijing Consensus" program, a foundation for students and teachers to learn about educational policies in the field of artificial intelligence. (UNESCO, 2024).

Current education has used artificial intelligence through the application of chatbots, platforms that have allowed virtual interaction between students and virtual teachers, improving education and enabling students to learn effectively. This also helps in managing tasks while providing students with the support they need to enhance their learning. One of the most well-known branches of artificial intelligence in education is Machine Learning, a mathematical system used for making predictions in programming that allows comparisons with human intelligence. The most efficient use of this system in education is evident when measuring student performance, lesson planning, and academic activity management. (Obregón Gonzalez y otros, 2023).

Instructional Paradigms Applied in Language Teaching

The levels of learning, according to instructional paradigms, are divided into three groups: behaviorist, cognitivist, and socio historical. They are studied separately, and none is considered superior to the others in terms of hierarchy.

The behaviorist paradigm is an educational approach grounded in a psychological trend that focuses on analyzing processes through the observation of observable and measurable behavior as the primary basis for learning. This paradigm employs measurements centered on shaping behaviors by applying stimuli, starting with repetition and constant practice.

The cognitivist paradigm, on the other hand, emerges from the necessity to address problems that are not directly observable. It places its emphasis on mental processes and the active construction of knowledge by students. This includes cognitive processes rooted in projects, collaborative learning, reciprocal teaching, and inquiry.

As for the socio-historical paradigm, it is founded on Lev Vygotsky's theory, accentuating the impact of social and cultural factors on learning. This paradigm highlights the social interaction among students and their cultural milieu. It facilitates learning mediated by teachers, observational learning, and the utilization of cultural and social tools conducive to fostering critical thinking through dialogue.

The Impact of Artificial Intelligence on English Learning

Based on research, multiple authors have concluded that Information and Communication Technologies (ICTs) exert a profound influence on education. Their innovative features inspire greater student motivation to learn, driven by the trust that individuals place in these technologies. This anticipation enhances students' confidence in the classroom, thereby facilitating the teaching and learning process.

Currently, there are different digital educational platforms available, such as Edmodo and Google Docs, which support diverse educational modalities. These platforms such as blended learning (combining in-person and virtual lessons), mobile learning (digital platforms and phone apps), gamification (learning through games), inquiry-based learning (utilizing the internet for research), specific needs courses (tailored to particular purposes), specific courses (focused on specific topics), and creating and sharing content (platforms for interactive experiences). (Escobar Hernández, 2021).

While advancements in education are underway, there remains a limitation in fully embracing the digital transformation of educational systems. This requires educational institutions to adopt adaptive and flexible structures that can readily incorporate emerging technologies, thus fostering a culture of ongoing change. In conclusion, artificial intelligence tools exhibit superior capabilities in addressing issues across various levels and dealing with hard questions that may challenge human comprehension.

1.2.1. Pedagogical and didactic characteristics of the teaching-learning process of English in the baccalaureate.

In the process of teaching and learning English, it's crucial to acknowledge the necessity of a tailored pedagogical model to yield desired outcomes and meet set objectives. Understanding the nature of the study and various approaches is essential before determining a study methodology, ensuring an optimal and effective learning process.

The pedagogical models applied in the teaching-learning process that exhibit the highest effectiveness are those which utilize dynamic resources to generate specific knowledge. It's crucial to discern the desired outcomes to determine the most effective pedagogical model for the teaching-learning process. Among the pedagogical models that encompass relevant characteristics for teaching and learning are the following:

- Experiential model.
- Cognitive model.
- Constructivist model

1.2.1.1. Experiential Model.

This model is based on understanding the learning styles that each student requires, that is, the preferences, skills, and concerns they have during their education. As its name suggests, this model focuses on student experiences, encouraging learning through methodologies based on dynamic empirical knowledge, generated by students in the classroom. One of the learning styles related to this model is called "Kolb's experiential learning styles," which identifies the origin of learning (Erazon Chezar & Moreno Tique, 2018).

Didactic strategies within the model:

- Role-playing implementation with native English speakers.
- Developing and performing plays communicated in the English language.
- Watching videos, whether on social media platforms or elsewhere, in English.
- Producing written works such as essays, reports, in English, based on personal experiences.

Cognitivist Model.

This model is based on the intellectual reflection of the student, through their empirical learning process, which cognitive processes initiate before language, underlying the theory that cognitivism is not learned, but rather developed through interaction with what one desires to learn. Students play a significant role in the acquisition of knowledge itself, as they develop their cognitive abilities through study, thereby strengthening mental processes, enhancing fundamental cognitive capacities, and fostering verbal development in the new language. (García Juntas, 2022).

Didactic strategies within the model:

- Learning through project-based activities.
- Creating research papers or reports in English.
- Writing essays to assess English writing skills.
- Engaging with the community through interviews or presentations in English.

1.2.1.2. Constructivist Model.

The model combines elements from two previous models. It's widely accepted in teaching because it's very adaptable for language learning. Students can adjust to what they need to learn. This model is called 'constructive' because it involves active exploration, observation, processing data, and understanding them. (Mosguidt Mosquera, 2018)

There are several benefits to this model. It helps students develop their thinking skills, and they remember what they learn for longer. It also helps them with social and emotional skills. Finally, it encourages students to take charge of their learning and become good problem solvers.

. Didactic strategies within the model:

- Flipped classroom.
- Elaboration of bilingual projects.
- Interaction with technological platforms of didactic interest for the English language.

According to author Rodríguez Radas (2019), In their research on didactic models and English language learning, the concept of Foreign Language Didactics is defined as the set of decisions made by the teacher to create a class, based on the planning, implementation, execution, and evaluation of the activities carried out in teaching and learning (page 24).

Within the didactic model for English language teaching and learning, a sequence of activities is required, developed as follows:

Motivation - In this process, the teacher, through the socio-emotional development of the student, provides visual stimuli to encourage a high degree of emotions that generate excitement for learning, thereby motivating the student to learn a new language. Throughout the process, the teacher will also communicate to students about the didactics to be used throughout the English language teaching process in the classroom, aiming to enhance their basic knowledge, even at the high school level.

Sensitization - In this phase, the teacher introduces students to the topic by listing, identifying, recognizing, describing, and repeating key concepts to help them memorize the information. This process starts with students connecting with the new knowledge, engaging in activities that enhance both verbal and written comprehension of the foreign language.

Conceptualization - In this process, once students have learned new concepts, they begin to internalize and reconstruct their acquired knowledge, incorporating a new system of learning the English language. Here, students gather and process relevant information, thereby developing the communicative skills necessary for learning the new language.

Production - In this phase, students analyze their results through exercises that apply their knowledge and propose learning activities to demonstrate to the teacher that they have acquired new functional tools in verbal and written expression in English. Students may reuse what they have learned by creating production activities, aiming not to paraphrase but rather to conceptualize information in an integrated manner.

Evaluation - In this process, teachers assess students' acquired knowledge through a variety of observable methods, allowing them to identify shortcomings in the didactic process. This enables teachers to address students' biased learning and transform the teaching-learning process in the classroom.

1.2.2. Theoretical references of the use of AI in the teaching-learning process

Teaching languages in the classroom poses a challenge for both students and teachers due to its complexity. Learning a new language requires skills that need to be implemented in both the learning and teaching roles. This is because when learning a new language, it's not just about acquiring new words, but also understanding a world filled with rules and grammatical forms.

According to the virtual Education magazine of El País newspaper (2023) , there's a debate on whether AI in language learning an ally or an adversary is. The study concludes that AI is a great ally if it has access to vast amounts of humanized data in its networks. Experts suggest that “with human supervision, AI can significantly aid and complement the teaching-learning process” (page 1).

1.2.2.1.Applications of AI in the Language Classroom

One of the most commonly used AI platforms in language classes is assisted or automatic translation, which involves data analysis and text translation. Although these translations are not always perfect, the application is beneficial at all times during students' learning.

Among the most commonly used tools for their user-friendly nature in language learning are the following:

- TalkPal. – This app focuses on language learning from learning experiences, reducing the levels of complexity during use.
- Duolingo. – This application offers the student a wide variety of activities, with games, tests, challenges adapted to the student's level of learning or knowledge.
- Rosetta Stone. – This application is one of the most advanced, within its platform it already incorporates the voice identification system, in this application several languages are handled with a high level of both didactic and methodological materials.

- Babel. – This application has a system of practical conversations that are used in everyday life, which allows the student to learn the language faster, in a way that increases their levels of knowledge during their learning.
- Mondly. – In this application, the well-known Chatbots are used, applying a more immersive and interactive learning tool, with a scope of more than 30 languages, languages applicable in pronunciation and grammar.
- ChatGpt. – In this application, a dynamic is carried out where students interact with an AI, in the same way in methods of language translation or for correction of grammar of the English language.

One of the platforms currently gaining acceptance for its diversity in English language learning, based on artificial intelligence, is Leah; a diagnostic and predictive platform. Leah has implemented an advanced level of prediction and assessment of English language proficiency through artificial intelligence algorithms. In this way, students can identify their level and weaknesses in language learning.

1.2.2.2. Advantages and disadvantages in the use of AI in language teaching-learning.

According to the El Tiempo website, in its study on the advantages and disadvantages of using AI to learn languages, it analyzes, based on the compilation of several studies, the pros and cons of using artificial intelligence in language teaching and learning. This aims to highlight key points that students and teachers should consider, focusing on areas that could be strengthened and those that require more attention when using AI in classrooms. (Salamanca Gómez, 2023).

Among the advantages of using AI in language learning, platforms focused on translation tools stand out. These platforms have facilitated learning since translation tools have proven to be accurate and efficient, thus easing their use and enhancing students' reading comprehension. This advantage has optimized study time, as students no longer need to memorize to learn, leading to a longer retention of acquired knowledge. Feedback on grammar, vocabulary, and pronunciation has also made it possible for students to have more interactive classes. This type of learning allows students to use their language skills to interact with native English speakers during the learning process.

Similarly, AI has its disadvantages. One of the main issues arises when students have unrealistic expectations. Additionally, students need autonomy skills, which require self-discipline to learn, especially when they lack supervision during interaction with AI.

Another disadvantage is that many students do not have access to technology or internet networks, making it impossible for them to use AI during their learning process.

1.2.2.3.English teachers' perspective on the use of AI.

Language teachers, particularly those teaching English, consider that the use of artificial intelligence in the teaching-learning process has a positive impact and thus highly value its use. According to a survey conducted by Slidesgo School, in their research titled "Survey on AI in Education" regarding AI tools for education, teachers highlight one of the most relevant features of using AI, which is time optimization. AI tools provide immediate suggestions for developing responses to questions during learning, thereby optimizing the learning process. (Slidesgo School, 2023).

1.2.3. Grammar rules and their characteristics.

Within English language teaching and learning, it's important to understand grammatical rules. However, to delve into this investigation, it's crucial to grasp the concept of grammar. Grammar is defined as the set of rules that govern the structure of the English language. To achieve this, phrases, words, and sentences must be used to structure texts comprehensively, whether used verbally or in writing.

There are 10 grammatical rules that are important in the development of the teaching-learning process, as they allow students to learn the English language more efficiently and speak it fluently. These rules have different functions, and when combined, they contribute to forming grammatically correct English.

These rules are detailed below:

- Rule No 1.- Construction of sentences to form a sentence.
- Rule No. 2.- The use of the subject, verb, adjectives and adverbs.
- Rule No. 3.- Use of homophones.
- Rule No. 4: Keep the time of prayer.
- Rule No. 5.- Well-structured comparative adjectives.
- Rule No. 6.- Use of the active voice to construct sentences.
- Rule No. 7.- Copulative conjunction to form compound sentences.
- Rule No. 8. Use of indefinite and definite articles with nouns.
- Rule No. 9.- Prepositions to demonstrate location.
- Rule No. 10.- The correct order of words for asking questions.

1.2.3.1. Rule No. 1.- Construction of sentences to form a sentence.

All sentences consist of 8 parts for their construction. These include the noun, pronoun, verb, adverb, adjective, preposition, conjunction, and interjection. When constructing sentences, it's necessary for these elements to be arranged in a specific order to make sense. Without this organization, the sentence may lack meaning for the reader or listener.

In English, there are two types of nouns: common nouns and proper nouns. Common nouns refer to nonspecific people, places, and things, and they do not require capitalization at the beginning of each sentence. For example, "Universal Studios" is a common noun referring to an amusement park.

Pronouns replace nouns in sentences. In English, there are different types of pronouns, including personal pronouns (such as I, you, he, she, they, we), possessive pronouns (such as yours, mine, his, hers, theirs, ours), and demonstrative pronouns (such as this, these, that, those).

The verb is the action performed by the noun. It's used to describe the state of a being or what it does at a specific moment. In order for a sentence to exist, there must be a verb. An adverb describes an adjective, a verb, or another adverb. For example, "She washed **quickly**." An adjective, on the other hand, describes a noun or a pronoun. For instance, "The ball is **white**."

Prepositions indicate time, location, or direction. They come before the pronoun or noun in a sentence. For example, "The pigeon is inside the cage." Conjunctions are used as connectors between words and/or phrases. Some of the most commonly used conjunctions in English include "and," "or," "for," and "but." Interjections, on the other hand, are used to express emotions, whether they are of shock, happiness, etc. For example, "Oh!"

1.2.3.2. Rule No. 2.- The use of the subject, verb, adjectives and adverbs.

As previously discussed, adjectives describe nouns. In English, adjectives do not change, even if the noun is plural. For example:

- Big dog.
- Big dogs.

Adverbs are those that are placed after the verb, except for when the verb 'to be' is used. For example:

- She is a slow runner-(adjective).
- She runs slowly-(adverb).

Adverbs are mostly created by adding "-ly" to an adjective.

Within each sentence, it's important to use the correct verb, which must agree with the subject. Special attention should be paid to pronouns like he, she, and it. Similarly, when writing using "there is" or "there are," the verb must agree with the initial element mentioned. For example:

- There is a car and some trucks.
- There are some trucks and a car.

1.2.3.3. Use of homophones.

Las palabras homófonas son aquellas que tienen una pronunciación similar pero una escritura diferente. Es importante reconocerlas para tener fluidez en el idioma. Algunos ejemplos de palabras homófonas son:

- They are – Their – There.
- You are – Your
- I – Eye
- Here – Hear.

1.2.3.4. Rule No. 4 - Maintain the tense of the sentence.

There are four common tenses used in the English language, including simple past, present continuous, simple present, present perfect, and future. In the simple present tense, states that do not change are described, meaning activities that occur in the present. The most used adverbs in this tense are always, often, usually, sometimes, etc.

In the present tense, the auxiliary verb used is "do" when forming questions. However, when making sentences in the third person singular, "does" is used before the verb, and in negative sentences, it's "do not" or "does not." For example:

- Do you have a question?
- I don't eat potatoes.
- Does he need help?

The present continuous tense is used to describe activities that are ongoing or happening at the moment of speaking, including those that haven't finished yet and are occurring in the near future. For example:

- He has never played soccer.

The present perfect tense is used to describe actions that are still happening now, or for activities that have just been completed, or actions that have occurred on multiple occasions. For example:

- She has never played tennis.
- I have just made an appointment at the nurse.

The past perfect is used to describe actions that have already been performed in the past, the key words in the past simple are: already, never, once, as an example are the following sentences:

- My brother is my bread which we had baked before.

The simple past is used for activities that were completely carried out in the past, within the keywords, we have: last week, last year, as an example we have:

- I went to the nurse last month.

The continuous or progressive past tense is used for activities that have already happened, in the past that is over, among the keywords are while, as long as, such as:

- I was watching TV.

The form that is used for the future is "Will", which is used when it is necessary to give answers to spontaneous decisions, where the way to say sentences in the negative is Will not or wonot, as an example is:

- I promise, I Will visit you soon.

The "going to" form is used for future planned activities, for example: "Next year I am going to see my mom." The present simple is used for actions that were planned in the future and adhere to a set schedule, such as: "His birthday falls on a Sunday next week, right?" The present continuous, on the other hand, is used for arrangements that have been scheduled to take place in the future, where an individual is already engaged in them, like: "She is getting married next month."

1.2.3.5.Rule No. 5.- Well-structured comparative adjectives.

In English, there are short, long, and two-syllable comparative adjectives, each with rules for their use. For short adjectives, "er" is added to the end, for example: Old - Older, as in the sentence: "My brother is older than my mother." For long adjectives, "more" or "less" is used before the adjective, for example: "The blue car is less expensive than the red one." For two-syllable adjectives, as the statement indicates, "er" or "more" is used, for example: "The mentor is cleverer than the classmates."

Within the comparative adjectives, there are also irregular adjectives and the adjective of a single syllable that ends in a consonant, among the irregular ones are the following:

- Good – Better
- Well – Better
- Bad – Worse

For single-syllable adjectives that end in a consonant, the consonant should be doubled at the end, such as: Fat-Fatter; Sad-Sadder.

1.2.3.6.Rule No. 6.- Using the active voice to construct sentences.

The use of the active voice is important, more so than the passive voice, as it allows for more efficient dialogue, where the speaker communicates from the perspective of the person performing or having performed the action. In the active voice, the subject is mentioned before the verb, as in the example: 'Juan studies law..

1.2.3.7.Rule No. 7.- Copulative conjunction for forming compound sentences.

Among the compound conjunctions in English are: for, nor, and, yet, or, so; which allow independent clauses to be linked between two compound sentences. Examples of copulative sentences include: "I want the blue car but will buy the red one." In this sentence, the copulative conjunction is "but," which allows the two phrases to be joined to form compound sentences..

1.2.3.8.Rule No. 8.- Use of indefinite and definite articles with nouns.

Within the grammar of the English language, there are articles that are indefinite and definite and are used in conjunction with nouns. The definite article is "The," and the indefinite articles are "A" and "An." These are used with singular nouns, "a" precedes nouns that start with consonants, and "an" precedes nouns that begin with vowels. In the

case of "The," it is used when referring to "the" in English, accompanying nouns that can be singular or plural, for example: "The boy is in the game center" - "The boys are in the park." When using "a" and "an," it should be noted that they are indefinite articles because they do not specify whether one thing or multiple things are being referred to. In Spanish, they are known as "un" and "una." Therefore, they cannot be used with uncountable nouns such as water, air, or sand, but they can be used in constructions like "a glass of water."

1.2.3.9. Rule No. 9.- Propositions to demonstrate location.

In learning the English language, prepositions are required to determine time, location, and place. Among the most commonly used prepositions are "at," "on," "to," "in," and "of." These prepositions cannot be directly translated as the native language requires because they would be translated incorrectly. The preposition "in" is the most commonly used and is used when the object or subject is located in a three-dimensional space or when it is performing an action within a place, for example: "Maria is in the mall."

1.2.3.10. Rule No. 10.- The correct word order for asking questions.

The structure of sentences when used in affirmations is completely different from when they are used for questions. Therefore, when learning the English language, it is often one of the topics that can cause the most confusion. To learn, four forms should be considered to correctly form questions:

- With the verb "to be," the subject should be inverted with the verb, as in the example: "Are you a nurse?"
- With the rest of the verbs, "do/does" should be added, as in the example: "Do you need help?"
- To form sentences with modal verbs like "can," "may," "will," "should," the modal verb and the subject should be inverted, as in the example: "Can you go to the cinema?"
- For sentences with auxiliary verbs like "be," "do," "will," "have," the auxiliary verb and the subject should be inverted, as in the example: "Have you seen my telephone?"

1.3.Contextual background of the teaching-learning process of English in high school in Ecuador.

According to research conducted by Rodríguez Morales (2016), in Ecuador, the English proficiency level among third-year high school students is deficient due to various pedagogical difficulties. These difficulties range from students' living conditions and lack of material resources for learning to economic constraints and a lack of motivation to learn new languages. (p. 12). The study highlights the pedagogical need for students lacking English proficiency to have access to classes that promote compensatory learning strategies. These strategies enable students to address needs resulting from a lack of knowledge.

According to the research carried out by Rodríguez Morales, in Ecuador the level of English is deficient among students in the third year of high school, due to the different pedagogical difficulties that exist, in addition to the different problems, ranging from the standard of living of the students, the lack of material resources for learning, the economic conditions to the lack of motivation to learn new languages. (p. 12). The study highlights the pedagogical need for students who lack English levels to have access to classes where strategies called compensatory learning are promoted, which allow students to compensate for needs that have been caused by lack of knowledge.

Among the most commonly used compensatory strategies, the following are highlighted: the use of the native language, seeking assistance, using gestures, complete communication rather than partial, selecting the topic correctly, getting close to the message, inventing words, and using synonyms to convey the desired message. These strategies enable students to improve their skills by focusing on the main ability, which is learning to communicate effectively.

In the study conducted among high school students in the city of Ambato, it is evident that students perceive English classes as highly complex. However, mastering the new language simply requires daily practice, and success is not solely the responsibility of the students but also depends on the teaching methodology used in the classroom. Interactive classes have been instrumental in fostering motivation to learn English. The Ministry of Education emphasizes the importance of students learning a second language, particularly English, given its status as a global language. Therefore, efforts are focused on teaching English within the classroom. (Santos Escalante, 2009).

The Ministry of Education, through agreement 41014, mandates the inclusion of English as a compulsory subject in the curriculum starting from the eighth grade. Furthermore, as part of the educational reform, there is a clear need to hire highly qualified personnel to teach English in order to enhance students' knowledge levels from basic to high school education in Ecuador. The government has directed all its efforts towards improving the English curriculum to address the identified shortcomings in classrooms over the years. Consequently, in 2020, an evaluation of English teachers was conducted to assess their abilities to teach students, and a restructuring of the academic curriculum for English was implemented at the elementary, high school, and higher education levels. (Ministerio de Educación, 2023).

There is a new national curriculum for English language instruction, developed to meet the need for quality bilingual education. This curriculum document includes assessment levels designed to provide the necessary tools for addressing weaknesses and enhancing opportunities. Socioeconomic status plays a crucial role in English language teaching and learning. Among third-year high school students in both urban and rural areas of the Cañar province, it is evident that students' English proficiency levels are correlated with their economic backgrounds. Those from lower-income families tend to have lower English proficiency levels, while students from higher-income families demonstrate higher proficiency levels. (Ortega Auquilla & Minchala Buri, 2019).

A brief history of the evolution of English language learning in high schools in Ecuador begins with the curriculum reform in high school, which allowed students to obtain degrees in technical and specialized sciences in languages. This led to the inclusion of English instruction in most higher education centers. Subsequently, with the curriculum reform, the emphasis was placed on developing strong reading skills in both the native language and the foreign language.

During the Citizen Revolution in 2007, several educational reforms were implemented, including assessments of both teachers and students, revealing low scores that highlighted the deficit in English language learning.

In 2009, the CRADLE program was introduced, creating a functional curriculum approach for students from basic levels to those in their first three years of high school. This program aimed to promote language use through four basic skills, aligning with the established curriculum for high school students in Ecuador. By 2017, through various

reforms, a school curriculum was developed that increased the hours of English language instruction in classrooms, aiming to ensure that by 2025, high school students would graduate with English proficiency ranging from pre-basic to dependent user levels. (Mendoza Bravo y otros, 2017).

1.4. Diagnosis of the current state of third-year high school students at Colegio Juana de Dios in the teaching-learning process of English grammar.

In this section of the research, the results obtained will be shown, referring to the diagnosis made to the students of the third year of high school of the "Juana de Dios" school. To this end, data collection instruments were used: observational guide (ANNEX 1), semi-structured interview addressed to the teacher (ANNEX 2) and the pedagogical test aimed at students (ANNEX 3).

Analysis of Results:

To obtain an initial diagnosis, the observational guide instrument was used. Through this data collection, the following results were obtained:

- There is a good distribution of desks in the classroom, allowing students to be in a harmonious environment, improving the quality of learning by listening to the class. Students use textbooks, recorders to listen to pronunciation, and the blackboard.
- The teaching methodology within the classroom is not dynamic, so students tend to get bored easily. There is participation, but it is not sufficient to maintain an active and participatory class, involving more than 50% of the students.
- During classes, the teacher does not use technological tools, including not using artificial intelligence platforms, both for teaching in class and for formative assessment of students.
- The teacher does not use group work to promote integration, collaboration, and cross-correction of students' grammar during class hours.

In 85% of cases, students do not feel comfortable in the classrooms because the teacher does not promote student inclusion.

To continue data collection and obtain a diagnosis, a semi-structured interview was conducted with the third-year high school teacher at "Juana de Dios" school to understand their skills and experience in teaching English. The following results were obtained:

- The English teacher at "Juana de Dios" school has been with the educational institution for 1.5 years but has a total of 3 years of teaching experience, focusing on high school students.
- Regarding methodology, the teacher mentions relying on grammatical literature and repetitive practice exercises in most classes due to the lack of sufficient tools to make the class more dynamic.
- The teacher acknowledges the existence of technological tools but personally opts for traditional teaching methods, though students are encouraged to use them independently.
- Concerning instructional materials, the teacher primarily uses textbooks and the blackboard, following traditional teaching methods. However, they acknowledge that this approach has led to student demotivation in learning English, resulting in various challenges, such as constant classroom distractions.
- Lastly, the teacher states, "I don't usually collaborate much with other teachers or participate in professional development activities because I prefer to work independently and don't believe that English teachers from other levels can help improve my teaching skills." This response highlights a lack of collaboration among English teachers at "Juana de Dios" school.

To conclude the diagnosis, a pedagogical test was administered to the third-year high school students at "Juana de Dios" school to assess their grammar knowledge of the language. The test was based on six indicators: grammatical accuracy, vocabulary, text

comprehension, written expression, oral expression, and class participation. The following results were obtained:

- Grammatical Accuracy: 65% of students make errors such as "She to study for her exam tomorrow," "They eated dinner when I arrived," "I am tired yesterday," indicating a lack of reading comprehension, verb conjugation, and tense structure understanding. This demonstrates a significant number of incorrect responses when completing sentences, with basic grammar rules not being properly applied.
- Vocabulary: Students struggle to identify and use words such as nouns, adjectives, verbs, and adverbs in basic sentences, hindering their ability to formulate simple sentences using correct grammatical terms due to a lack of familiarity with basic English grammar-related vocabulary.
- Text Comprehension: 55% of students have difficulty answering questions about a short text using a simple grammatical structure, indicating a lack of comprehension of basic grammatical functions within the context of a text. Students were unable to identify the main action in the following simple sentence: "Peter went to the store to buy some bananas."
- Written Expression: 72% of students have difficulty writing a coherent paragraph using correct grammatical structures and appropriate vocabulary. Poor application of grammar rules hinders their ability to write texts effectively.
- Oral Expression: 75% of students struggle with oral expression, with pronunciation indicating a lack of grammatical structure.
- Class Participation: 86% of students demonstrate low participation in class due to fear resulting from a lack of knowledge of grammar rules. Lack of comprehension leads students to refrain from contributing ideas, and when they do, their ideas are vague and lack grammatical precision.

The results demonstrate a lack of motivation among students in third-year high school classes at "Juana de Dios" school for learning English, attributed to the teaching methodology lacking current technological inputs. Traditional methods have resulted in lower English proficiency levels among students. According to the pedagogical analysis, over 50% of students have significant grammar deficiencies across various indicators,

with none achieving high learning scores. While students are aware of AI tools to improve grammar, they do not use them consistently due to a lack of daily support in class.

CHAPTER II

2. METHODOLOGICAL FRAMEWORK

In this chapter, the methodology to be used in the study of the research object will be presented. To achieve this and obtain the expected results, aspects such as the description of the type of design, methods, and data collection techniques will be described. These will allow the researcher to analyze the results obtained during the process.

2.1. Methodological perspective

In the research process, a quantitative paradigm will be used, allowing for the analysis of data and the study of identified dependent and independent variables. It evaluates the approach which guide the planning, implementation, and evaluation of activities in the teaching-learning process.

As the authors state (Finol de Franco & Vera Solórzano, 2020), The positivist quantitative paradigm follows a linear sequence, starting from the problem statement, the study of theories, the formulation of hypotheses, and then implementing methodological tools and data collection instruments. This involves defining the population, sample, to obtain validation and reliability of data, which are evidenced through a hypothetico-deductive method.

Type of research and design

In the research, in order to provide a solution to the central objective, a type of experimental research was used. As stated by the authors, (Guevara Alban y otros, 2020), the experimental research is a process by which the conditions of an object (independent variable) can be altered, and then observe the reactions they elicit as a result (dependent variable). This means that, within experimental research, the researcher can manipulate variables to improve the conditions or behaviors that are being analyzed and have already been observed. For this type of research, a true experimental design was used, characterized by high control of variables and random assignment of subjects to the groups participating in the research. In this type, independent variables are manipulated,

and subjects assigned randomly exert control over the variables to be measured. (Zurita Cruz y otros, 2018).

2.2.Population

In this research, as mentioned earlier, a population of 47 students enrolled in the third year of high school at "Juana de Dios" school during the 2023 academic year was used. The school is located in Machala, El Oro Province, and is a private institution catering to students from various social classes and ideologies..

In the student population, there are a total of 27 female students and 20 male students, ranging in age from 16 to 18 years old. There is a balanced gender distribution among the students, which allows for results that are more representative and efficient for resolving the research objective. Additionally, the students are in similar economic levels; all 47 are in a middle socio-economic status.

2.3.Research Methods

In the research process, the scientific method was utilized, which involves observation, measurement, and experimentation, based on the formulation, analysis, and substantiation of research hypotheses. It is agreed that in any scientific investigation, the scientific method must be applied, which paves the way for the use of data collection instruments and their systematic and orderly analysis. (Castán, 2019).

The scientific method is one of the most suitable methods for creating knowledge, as it is not focused on maintaining definitive concepts but rather adapts to various fields of knowledge. Within this method, several characteristics lead to the acquisition of new forms of knowledge. The method requires the fulfillment of several stages, starting from the formulation of the research problem, the statement of hypotheses, the collection of data, and their analysis and interpretation. (Asensi Artiga & Parra Pujante, 2002).

The following theoretical methods were used in the research:

2.3.1. Historical-logical method

In the historical-logical method, analysis occurs between the historical, which focuses on the actual trajectory of events or phenomena that unfold over time or in history, and the logical, which investigates the laws that lead to the development of these phenomena. This method used together, is employed to analyze a portion of history's course, where the axis of research is located, unveiling the most relevant findings that

have been investigated and leading to the resolution of the main problem. (Torres Miranda, 2019).

2.3.2. Analytical-synthetic method

The analytical-synthetic method refers to a combination of two methodological processes, where analysis allows for a logical process of breaking down multiple parts and studying the properties and qualities of each. Conversely, synthesis, once each part has been analyzed, engages in a comprehensive study process, thereby discovering similarities among the related elements. (Rodríguez Jiménez & Pérez Jacinto, 2017).

2.3.3. Systemic method

The systemic method, as its name suggests, is a method that comprises a set of interconnected systems, allowing for various studies to interact with each other. This means that norms cannot be studied separately; rather, they require an integration where they seek a common purpose and exhibit certain characteristics such as integrity, cohesion, self-sufficiency, and harmony. (Barrios, 2023).

2.3.4. Hypothetical-deductive method

In the hypothetico-deductive method, the researcher begins with the formulation of a law that allows for the logic of scientific research, leading to the establishment and construction of theories. The method enables the creation of symmetry between prediction and explanation because one follows the other, allowing them to function either a priori or a posteriori. (Hernández Chanto, 2008)

In the same way, empirical approaches were used, which are detailed below:

2.3.5. Measurement

According to (Coronado Padilla, 2007), *"Measurement is an essential aspect of any research, whether qualitative or quantitative. It primarily involves assessing variables, which entails considering three key elements: the measuring instrument, the scale used, and the unit system"*

2.3.6. Observation

According to (Campos y Covarrubias & Lule Martínez, 2012), *"Observation is the most systematic and logical way to visually and verifiably record what one intends to know; that is, it is to capture as objectively as possible what happens in the real world,*

either to describe it, analyze it, or explain it from a scientific perspective. This differs from what happens in the empirical world, where common individuals use observed data and information practically to solve problems or satisfy needs."

2.3.7. Interview

According to (Díaz Bravo y otros, 2013), The interview *"is defined as a conversation aimed at a specific purpose other than simply talking (...)* The interview is very advantageous, especially in descriptive studies and in exploratory phases, as well as for designing data collection instruments." The interview was conducted with the teacher to determine the level of knowledge, methodology applied in the classroom, and the use of AI during or outside class by the students. The questions were strategically posed to support the theories of the initial exploratory phase and to establish an accurate diagnosis.

2.3.8. Diagnostic Test

"It consists of a scientifically valid and meaningful measuring instrument or examination applied during the investigative process to diagnose the state of a problem or to assess the level of change or improvement in an educational phenomenon." (López Falcón & Ramos Serpa, 2021, págs. 26-27).

2.4. Data Collection

2.4.1. Data collection instruments

In this research, the variables (dependent and independent) will be analyzed to ensure coherence and consistency. The following table of operationalization of the variables was created for this purpose, as detailed below

Table 2 Operationalization of variables

Scientific Problem	General Objective	Hypothesis	Research Variables	Categories	Measurement Indicators	ITEM S
¿How to contribute to the improvement of the use of grammar rules in the English language, in	Develop a system of activities with the use of artificial intelligence tools for the improvement	If a system of activities based on the use of artificial intelligence tools is implemented, it contributes to	Dependent variable: Improvement in the application of English grammatical rules	<ul style="list-style-type: none"> Correct use of verb tenses 	<ul style="list-style-type: none"> Percentage of grammatical errors corrected before and after the intervention. 	ITEM 1

<p>the students in the third year of high school at the Juana de Dios school in the city of Machala?</p>	<p>of the Application of the grammatical rules of the English language in the students of the third year of high school of the Juana de Dios School, in the city of Machala.</p>	<p>improving the application of English grammar rules among third-year high school students at Juana de Dios School.</p>		<ul style="list-style-type: none"> • Correct grammatical structure • Correct use of idioms and idiomatic expressions • Fluency and coherence 	<ul style="list-style-type: none"> • Score on a reading comprehension test evaluating the application of grammatical rules. • Percentage of correct answers on a grammar rule application test. • Percentage of sustained improvement on follow-up tests conducted after a specified period of time. • Comparison of Grammatical Knowledge Retention Between Different Groups of Participants. • Number of grammar 	<p>ITEM 2</p> <p>ITEM 3</p> <p>ITEM 4</p> <p>ITEM 5</p>
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			<p>Independent variable: Activities based on the use of AI to improve English grammar.</p>	<ul style="list-style-type: none"> • Type of activities. • Complexity of activities. 	<p>practice exercises.</p> <ul style="list-style-type: none"> • Percentage of activities focused on specific grammatical areas. • Variety of activity formats. • Level of difficulty of activities (beginner, intermediate, advanced) • Average length of sentence used in activities. • Percentage of activities that require the use of more advanced or subtle grammar rules. • Number of platforms through which AI activities are offered. 	<p>ITEM 6</p> <p>ITEM 7</p> <p>ITEM 8</p> <p>ITEM 9</p>
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					<ul style="list-style-type: none"> • Evaluation of accessibility and usability of AI platforms. 	ITEM 10
					<ul style="list-style-type: none"> • Provide feedback Students' experience in the use of the activities in the different modalities. 	ITEM 11
					<ul style="list-style-type: none"> • Percentage of correct answers y identified by AI. 	ITEM 12
				<ul style="list-style-type: none"> • Modalidad de entrega. 	<ul style="list-style-type: none"> • Clarity and relevance of feedback AI Implementation. 	
					<ul style="list-style-type: none"> • Average AI Response Time to Student Actions. 	ITEM 13
						ITEM 14

Table 3 Dimensions and analysis

Dimensions	Analysis
<p>Dependent Variable</p> <p>Correct usage of verb tenses: Level of accuracy in applying grammatical rules, which could be assessed through writing tests or error correction.</p> <p>Correct Grammatical Structure: Ability to understand and apply grammatical rules in different contexts, which could be evaluated through reading comprehension tests or text analysis.</p> <p>Fluency and Coherence: Assessment of fluency and coherence in written expression, considering the effective application of grammatical rules to construct coherent sentences and paragraphs.</p> <p>Proper use of idioms and idiomatic expressions: Extent to which acquired grammatical knowledge is retained and applied over time, which could be assessed through long-term monitoring or retention tests.</p>	<ul style="list-style-type: none"> • The dependent variables will be evaluated using the evaluation rubric established in Table 4.
<p>Independent variable</p> <p>Type of activities: Classification of AI activities used, such as grammar practice exercises, text analysis, generation of grammatical examples, etc.</p> <p>Complexity of Activities:</p>	<ul style="list-style-type: none"> • 1 point: Basic activities. • 2 points: Intermediate activities. • 3 points: Advanced activities.

<p>Degree of difficulty of the activities, which could be measured in terms of the</p> <p>Delivery Modalities: Ways in which AI activities are offered, such as mobile apps, online platforms, interactive tutorials, etc.</p> <p>Feedback from AI: The nature and quality of feedback provided by AI in response to user actions, such as grammatical corrections, suggestions for improvement, detailed explanations, etc.</p>	<ul style="list-style-type: none"> • 1 point: Low complexity. • 2 points: Medium complexity. • 3 points: High complexity. • • 1 point: Limited. • 2 points: Diversified. • 3 points: Spacious and accessible. • • 1 point: Limited or unclear. • 2 points: Useful and relevant. • 3 points: Precise and detailed.
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Elaboration: Prepared by the author

The English grammar and vocabulary assessment rubric designed for students aged 17 years and older was used, as required for this research, in order to identify the strengths and weaknesses of the students:

Table 4 English Grammar Usage Assessment Rubric

Evaluation Criteria	Excellent	Outstanding	Well	Acceptable	Low
Correct use of verb tenses	Demonstrates complete mastery of verb tenses and uses them correctly in their writing	Uses most verb tenses appropriately, with only a few minor errors	Shows general understanding of verb tenses, but makes several mistakes in their use	Use some verb tenses correctly, but make frequent mistakes	Has difficulty using verb tenses correctly and makes serious mistakes
Correct grammatical structure	Demonstrates impeccable grammatical structure and uses grammar rules correctly	It has a good grammatical structure overall, although it may make some minor mistakes	Shows some understanding of grammatical structure, but makes several mistakes in its use	Has difficulty maintaining a consistent grammatical structure and makes frequent mistakes	Has an unclear grammatical structure and makes serious mistakes on a regular basis

Proper use of idioms and idiomatic expressions	Use idioms and idiomatic expressions effectively and in the right context	Use some idioms and idiomatic expressions correctly, but with a certain lack of naturalness	Shows some attempt to use idioms and idiomatic expressions, although he makes frequent mistakes	Has difficulty incorporating idioms and idiomatic expressions into their writing properly	Has limited knowledge of idioms and idiomatic expressions, and their use is incorrect or non-existent
Coherence and fluency in writing	Write coherently and fluently, using a variety of connectors to link ideas together	Writes generally coherent and fluent, although there may be minor interruptions in the flow of the text	It shows some coherence and fluency, but the writing can be confusing at some points	You have difficulty maintaining consistency and fluency in your writing, making it difficult to comprehend	Writing is incoherent and lack fluency, resulting in very limited comprehension

Prepared by: (Edutekalab, 2023)

During the development of this chapter, the methodological framework of the research was outlined, with a focus on the selection of the study population, the typology, and the methods used during the investigative work, all of which addressed the stated problem.

CHAPTER III

3. SYSTEM OF ACTIVITIES BASED ON THE USE OF ARTIFICIAL INTELLIGENCE FOR THE STRENGTHENING OF ENGLISH LANGUAGE GRAMMAR

3.1. Foundation of the activity system based on the use of artificial intelligence for the strengthening of English language grammar

The research allows the Autor to create a system of activities based on the use of artificial intelligence for the strengthening of English language grammar in third-year of baccalaureate students from “Juana de Dios” in the city of Machala. In order to find the research, it is necessary to know what a system of activities is, its operation and the development of the relationship that exists between the creation of the activity system and the research objective.

According to the authors (Romero Fernández y otros, 2011), the activity system as a scientific result, indicates that it is a “set of activities related to each other in such a way that they form a unit, and contribute to the achievement of a general objective as a solution to a previously determined scientific problem”.

The author (Santovenia Díaz, 2010), expresses in his research that exists a system of activities focused on the cooperative learning and defines it in the following way “a carefully designed system of interactions that organizes and induces reciprocal influence among the members of a group, developed through a gradual process in which every member and all feel mutually committed with each other’s learning and generate positive interdependence without involving competition”.

Activity within the learning-teaching category process, according to the author (De Vargas, 2020), it defines as “essentially, activity presupposes not only the actions of a single individual taken in isolation but also their actions in the conditions of other people activities, in others words, it presupposes a certain joint activity”, what the author articulates is that the activity is composed by a reason, a need with a purpose.

(Castañeda Bazán, 2017), in her research refering to activities based on multiple intelligences, suggests that when the need comes, implementing the theory of multiple intelligences will allow the production skills to improve significantly, creating a positive impact on foreign languages learning.

The research made by (Navarro Abaunza y otros, 2022), articulates the definition of didactic sequence, “they are the steps to promote the development of a class taking into account different objecitves and activities that will be achieved”, that is, the sum of interconnected with each other in a didactic situation, they are capable of developing student competencies.

The didactics of English are considered as the activities carried out by a teacher within the classroom, involving methodologic sequences created inside the classroom, quatifying their effects on the students and the way of teaching of the educator. There are four ways that are established in the English language learning, they are divided into receptives and productives. The first ones are based on reading and listening, whereas the second ones in writing and speaking.

The author (Zucchet, 2023), in her research denominated as “How the artificial Intelligence is Revolutionizing English Learning”, states that “artificial intelligence has transformed the language learning by providing personalized and optimized tools”, this article allows us to understand the perspective of AI that are relevant to language acquisition, for example: natural language processing (NLP), automatic learning algorithms, chatbots, and virtual tutors”.

Therefore, the activities to developed for improving the English language grammar will be effective through the use of AI in their implementation. Among the most important advantages are the following: personalization and adaptive learning, assesment and real-time feedback, gamification and immersive experiences, overcoming challenges during language learning, access to diverse learning resources, availability 24/7, and finally learning communities”.

In this way, the author of the presented research through theoretical foundations highlights the importance of creating a system of activities focused on the use of artificial intelligence platforms for the strengthening the learning of English language grammar. The activities should have a cooperative approach with aim of ensuring every student to be engaged in their completion, this way makes sure that learning is not carried out individually, but in a group setting, where everyone participates and learns simultaneously with the classroom team. The activities should be sequential, mantain a chronological orden and allow for feedback.

3.2. Description of activity system activity based on the use of artificial intelligence for the strengthening of English language

In this section, the activities to be carried out during the use of artificial intelligence systems for strengthening English language grammar in classroom settings are systematically explained. These activities are intended for third-year baccalaureate students at 'Juana de Dios' school and can be applied in other educational institutions.

Therefore, there are established activities that teachers should implement in the classrooms through the use of artificial intelligence in the teaching of English grammar to the students:

- Introduction of AI in the classrooms: the teacher initiates the class by introducing the gramatical topic that will be addressed at the hour of the class, for example, the use of verb tenses in English.

- Demonstration of the AI tools: the educator teach the students the tools that will be used during the class such as Grammarly; ChatGpt, LanguageTool. It shows to the students how this tools can improve the grammar and redacc

Activity No. 1. During classes, teachers will ask students to utilize an AI-based text generation tool, such as Talk to Transformer or GPT-3, to craft short stories or essays on a specific topic. Afterwards, they will collaboratively review and correct grammar using AI text correction tools like ChatGPT.

Objective of the Implementation:

The main objective of this activity is to provide students with an opportunity to practice English conversation interactively using chatbots. Through this practice, students will enhance their fluency, listening comprehension, and ability to apply learned grammar and vocabulary in a simulated conversation context.

To this end, the following will be done:

- Divide students into small groups and assign them a topic or premise to develop a short story or essay.
- Provide access to an AI-based text generation tool, such as Talk to Transformer or GPT-3, for students to use as an additional resource.
- After students have generated their text, ask them to review and correct it using AI text correction tools like Grammarly or LanguageTool.
- Finally, organize a session where students share their writings and discuss the grammar corrections made.

Conclusion:

At the end of the activity, students will have had the opportunity to practice English conversation in a safe and controlled environment. They will have gained confidence in their ability to communicate in English and will be better prepared to interact with native speakers in real-life situations.

Evaluation:

The assessment of this activity can be based on several aspects:

- Teacher observation during interactions to evaluate fluency, grammatical accuracy, and pronunciation.

- Review of conversation logs to identify common errors and areas for improvement.
- Active participation of students during the follow-up discussion, where they can demonstrate their understanding and reflect on their experience.

Assessing overall improvement in English communication skills over time, using this activity as part of a series of conversation practices.

Activity No. 2. Simulating real-life scenarios: The teacher will organize activities where students interact with customer service chatbots or simulations of real-life situations, such as making hotel reservations or ordering food at a restaurant. This will provide them with the opportunity to practice grammar in practical and realistic contexts.

Implementation Objective:

The main objective of this activity is to provide students with the opportunity to practice real-life situations where they will need to communicate in English. By simulating scenarios such as making a restaurant reservation or asking for directions, students will enhance their communication skills, language fluency, and ability to apply learned grammar and vocabulary in practical contexts.

To achieve this, the following steps will be taken:

- Prepare different real-life scenarios, such as making a hotel reservation or ordering food at a restaurant and assign roles to the students.
- Provide students with a set of relevant phrases and vocabulary for each scenario.
- Use customer service chatbots or develop conversation simulations using AI tools for students to practice the dialogues.
- After the activity, conduct a class discussion to review the grammar used and provide feedback on the fluency and accuracy of the conversations.

Conclusion:

At the end of the activity, students will have practiced real-life situations where they will need to communicate in English. They will have gained confidence in their ability to handle different scenarios and apply their language skills effectively.

Evaluation:

The assessment of this activity can be conducted in several ways:

- Teacher observation during interactions to evaluate students' fluency, grammatical accuracy, and pronunciation.
- Review of assigned roles and students' participation in scenario simulations.
- Feedback from classmates on the effectiveness of communication and the ability to problem-solve within the assigned scenario.
- Evaluation of improvement in English communication skills in real-life situations over time, using this activity as part of an ongoing conversation practice program.

Activity No. 3. Grammatical Role-Play: Divide students into pairs or groups and assign roles for different situations, such as a job interview, a visit to the doctor, or a phone conversation. Students will use appropriate grammar while interacting with each other, and then they can use AI tools to review and improve their dialogues.

Implementation Objective:

The main objective of this activity is to provide students with the opportunity to practice applying grammar in specific situations through role-playing games. By assuming roles and engaging in simulated dialogues, students will enhance their understanding and use of grammar in practical and realistic contexts.

Conclusion:

At the end of the activity, students will have practiced applying grammar in specific situations through role-playing games. They will have gained confidence in their ability to use grammatical structures in practical and realistic contexts.

Evaluation:

- The assessment of this activity can be conducted in several ways:
- Teacher observation during interactions to evaluate students' accurate application of grammar.

- Review of assigned roles and students' participation in the role-playing game.
- Feedback from classmates on the effectiveness of communication and the application of grammar within the assigned scenario.
- Evaluation of improvement in the ability to apply grammar in specific situations over time, using this activity as part of an ongoing English communication practice program.

To achieve this, the following steps will be taken:

- Divide students into pairs or groups and assign roles for different situations, such as a job interview or a conversation between friends.
- Provide students with detailed scenarios and specific roles that include certain grammatical aspects they need to practice.
- Students will interact with each other using appropriate grammatical structures, and they can use AI tools like Grammarly or Ginger to review and correct their dialogues.
- After the activity, organize a session where students share their experiences and reflect on the grammar used in their interactions.

Activity No. 4. Creation of Teaching Resources: Ask students to use AI-based content generation tools, such as Open Ai's Codex, to create study guides, reference cards, or educational materials on specific grammar concepts. This will foster their understanding of grammar while developing writing and editing skills.

Implementation Objective:

The main objective of this activity is to foster a deep understanding of English grammar while promoting students' creativity and expression. By creating teaching resources such as study guides or reference cards, students will consolidate their grammatical knowledge and enhance their written communication skills.

To achieve this, the following steps will be taken:

- Assign each student or group a specific grammar concept to research and create educational material on, such as study guides or reference cards.
- Provide access to AI-based content generation tools, such as Open Ai's Codex, to assist students in developing their educational material.

- Students can use practical examples and clear explanations to explain the grammar concept to other classmates.
- Organize a session where students present their educational resources and discuss how they can be used to improve understanding and application of English grammar.

Conclusion:

At the end of the activity, students will have created effective teaching resources that can be used to reinforce understanding of English grammar. They will have demonstrated their ability to research, synthesize information, and communicate grammar concepts clearly and concisely.

Evaluation:

The assessment of this activity can be conducted in several ways:

- Evaluation of the teaching resource created by each student based on the clarity, accuracy, and usefulness of the content.
- Assessment of each student's oral presentation, including the ability to explain the content clearly and respond to questions.
- Feedback from classmates on the effectiveness of the resource and its usefulness for understanding the grammar topic.
- Overall evaluation of improvement in understanding and application of English grammar over time, using this activity as part of an ongoing study and practice program

Activity No. 5. Listening and Pronunciation Activities: Use AI-based voice recognition tools, such as Google Assistant or Amazon Alexa, to conduct listening and pronunciation activities in the classroom. Students can practice grammar while listening to and repeating phrases modeled by the AI.

Implementation Objective:

The main objective of this activity is to improve students' listening and pronunciation skills in English. By engaging in listening and repeating activities of phrases or dialogues using AI-based voice recognition tools, students will enhance their

listening comprehension and their ability to pronounce words and phrases correctly in English.

To achieve this, the following steps will be taken:

- Use AI-based voice recognition tools, such as Google Assistant or Amazon Alexa, to conduct listening and pronunciation activities in the classroom.
- Provide students with phrases or dialogues to listen to and repeat, focusing on correct pronunciation and appropriate intonation.
- After each exercise, students can receive immediate feedback on their pronunciation using AI tools, and they can practice any necessary corrections.

Conclusion:

At the end of the activity, students will have improved their listening comprehension and their ability to pronounce words and phrases correctly in English. They will have gained confidence in their ability to listen to and speak in English and will be better prepared to communicate with native speakers in real-life situations.

Evaluation:

The assessment of this activity can be conducted in several ways:

- Teacher observation during listening and repetition activities to evaluate the accuracy and fluency of students' pronunciation.
- Review of records from listening and repetition activities to identify common errors and areas for improvement.
- Evaluation of improvement in listening comprehension and pronunciation over time, using this activity as part of an ongoing language skills practice program.

Activity No. 6. Creation of Customized Questionnaires: The teacher will ask students to use AI-based quiz generation tools, such as Quizlet or Socrative, to create personalized quizzes on specific grammar topics. They will then exchange and complete the quizzes, using AI tools to verify and correct their answers.

Implementation Objective:

The main objective of this activity is to encourage active student participation in creating customized quizzes on specific grammar topics. By creating quizzes, students will reinforce their understanding of English grammar and improve their skills in formulating relevant and effective questions. Additionally, this activity can help students practice writing and editing in English.

To achieve this, the following steps will be taken:

- Ask students to use online tools such as Quizlet or Socrative to create customized quizzes on specific grammar topics.
- Students can include a variety of question types, such as multiple choice, true/false, or fill-in-the-blank, to assess different aspects of grammar.
- After completing the quizzes, students can exchange and complete their classmates' quizzes, using AI tools to verify and correct their answers.
- Finally, review students' answers and provide additional feedback on the grammar concepts they need to review.

Conclusion:

At the end of the activity, students will have reinforced their understanding of English grammar by creating and completing customized quizzes. They will have practiced formulating relevant questions and applying grammar concepts in different contexts. Additionally, they will have improved their writing and editing skills in English.

Evaluation:

The assessment of this activity can be carried out in several ways:

- Review of the quizzes created by students to assess the quality of the questions and the accuracy of the answers.
- Evaluation of the quizzes completed by students to determine their understanding of the grammar topics.
- Feedback from classmates on the effectiveness of the quizzes and the clarity of the questions.

- Overall assessment of the improvement in understanding and application of English grammar over time, using this activity as part of an ongoing study and practice program.

Activity No. 7. Research Projects on AI and Grammar: The teacher should assign students the task of researching and presenting on how artificial intelligence is used to improve grammar in language learning. They can explore different tools and applications, as well as discuss the benefits and challenges of integrating AI into grammar teaching.

Implementation Objective:

The main objective of this activity is to foster research and critical thinking skills among students about the impact of artificial intelligence on the learning and teaching of English grammar. By researching this topic, students will deepen their understanding of grammar and develop skills to analyze, synthesize, and evaluate information related to artificial intelligence and language teaching.

To achieve this, the following steps will be taken:

- Assign students the task of researching how artificial intelligence is used to improve grammar in language learning.
- Provide resources such as articles, case studies, or videos that students can use to research the topic.
- Students can work in groups to gather information, discuss the benefits and challenges of integrating AI into grammar teaching, and prepare a presentation to share their findings with the class.
- Organize a session where groups present their research projects and facilitate a class discussion on the potential impact of artificial intelligence on language learning and grammar teaching.

Conclusion:

At the end of the activity, students will have developed a deeper understanding of the role of artificial intelligence in teaching and learning English grammar. They will have improved their research, analysis, and presentation skills, as well as their ability to apply critical thinking to complex problems.

Evaluation:

The assessment of this activity can be conducted in several ways:

- Evaluation of students' research projects based on the quality of research, clarity of presentation, and depth of analysis.
- Student participation during presentations to assess their understanding of the topic and their ability to communicate their ideas effectively.
- Feedback from classmates on the relevance and originality of research projects.
- Overall assessment of improvement in understanding and application of concepts related to artificial intelligence and English grammar over time, using this activity as part of an ongoing study and practice program.

CHAPTER IV

4. EVALUATE THE RESULTS ACHIEVED THROUGH THE IMPLEMENTATION OF A SYSTEM OF ACTIVITIES

This chapter will present the results obtained through the activity system outlined in Chapter III, regarding the use of AI in strengthening English language grammar among third-year high school students at "Juana de Dios" School during the academic year 2023-2024. The aforementioned activities took place in January 2024, over four weeks, from January 2nd to January 26th, utilizing an experimental design.

4.1. Description of the application of the activity system.

On January 2nd, 2024, before presenting the research process to the third-year high school students at "Juana de Dios" school, we proceeded to evaluate the students prior to starting each of the proposed topics. This evaluation served as a pre-test, with each of the eight activities implemented in the system having a duration for assessment.

4.1.1. Activity No. 1. Creative Writing Challenges. –

Time: 45 minutes

0-5 minutes: The explanation of the objective of the activity is given. Presentation of the tools Talk to Transformer and ChatGPT, and their usefulness in creative writing and grammatical correction.

5-10 minutes: The researcher asked the students to write their short stories or essays about what they want to study after finishing high school.

10-20 minutes: Time dedicated to creative writing. Students will use the Talk to Transformer tool to generate their stories or essays.

20-30 minutes: Grammar revision and correction using the ChatGPT tool. Students will work in pairs or small groups to review and correct grammatical errors in their generated texts.

30-40 minutes: Class discussion about the challenges encountered during writing and correction, as well as the strategies used to improve the quality of the texts.

40-45 minutes: Final reflection and closure of the activity. Students will share their experiences and learning during the writing and correction process.

4.1.2. Activity No. 2. Simulation of real-life scenarios. –

Activity 2 took place on January 4th, 2024. For this, a different duration of time was requested, and a differentiation was found compared to the first day. The students showed more interest upon entering the classroom.

Duration: 60 minutes

0-10 minutes: Explanation of the activity's objective at the beginning. Presentation of real-life scenarios that students will simulate such as making hotel reservations and ordering food at a restaurant.

10-20 minutes: Assignment of roles and scenarios to each student within their working groups. Detailed instructions were provided about the simulation context and the assigned roles.

20-50 minutes: Simulation of the assigned scenarios. Students interacted in real-life situations using ChatGPT to simulate conversations on how to book a hotel room and how to order food at a restaurant.

50-55 minutes: Collection of feedback from students about their experience and the challenges encountered during the simulation.

55-60 minutes: Final reflection and closure of the activity. Students will share their experiences and learnings from the simulation.

4.1.3. Activity No. 3. Grammar Role Playing Game. -

On January 5th, 2024, activity 3 took place:

Description: The author organized a grammatical role-playing activity to improve students' communication skills. They divided the students into pairs and assigned roles for different situations, such as a job interview or a visit to the doctor.

Duration: 60 minutes

0-10 minutes: The author introduced and explained the objective of the activity. They presented different role-playing scenarios and emphasized the importance of using appropriate grammar in each situation.

10-15 minutes: Students were divided into pairs and assigned roles for each situation, such as interviewer and interviewee, doctor and patient, etc.

15-45 minutes: Students interacted with each other within their assigned roles, using appropriate grammar in each situation. During this phase, the author circulated around the classroom to observe and provide guidance as needed.

45-50 minutes: Students used the AI tool, Grammarly, to review and improve their dialogues. Grammarly identified grammatical errors and provided suggestions to enhance language accuracy and fluency.

50-55 minutes: Students had time to revise and improve their dialogues based on the feedback provided by Grammarly.

55-60 minutes: The author facilitated a class discussion about the experience. Students shared their reflections on how Grammarly helped them improve their grammar and communication skills.

4.1.4. Activity No. 4. Creation of Didactic Resources.

As the complexity of the activities increased, it was previously requested to allocate more time for Activity 3. In Activity 4, which took place on January 8th, 2024, additional time was allocated to ensure efficient completion.

Description:

The author organized an activity to create educational resources using AI-based content generation tools, specifically Open Ai's Codex. The main objective of this

activity was for students to develop study guides, reference cards, or educational material on specific grammar concepts. It was designed to promote understanding of grammar while students developed writing and editing skills.

Duration: 90 minutes

0-10 minutes: The author introduced and explained the objective of the activity. OpenAI's Codex was presented as an artificial intelligence tool capable of generating content based on provided commands and examples.

10-20 minutes: Students received a brief training on how to use OpenAI's Codex to generate educational content. They were shown examples of commands and provided guidelines on how to structure the educational material.

20-60 minutes: Students worked in groups of 5 to create educational material on specific grammar concepts (TRIP TICS) using OpenAI's Codex. They were encouraged to include clear explanations and relevant examples to facilitate understanding.

60-80 minutes: Students shared their educational resources with the rest of the class. Each group had the opportunity to explain their resource and demonstrate how it would help other students understand the selected grammar topic.

80-90 minutes: The author facilitated a class discussion about the created educational resources. Students provided feedback on the effectiveness and clarity of each resource, and discussed how they could be used in the classroom to improve understanding of English grammar.

4.1.5. Activity No. 5. Listening and pronunciation activities. –

On January 10th, 2024, Activity 5 took place:

Description:

The author organized a listening and pronunciation activity using AI-based voice recognition tools, specifically Amazon Alexa. The main objective of this activity was for students to practice grammar while listening to and repeating sentences modeled by AI. It was designed to enhance students' listening comprehension and pronunciation in English.

Duration: 60 minutes

0-10 minutes: The author introduced and explained the objective of the activity. They demonstrated Amazon Alexa as an AI tool capable of recognizing and evaluating students' pronunciation.

10-20 minutes: Students received a brief demonstration on how to use Amazon Alexa for listening and pronunciation activities. They were shown examples of model sentences and provided instructions on how to interact with the tool.

20-50 minutes: Students practiced grammar while listening to and repeating model sentences provided by Amazon Alexa. They were encouraged to focus on precise pronunciation and appropriate intonation.

50-55 minutes: The author circulated around the classroom to provide individualized feedback and offer suggestions to improve students' pronunciation.

55-60 minutes: The author facilitated a class discussion about the experience. Students shared their reflections on how Amazon Alexa helped them improve their listening comprehension and pronunciation in English.

4.1.6. Activity No. 6. Creating Custom Questionnaires. –

On January 12th, 2024, Activity 6 took place:

Description:

The author organized an activity to create personalized quizzes using AI-based quiz generation tools, specifically Quizlet. The main objective of this activity was for students to create quizzes on specific grammar topics. Subsequently, they exchanged and completed the quizzes, using AI tools to verify and correct their answers. It was designed to improve grammar comprehension and encourage self-correction among students.

Duration: 60 minutes

0-10 minutes: The author introduced and explained the objective of the activity. Quizlet was presented as an AI tool capable of generating personalized quizzes on grammar topics.

10-20 minutes: Students received a brief demonstration on how to use Quizlet to create personalized quizzes. They were provided with instructions on how to structure and formulate grammatical questions.

20-40 minutes: Students worked in groups to create quizzes on specific grammar topics using Quizlet. They were encouraged to include a variety of question types, such as multiple choice, true/false, or fill in the blank.

40-50 minutes: Students exchanged their quizzes with classmates and completed the provided quizzes. They used Quizlet to verify and correct their answers.

50-55 minutes: The author circulated around the classroom to provide individualized feedback and offer suggestions to improve the quality of the quizzes and students' answers.

55-60 minutes: The author facilitated a class discussion about the experience. Students shared their reflections on how Quizlet helped improve their grammar comprehension and fostered self-correction.

4.1.7. Activity No. 7: Research Projects on AI and Grammar

On January 15th, 2024, Activity 7 took place:

Description:

The author organized a research and presentation activity on how artificial intelligence is used to improve grammar in language learning. Students explored the Grammarly tool, an AI-based application that provides real-time grammar corrections and style suggestions. Through their research, students discussed the benefits and challenges of integrating AI into grammar teaching.

Duration: 45 minutes including explanation.

0-10 minutes: The author introduced and explained the objective of the activity, emphasizing the importance of research on the integration of AI in grammar teaching.

Students worked on their presentations at home and presented them in class, concluding on January 17th, 2024:

10 to 20 minutes: Students prepared their presentations, organizing the collected information and creating slides or visual materials to support their findings.

20-30 minutes: Students presented their projects to the class, sharing their findings and reflections on the use of artificial intelligence in grammar teaching.

30-45 minutes: A question and answer session followed by a class discussion on the presented topics. The author concluded the activity by summarizing the key points and encouraging students to continue exploring the integration of AI in language education.

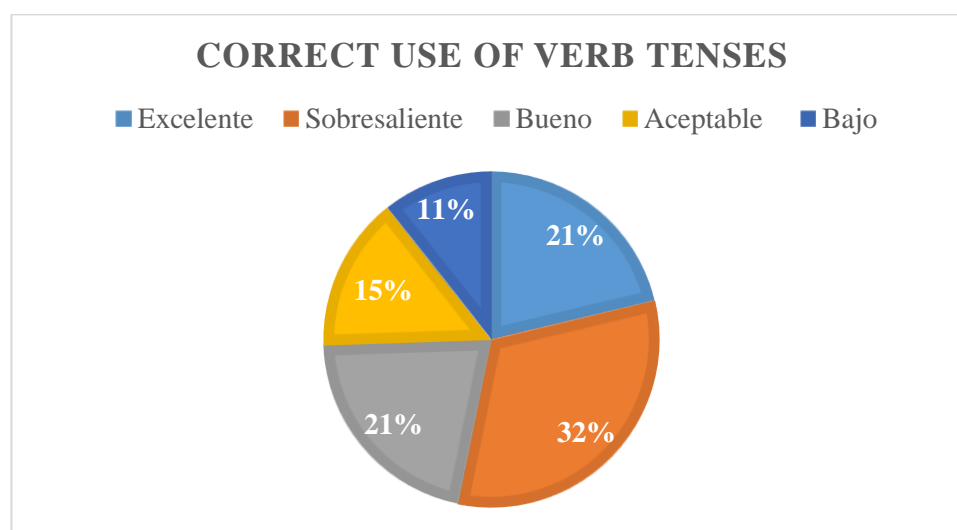
4.2. Results obtained after the use of the activity system applied for strengthening English grammar:

In order to measure the results obtained in the pre-test, the established dimensions and the grammar evaluation rubric presented in Chapter III were assessed. The implemented activities were created to fulfill the research objective. Therefore, after the pre-test, the post-test was conducted, and the results were compared using scientific methods, yielding the following outcome.:

Dependent Variable

4.2.1. Dimension 1: Correct use of verb tenses

Figure 1 Dimension 1. Correct use of verb tenses



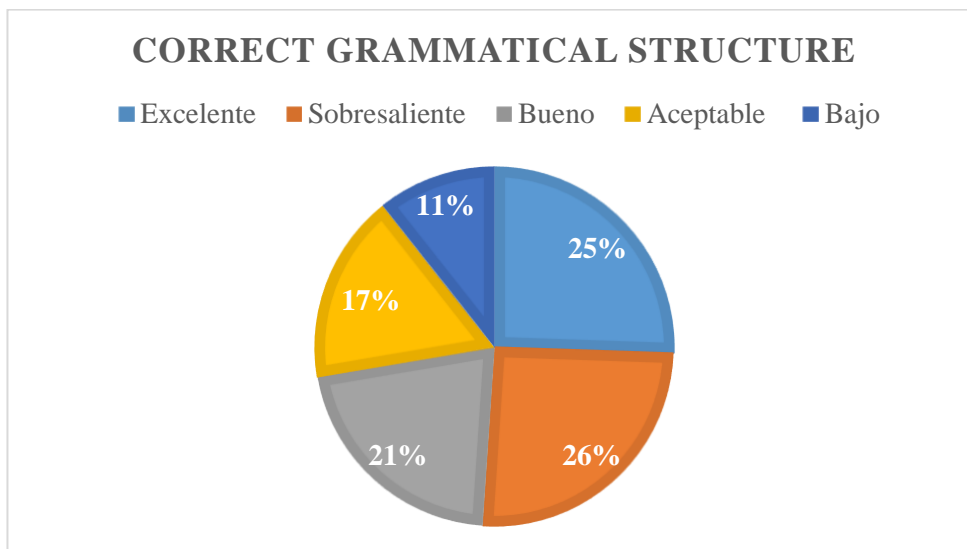
Prepared by: Authors' own creation

In Dimension 1, which concerns the correct use of verb tenses, it can be observed that 15 students have an outstanding grade, accounting for the highest percentage at 32%. Only 5 out of the 47 students are categorized as low, representing 11%. This indicates a significant improvement in the correct use of verb tenses. The author notes that the implementation of activities has a positive impact on strengthening the learning of verb

tenses in grammatical sentences. This result demonstrates that the use of AI tools in learning English allows students to improve their use of verb tenses.

4.2.2. Dimension 2.- Correct grammatical structure

Figure 2 Correct grammatical structure

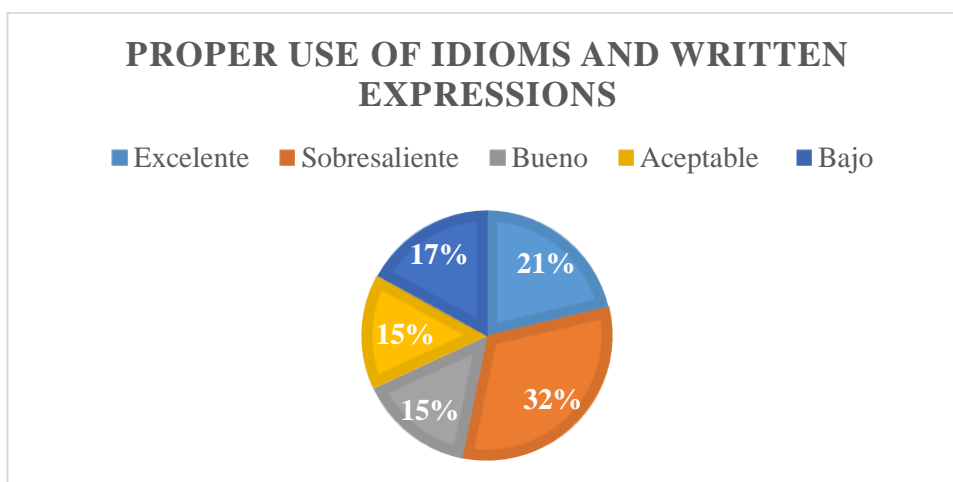


Prepared by: Authors' own creation

In Dimension 2, which refers to correct grammatical structure, students obtained a percentage of 26% in the outstanding category. According to the rubric, students are at a post-test level of "Has a good overall grammatical structure, although may make some minor errors." This indicates an improvement in the use of grammar rules and progress in writing when evaluating grammatical structure. Upon verifying the data, it was confirmed that with only a 1% difference, the excellent evaluation criterion follows closely, demonstrating that there is indeed significant progress by students in this dimension.

4.2.3. Dimension 3: Proper use of idioms and written expressions

Figure 3 Proper use of idioms and written expressions

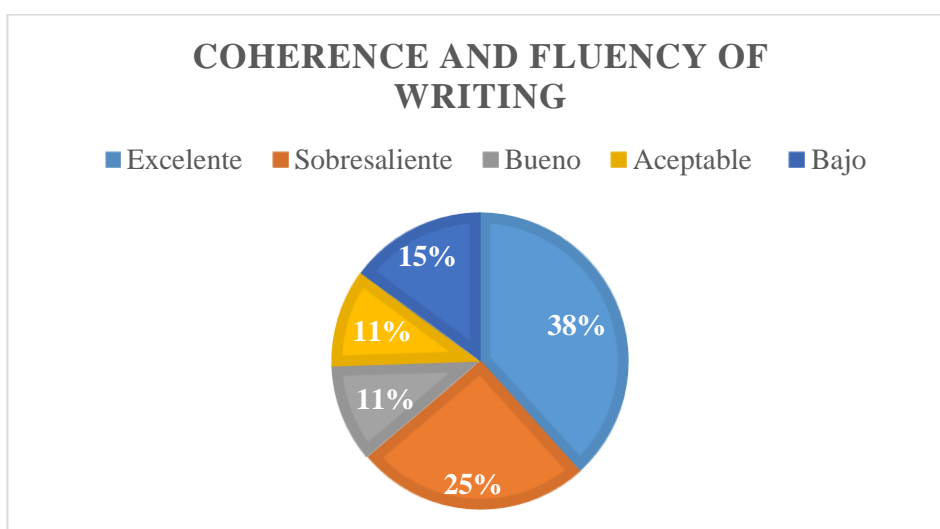


Prepared by: Authors' own creation

Dimension 3, regarding the proper use of idioms and written expressions, students showed significant progress, scoring 32% in the outstanding criterion. According to the rubric, this criterion means "Uses some idioms and idiomatic expressions correctly, but with some lack of naturalness." Students do use some idioms correctly, but with a certain lack of naturalness in their expression, as evidenced by 15 of the students using idioms but not naturally. A low percentage of 15% is established in which students are at an acceptable and low evaluation criterion. This result demonstrates that the use of AI tools has a favorable impact on the proper use of idioms and written expressions for learning English, both inside and outside the classroom.

4.2.4. Dimension 4.- Coherence and fluency of writing

Figure 4 Coherence and Fluency of Writing



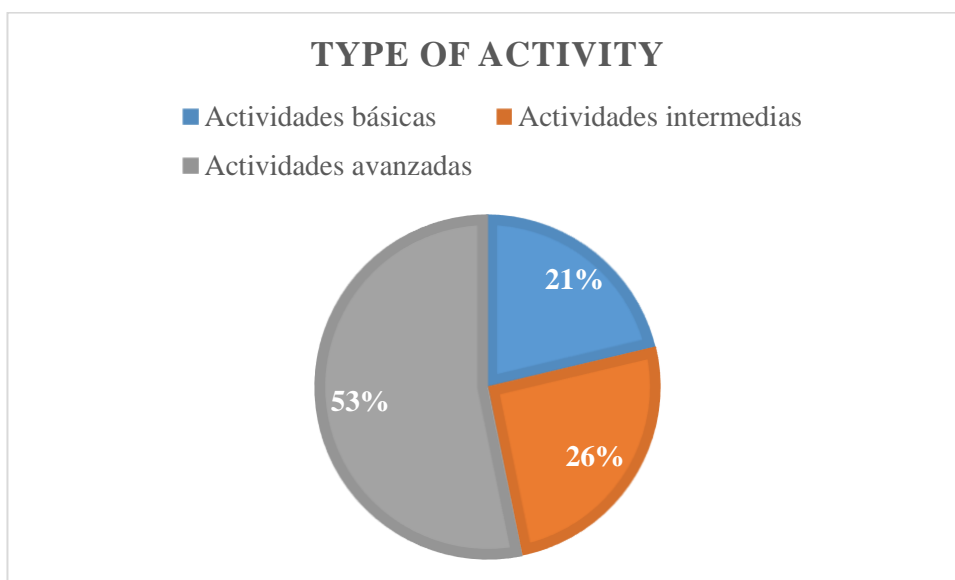
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In Dimension 4, regarding the coherence and fluency of writing, evaluated in the role-playing activity, it was found that 38% of students are in the excellent evaluation criterion, categorized according to the rubric as "Writes coherently and fluently, using a variety of connectors to link ideas." Students write coherently, using prepositions, conjunctions, and other connectors efficiently to link sentences within a paragraph. Similarly, evaluations determined that the same percentage, which is 11%, is in the acceptable and good evaluation criterion, while 15% are in the low criterion. This result demonstrates that the use of AI commands has a positive impact on improving students' learning when writing.

Independent variable

4.2.5. Dimension 5.- Type of activity

Figure 5 Type of Activity



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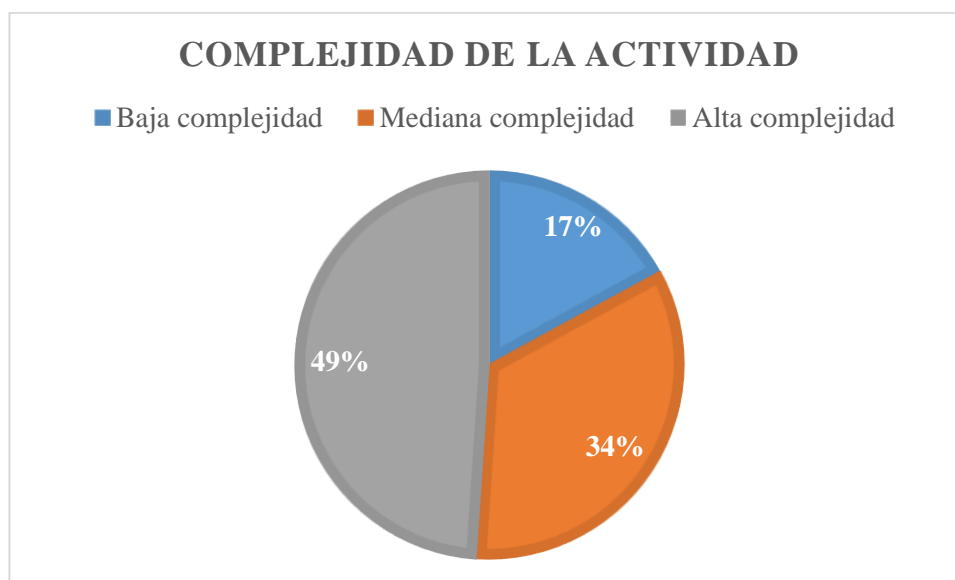
In Dimension 5, concerning the independent variable of Activity Type, it is observed that according to the types of activities implemented for students to improve their English grammar levels, students consider that 53% of the activities carried out with them are "advanced activities." These are activities that they had not previously done in the classroom and are developed using AI tools. Additionally, 21% of students consider them to be basic activities.

This indicates that the activities were indeed a challenge for the students. The progress in the tests demonstrates their commitment to learning, adaptability to new ways

of learning, and proficiency in using the tools. This implies that using activities within the classroom to strengthen English grammar is a favorable step in the teaching-learning process.

4.2.6. Figure 6 Complexity of the activity

Figure 6 Complexity of the activity



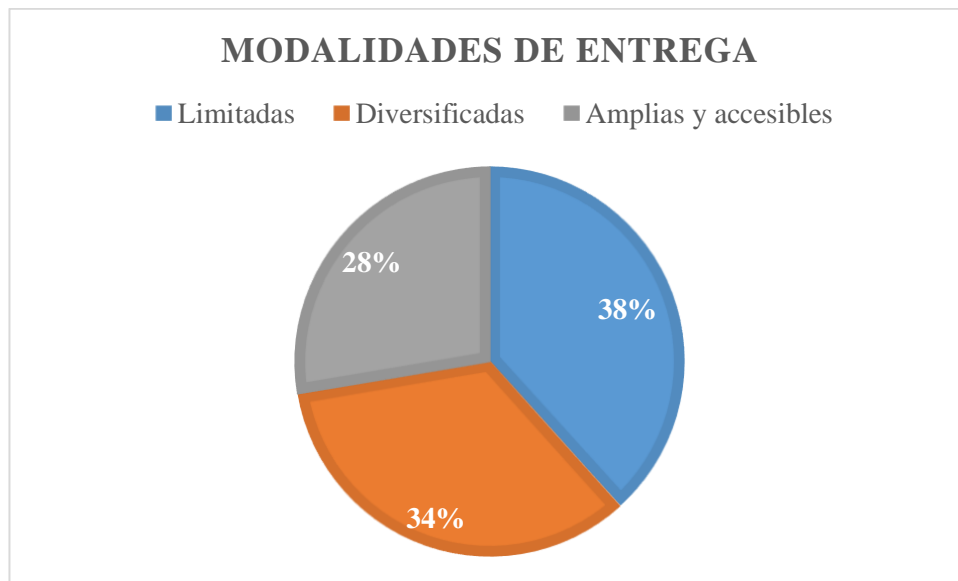
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In Dimension 6, which is based on the evaluation of activity complexity, 49% of students conclude that the activities are of "high complexity." As mentioned in the previous section, the use of AI tools is complex because students previously did not use them in their classroom activities, and most of them did not even use them at home. With 17%, students agree that the activities are of low complexity, as this percentage represents those who reported using AI tools at home for homework tasks in the diagnostic phase.

This result demonstrates that despite the complexity of the implemented activities, students adapt to them and show good results in improving English grammar.

4.2.7. Dimension 7.- Delivery methods

Figure 7 Delivery methods



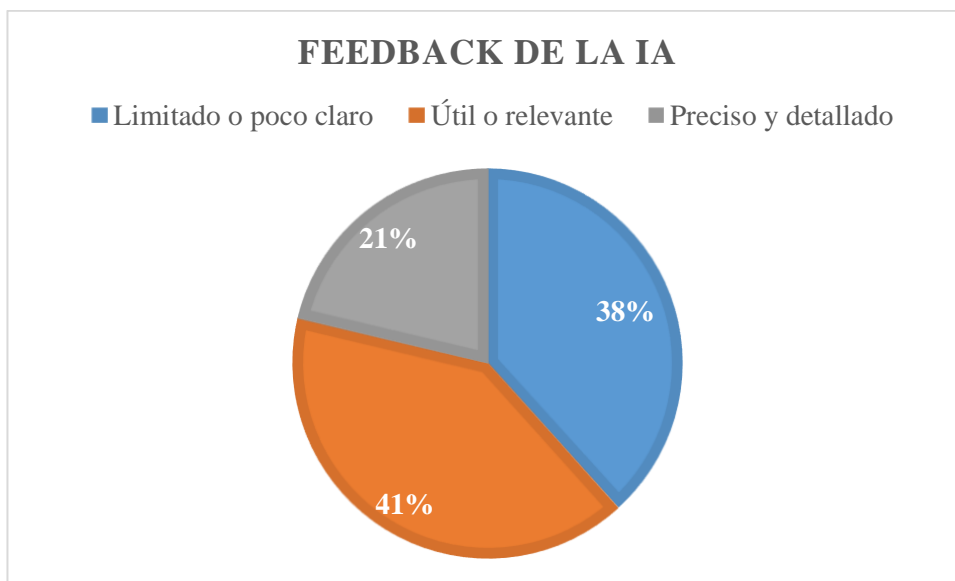
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In Dimension 7, regarding delivery modalities, it is understandable that 38% of students agree that the delivery modalities of the activities were limited. This limitation was due to the diagnostic process, which had a limited duration. It was important for the researcher to have a quick application, which led to the activities being time limited. This created an impact on students as they gradually adapted to the use of AI tools. With 28%, students consider that the delivery modality was broader and more accessible, as these students were more familiar with such tools.

Overall, students understood the importance of applying activities within the allocated time frames. Furthermore, they recognized that they were more motivated to learn compared to regular classes without the implemented activities.

4.2.8. Dimension 8.- AI Feedback

Figure 8 Feedback of IA



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In Dimension 8, regarding AI feedback, 41% of students indicated that during the use of AI tools, the feedback they received was "useful or relevant." This means that during the use of these tools, they were able to obtain useful responses tailored to their individual needs, resulting in a slightly more personalized teaching process than what is typically carried out in a class without AI. Only 21% of students agreed that the information was accurate and detailed, while 38% found the feedback to be limited or unclear.

4.3.General Analysis

Dependent variable

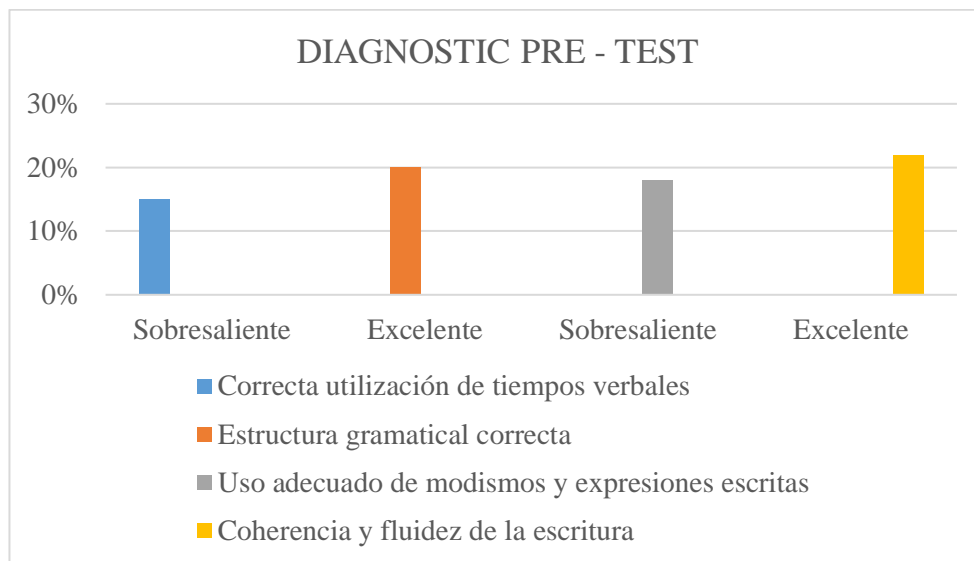
Table 5 Pre-test Diagnosis (Dependent Variable)

DIAGNOSTIC PRE - TEST	Outstanding	Excellent	Outstanding	Excellent
Correct use of verb tenses	15%			
Correct grammatical structure		20%		

Proper use of idioms and written expressions			18%	
Coherence and fluency of writing				22%

Prepared by: Authors' own creation

Figure 9 Pre-test diagnosis (dependent variable)



Prepared by: Authors' own creation

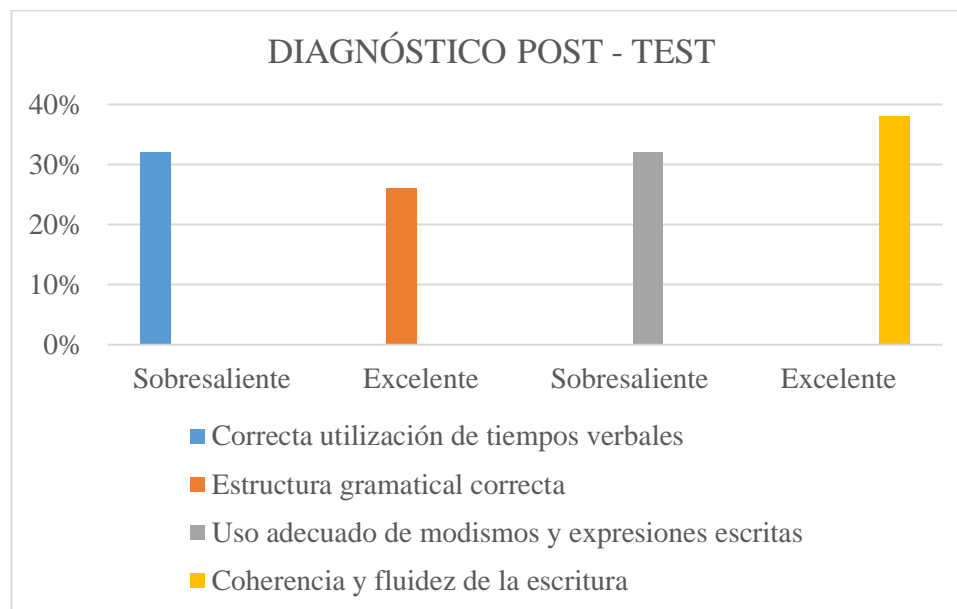
Table 6 Post-test diagnosis (dependent variable)

DIAGNOSTIC POST - TEST	Outstanding	Excellent	Outstanding	Excellent
Correct use of verb tenses	32%			
Correct grammatical structure		26%		
Proper use of idioms and written expressions			32%	

Coherence and fluency of writing					38%
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Prepared by: Authors' own creation

Figure 10 Post-Test Diagnosis (Dependent Variable)



Prepared by: Authors' own creation

In the dependent variable, which is "the improvement of English grammar in students using AI tools," we obtained marked results in the pre-test and the subsequent post-test evaluation. For each of the evaluated dimensions, which are: correct usage of verb tenses, correct grammatical structure, appropriate use of idioms and written expressions, and coherence and fluency of writing, only the evaluation criteria with the highest percentage obtained in the post-test were compared.

In the dimension of correct usage of verb tenses, students scored outstandingly with 15% in the pre-test. During the post-test, this percentage increased to 32%, a considerable increment demonstrating that students have improved in the usage of verb tenses within sentence formulation across various grammatical tenses. This advancement is noteworthy, as students continued to utilize AI tools outside the classroom for their English assignments after the pre-test and before the post-test.

In the dimension of correct grammatical structure, students achieved an excellent score of 20% in the pre-test, which improved to 26% in the post-test. Students progressed in learning, evident in the correct formulation of sentences, and their grammatical

structure improved thanks to the use of AI tools, allowing students to learn and rectify errors in grammatical structure.

Regarding the dimension of idiomatic and written expression usage, in the outstanding evaluation criterion, compared due to its highest percentage, students obtained 18% in the pre-test, significantly improving to 32% in the post-test. The use of AI tools, both inside and outside the classroom, allows students to enhance their knowledge of English grammar. Before the test application, students had low levels of learning in idioms and written expressions, evident in their language writing. With the assistance of AI mechanisms, the learning development in idioms increased by 14%.

In the dimension of coherence and fluency of writing, in the excellent evaluation criterion, 22% was obtained in the pre-test, while 38% was achieved in the post-test. This demonstrates a 16% improvement from the previous diagnosis to the evolution with the application of activities in the classroom.

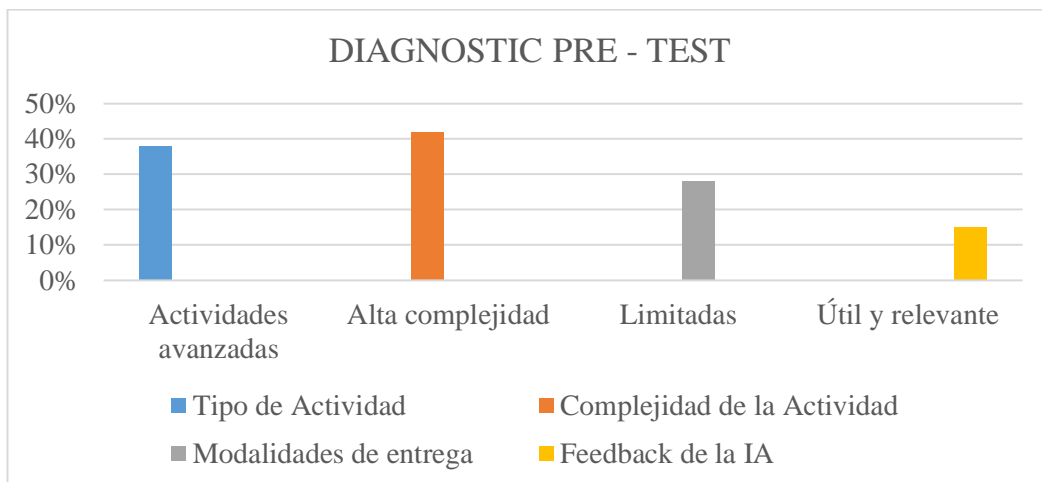
Independent Variable

Table 7 Diagnostic Pre-Test (Variable Independiente)

DIAGNOSTIC PRE - TEST	Advanced Activities	High Complexity	Limited	Useful and relevant
Type of Activity	38%			
Complexity of the Activity		42%		
Delivery methods			28%	
Delivery methods				15%

Prepared by: Authors' own creation

Figure 11 Pre-test diagnosis (independent variable)



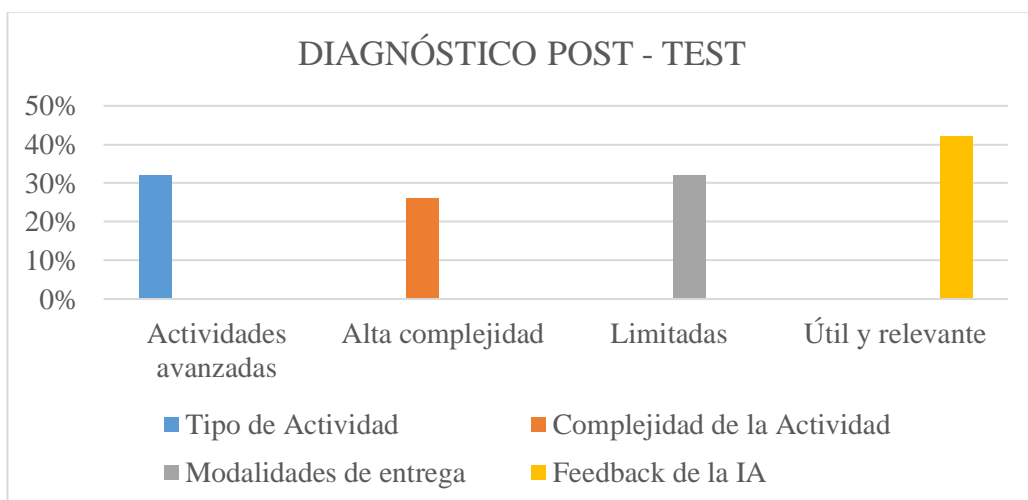
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Table 8 Post-test diagnosis (independent variable)

DIAGNOSTIC POST - TEST	Advanced Activities	High complexity	Limited	Useful and relevant
Type of Activity	32%			
Complexity of the Activity		26%		
Delivery methods			32%	
Feedback from AI				42%

Prepared by: Authors' own creation

Figure 12 Post-test diagnosis (independent variable)



Prepared by: Authors' own creation

In the independent variable, which is "Activities based on the use of AI to improve English grammar," we obtained notable results during the post-test. The development of activities conducted within the classrooms allowed for new approaches, new ways of learning, increased motivation, and better concentration during class sessions.

In the dimension of activity type, in the pre-test, with 38%, students expressed that activities with AI tools were very advanced. In the post-test, after becoming familiar with the platforms, they expressed with a minimal difference, i.e., 32%, that the activities remained advanced. Nevertheless, the students remained motivated to learn.

In the dimension of activity complexity, with 42% in the pre-test, students considered the activities to have high complexity. In the post-test, with a much lower percentage of 26%, students considered the activities developed within the classrooms to still have high complexity.

In the dimension of delivery modalities, with 38% in the pre-test, students agreed that activities had limited delivery times. In the post-test, with increased experience in AI tools, 32% concluded that delivery times were limited, as they could better manage their time, improving their skills in using AI tools.

In the dimension of AI feedback, with 15% in the pre-test, students considered AI tools favorable for learning feedback. In the post-test, with increased motivation to learn with AI, 42% concluded that AI tools for feedback were the best when learning English grammar.

4.4.Hypothesis Testing

Scientific hypothesis: "If a system of activities based on the use of artificial intelligence tools is implemented, it contributes to the improvement of the application of the grammatical rules of the English language in the students of the third year of high school of the Juana de Dios school."

Statistical hypothesis:

H0: If a system of activities based on the use of artificial intelligence tools is implemented, it does NOT contribute to the improvement of the application of the grammatical rules of the English language in the students of the third year of high school of the Juana de Dios school.

H1: If a system of activities based on the use of artificial intelligence tools is implemented, it DOES contribute to the improvement of the application of the grammatical rules of the English language in the students of the third year of high school of the Juana de Dios school.

The following equation was used to determine the statistical result:

Equation 1 Formula ANOVA

$$F = \frac{SSG}{(k-1)} \div \frac{SSE}{(N-k)}$$

Error Range 0.05

k. is the number of groups.

N. sample size

SSG. It is the sum of the squares between groups

SSE. It is the sum of the squares within the group

Since:

$$F = \frac{SSG/df1}{SSE/df2} = \frac{SSG/df1}{SSE/df2}$$

k=5 (number of groups)

Substituting the values we have:

N=47 (total sample size)

$$F = \frac{6/4}{42/4} = \frac{6}{42} \cdot \frac{4}{4} = \frac{6}{10.5}$$

SSG=6 (sum of squares between groups)

$$F = 1.501429 \approx 1.50$$

$$F \approx 10.50$$

SSE=6 (sum of squares within groups)

First, we need to calculate the degrees of freedom:

Degrees of freedom for groups (df1):

$$df1 = k - 1 = 5 - 1 = 4$$

Degrees of freedom for error (df2):

$$df2 = N - k = 47 - 5 = 42$$

Now, we can calculate the F-statistic:

Given that the obtained value (10.50) is greater than the value in the distribution table (2.556), it is concluded that there is sufficient evidence to reject the null hypothesis. This suggests that there is at least one significant difference between the measures of the study groups. Therefore, with a significance level of 0.05, the null hypothesis is rejected, and it is concluded that there are significant differences when implementing a system of activities based on the use of AI tools to improve English grammar in the teaching-learning process of third-year high school students at "Juana de Dios" School.”.

4.5. Analysis and discussion of results

The objective set forth in the research was to develop a system of activities using AI tools to improve the use of grammar rules among third-year high school students at "Juana de Dios" School. This system, when created and applied in the third-year high school classrooms, yielded the expected results, demonstrating that students did indeed improve in their use of grammar rules and English grammar overall.

The initial results revealed a deficiency in the use of grammar rules among the 47 third-year high school students at "Juana de Dios" School. This deficiency led to students graduating with weaknesses in English grammar, as many students found English classes to be monotonous and boring. They perceived that teachers lacked the necessary foundations to teach effectively and those technological resources, apart from a simple tape recorder, were not considered in the classroom.

In developing the activity system, the use of AI tools was user-friendly for students, aiming not to overwhelm them but rather to motivate their learning. These tools helped keep students more engaged, and role-playing games proved instrumental in enhancing students' grammatical skills and interaction. As a result, students not only utilized AI tools in class but also incorporated them into their homework assignments at home.

Chapter 4 detailed the implementation of the activity system within the classroom and validated the obtained data. The hypothesis testing using ANOVA confirmed that the true hypothesis was that the application of the activity system based on AI tools did improve the use of grammar rules among third-year high school students at "Juana de Dios" School.

4.6. Conclusions

At the conclusion of the research on the topic "The Use of Artificial Intelligence for Improving English Grammar" among third-year high school students at "Juana de Dios" School, the following conclusions are drawn:

- The review and investigation of theory regarding artificial intelligence and its application to grammar improvement have provided the author with the necessary foundations to solidify the research. This includes the development of proposed activities and the importance of applying AI tools that are user-friendly for students aged 15 to 18, facilitating improvement in the use of English grammar rules.
- The initial diagnosis revealed the students' inadequate knowledge of English grammar, with their learning deficiencies considered insufficient for their educational level. This motivated the author to implement a system of activities based on the use of AI tools to encourage students to learn English grammar.
- The development of activities using AI tools had a positive impact on the 47 third-year high school students. They showed improvement in all four dimensions of study: correct usage of grammar tenses, proper grammatical structure, appropriate use of idioms and written expressions, and coherence and fluency in writing.
- The implementation of activities based on AI tools during class hours motivated students to learn, enabling them to focus and develop new skills for teaching and learning English grammar.

4.7.Recomendations

Based on the investigation conducted, valuable insights were gained into how AI influences the teaching-learning process. However, limitations were also identified during the implementation of activities using AI tools in the classroom. Therefore, the following recommendations are proposed:

- The Ecuadorian education system should consider the implementation of more digitized classrooms, allowing students to have more dynamic and interactive classes, including the use of AI tools.
- Teachers should self-train in learning how to use AI tools for English classes so they can impart this knowledge to students as part of their curriculum.
- It is important to consistently motivate students about the importance of learning a second language and the relevance of having a strong foundation in English grammar. This will enable students to achieve proficiency levels such as B1, B2, or even C1.

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Annex 1.

Observation Guide

Evaluation of English Grammar Knowledge

Objective: To observe and evaluate the level of English grammar of third-year high school students during specific activities in English classes.

Evaluation Criteria:

1. Application of Grammar Rules a. Correct application of verb tenses

- 0: Not observed
- 1: Poor
- 2: Insufficient
- 3: Good
- 4: Excellent
- b. Proper use of prepositions
- 0: Not observed
- 1: Poor
- 2: Insufficient
- 3: Good
- 4: Excellent
- c. Subject-verb agreement in sentences
- 0: Not observed
- 1: Poor
- 2: Insufficient
- 3: Good
- 4: Excellent

2. Correction of Grammatical Errors

- 0: Not observed
- 1: Poor

- 2: Insufficient
- 3: Good
- 4: Excellent

3. Comprehension and Use of Written Vocabulary

- 0: Not observed
- 1: Poor
- 2: Insufficient
- 3: Good
- 4: Excellent

Expectations for the Use of AI in Learning English Grammar

Objective: To identify students' attitudes and expectations regarding the use of AI tools in learning English grammar.

Evaluation Criteria:

Each evaluation criterion will be scored from 0 to 4.

1. Interest and Motivation

- 0: No interest shown
- 1: Very little interest
- 2: Insufficient interest
- 3: Notable interest
- 4: High level of interest

2. Interaction with AI Tools

- 0: No interest shown
- 1: Very little interest
- 2: Insufficient interest
- 3: Notable interest

- 4: High level of interest

3. Perception of Utility

- 0: No interest shown
- 1: Very little interest
- 2: Insufficient interest
- 3: Notable interest
- 4: High level of interest

Annex 2.

Objective: To explore the teacher's perceptions of students' knowledge in various aspects of English grammar.

I. Introduction

How long have you been teaching English grammar to third-year high school students?

II. Students' Knowledge in English Grammar

In your opinion, how would you describe the students' level of knowledge in the correct use of verb tenses? What evidence do you observe in their written and oral work?

What aspects of grammatical structure do you consider the students handle adequately? Are there specific areas where you perceive they need more work?

How would you evaluate the fluency and coherence in students' written and oral expression in terms of grammar?

III. Use of Idioms and Idiomatic Expressions

Do you observe that students make appropriate use of idioms and idiomatic expressions in their oral and written language?

What strategies or activities do you use to encourage the correct use of idioms and idiomatic expressions in your classes?

IV. Teaching and Evaluation Strategies

What approach or methodology do you use to teach English grammar to your students?

How do you assess students' knowledge and application of English grammar? What type of assessments do you consider most effective for these specific dimensions?

V. Final Reflection

Overall, how do you think students' knowledge and understanding of English grammar can influence their ability to communicate effectively in the language?

Is there any other aspect related to teaching English grammar that you would like to share?

VI. Conclusion

Is there any other information you consider relevant to our discussion that we have not covered?

Annex 3.

Pre-Test

Evaluation

I. Verb Tenses:

Complete the following sentences with the correct form of the verb in parentheses:

- a) She _____ (to sing) in the choir every Sunday.
- b) By the time you arrive, we _____ (to finish) our project.

What is the present continuous tense and when is it used? Provide an example of a sentence in the present continuous.

Write a sentence in the future perfect using the verb "to have".

Explain the difference between the simple present and the present continuous. Provide examples of each.

What is the purpose of the past perfect continuous? Provide an example of how it is used in a sentence.

II. Grammatical Structure:

Write a conditional sentence of type 2 using the verb "to eat".

Identify and correct any grammatical errors in the following sentence: "Last night, me and my sister goes to the cinema."

When should "much" be used and when "many"? Provide examples of each in sentences.

Explain how the passive voice is formed in English. Provide an example of a sentence in the passive voice.

Describe the differences between the uses of "a lot of", "a few", and "a little". Provide examples of how they are used in sentences.

III. Fluency and Coherence:

Write a brief dialogue (3-5 exchanges) between two people discussing their plans for the upcoming weekend.

What strategies do you use to maintain coherence in your writing? Provide at least two examples.

What is the importance of fluency in oral communication in English? How can you improve your fluency in English?

What does "cohesion" mean in the context of writing in English? Provide an example of how to improve cohesion in a paragraph.

What is the difference between a well-organized paragraph and a disorganized one? Provide examples of each.

IV. Use of Idioms and Idiomatic Expressions:

Complete the following sentences with the appropriate idiom or idiomatic expression:

a) "She's always talking about quitting her job, but she never _____."

b) "I'm feeling _____ about my upcoming exam."

What is an idiom and why are they important in English communication? Provide an example.

What is the meaning of the idiomatic expression "break a leg"? In what context is it commonly used?

Explain the meaning of the idiomatic expression "hit the books". Provide an example of how to use it in context.

What is the difference between an idiom and an idiomatic expression? Provide examples of each.

Annex 4.

Post-Test

Correct use of verb tenses:

Excellent (5): Students correctly selected verb tenses in all practice activities and demonstrated a solid mastery in using verb tenses in various contexts.

Outstanding (4): Students showed a solid understanding of verb tenses in most activities, with few minor errors in selecting verb tenses.

Good (3): Students demonstrated an understanding of most verb tenses, although there were some minor errors in selecting verb tenses in some activities.

Acceptable (2): Students had difficulty in correctly using some verb tenses, with errors affecting comprehension in several activities.

Poor (1): Students showed limited knowledge of verb tenses and made numerous errors that hindered comprehension in most activities.

Correct grammatical structure:

Excellent (5): Students demonstrated exceptional mastery of grammatical structure in all activities, with precise grammar and no significant errors.

Outstanding (4): Students showed a solid understanding of grammatical structure in most activities, with few minor errors that did not significantly affect comprehension.

Good (3): Students demonstrated understanding of most grammatical structures, although there were some minor errors that affected accuracy in some activities.

Acceptable (2): Students had difficulty in correctly using some grammatical structures, with errors affecting comprehension in several activities.

Poor (1): Students showed limited knowledge of grammatical structure and made numerous errors that hindered comprehension in most activities.

Fluency and coherence:

Excellent (5): Students presented fluid and coherent responses in all activities, with a logical progression of ideas and smooth transition between sentences.

Outstanding (4): Students showed solid fluency and coherence in most activities, with some moments of lesser clarity, but without significantly affecting comprehension.

Good (3): Students demonstrated understanding of most presented concepts, although there were some minor issues of fluency and coherence in some activities.

Acceptable (2): Students had difficulty in maintaining fluency and coherence in some activities, making comprehension difficult at certain points.

Poor (1): Students showed a lack of fluency and coherence in their responses, with serious issues affecting comprehension in most activities.

Use of idioms and idiomatic expressions:

Excellent (5): Students effectively used idioms and idiomatic expressions in all activities, demonstrating a deep understanding and applying expressions correctly in context.

Outstanding (4): Students showed a good command of idioms and idiomatic expressions in most activities, with some instances where application could have been more precise.

Good (3): Students demonstrated understanding of most idioms and idiomatic expressions presented, although there were some minor errors in application in context.

Acceptable (2): Students had difficulty in correctly using some idioms and idiomatic expressions, with errors affecting comprehension in several activities.

Poor (1): Students showed limited knowledge of idioms and idiomatic expressions, making numerous errors that hindered comprehension in most activities.

I. Type of Activities:

Which type of IA-based activities have you found most useful for practicing English grammar: basic activities or intermediate activities? Why?

Describe a basic activity you have done in class to practice English grammar using IA technology. What did you learn from this activity?

Do you think intermediate activities based on IA are more effective in improving your understanding and application of English grammar compared to basic activities? Why or why not?

II. Complexity of Activities:

What level of complexity of IA-based activities do you prefer for practicing English grammar: low complexity, medium complexity, or high complexity? Why?

Think of a high-complexity activity you have recently done to practice English grammar with IA technology. How did this activity challenge you?

Do you think low-complexity activities are useful for establishing a solid foundation in English grammar, while high-complexity activities are useful for applying and deepening your knowledge? Why or why not?

III. Delivery Modalities:

How would you describe the variety of delivery modalities used in IA-based activities for practicing English grammar in your class: limited, diversified, or high complexity? Why?

What advantages do you find in having a variety of delivery modalities in IA-based activities for learning English grammar?

Do you think a greater variety of delivery modalities in IA-based activities could improve your motivation and commitment to learning English grammar? Why or why not?

IV. IA Feedback:

How would you describe the feedback provided by IA technology during English grammar activities in your class: limited or unclear, useful or relevant, precise and detailed? Why?

How does the type of feedback provided by IA influence your understanding and improvement of English grammar?

What aspects of IA feedback do you find most beneficial for your learning of English grammar and why?

