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PEDAGOGY OF NATIONAL AND FOREIGN LANGUAGES

"EXPLORING THE ROLE OF ASSISTIVE TECHNOLOGY IN TEACHING ENGLISH VOCABULARY TO BLIND STUDENTS"

RESEARCH PROJECT

As a prerequisite to obtain a:

BACHELOR´S DEGREE IN PEDAGOGY OF NATIONAL AND FOREIGN LANGUAGES

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Advisor's Approval

In my role as Advisor of the research paper under the title "EXPLORING THE ROLE OF ASSITIVE TECHNOLOGY IN TEACHING ENGLISH LANGUAGE VOCABULARY TO BLIND STUDENTS" prepared by Tomalá Carlos Kerly Paola, undergraduate students of the Pedagogy of National and Foreign Languages Major, at School of Educational Sciences and Languages at Universidad Estatal Península de Santa Elena I declare that after oriented, studied and reviewed the project, I approve in its entirety because it meets the requirements and is sufficient for its submission to evaluation of the academic tribunal.

Sincerely,

Nieto Herrera Diego Josue, MSc.

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Statement of Authorship

I, Kerly Paola Tomalá Carlos, with ID number 2450659095 undergraduate students from Universidad Estatal Península de Santa Elena, School of Education Science and Languages, as prerequisite to obtaining a bachelor´s degree in Pedagogy of National and Foreign Languages in our role as authors of the research project "EXPLORING THE ROLE OF ASSISTIVE TECHNOLOGY IN TEACHING ENGLISH VOCABULARY TO BLIND STUDENTS" certify that this study work is my authorship, except for que quotes, statements, and reflections used in this research paper.

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Declaration

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Dedication

I dedicate this project to God, my family, and my friends, who have been my driving force and inspiration, even in moments when I felt everything was lost. They have always stood by me, and without their support and encouragement, I would not have been able to complete this research. For all of this and much more, I am deeply grateful.

ABSTRACT

This qualitative study examines the role of assistive technology in the English vocabulary teaching experiences of teachers working with students who are blind or visually impaired. Based on a phenomenological approach and interpretivist theory, in-depth interviews were conducted with five teachers from five public schools in La Libertad, Santa Elena Province, serving as the sample. The author conducted one-on-one interviews across five virtual sessions to explore the perspectives of teachers. All participants provided detailed accounts of how assistive technology influenced their English vocabulary instruction. The goals of this research were to analyze teachers' experiences, identify challenges faced in teaching and learning for blind and visually impaired students, and determine the most commonly used assistive technologies. The study found that assistive technology enhanced the effectiveness of English vocabulary learning and facilitated the teaching and learning process for students who are blind or visually impaired. It improved access to study materials, and both teachers and students experienced greater success in sharing tasks and active participation. Assistive technology has fostered greater autonomy, confidence, and self-reliance among learners who are blind or visually impaired (B&VI). Although highly effective, assistive technology cannot solve all issues confronting blind and visually impaired students unless public educational institutions facilitate access and provide the necessary technology for teachers, including appropriate training.

KEYWORDS: Blind, visual impairment, assistive technology, teaching vocabulary.

Resumen

Este estudio cualitativo examina el papel de la tecnología asistiva en las experiencias de enseñanza de vocabulario en inglés de los docentes que trabajan con estudiantes ciegos y con discapacidad visual. Con base en un enfoque fenomenológico y desde una perspectiva interpretativa, se realizaron entrevistas en profundidad a cinco docentes pertenecientes a cinco instituciones educativas públicas de La Libertad, en la provincia de Santa Elena, quienes constituyeron la muestra de investigación. La autora llevó a cabo entrevistas individuales a lo largo de cinco sesiones virtuales con el fin de explorar las percepciones de los docentes. Todos los participantes proporcionaron descripciones detalladas acerca de cómo la tecnología asistiva influyó en su enseñanza del vocabulario en inglés. Los objetivos de esta investigación fueron analizar las experiencias de los docentes, identificar los desafíos presentes en los procesos de enseñanza y aprendizaje de los estudiantes ciegos o con discapacidad visual, y determinar las tecnologías asistivas más utilizadas. El estudio evidenció que la tecnología asistiva mejoró la eficacia del aprendizaje del vocabulario en inglés y facilitó el proceso de enseñanza-aprendizaje de los estudiantes con discapacidad visual. Además, incrementó el acceso a los materiales de estudio, permitiendo una mayor colaboración y participación activa entre docentes y estudiantes. La tecnología asistiva fomentó una mayor autonomía, confianza y autosuficiencia en los aprendientes con discapacidad visual. No obstante, aunque su efectividad es alta, la tecnología asistiva no puede resolver todos los problemas que enfrentan los estudiantes ciegos o con

discapacidad visual si las instituciones educativas públicas no garantizan el acceso y la disponibilidad de estos recursos, así como la capacitación adecuada para los docentes.

PALABRAS CLAVE: Ciegos, discapacidad visual, tecnología asistiva, enseñanza de vocabulario.

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INTRODUCTION

Nowadays, inclusive education represents important challenges in the educational system. It promotes equity in opportunities for all students, and teachers are involved in this process to guarantee the right to education for each student, regardless of social, cultural, and economic factors. Blind students need a different type of assistive technology to access the information and activities.

The learning of the English language process, specifically English vocabulary, involves a set of cognitive perceptions. In this aspect, visually impaired students faced barriers when teachers' strategies were based on visual resources. That is, they need to include in the learning process assistive technology such as screen readers, braille, or any type of software that plays a vital role in guaranteeing equitable learning opportunities.

The use of assistive technology is a positive support in the learning process in a classroom that has visually impaired students, because students improve their self-esteem,

promote active participation, strengthen confidence in the teaching environment, and feel more motivated when learning vocabulary. However, the effectiveness of assistive technology in an English vocabulary class depends on the training the teacher has, as well as the infrastructure, availability of materials, and resources that this group of students needs.

Due to the need, educational institutions in Ecuador have been gradually incorporating assistive technology into the classroom, but the effort to integrate AT faces challenges. Therefore, this study aims to explore the role of assistive technology in teaching English vocabulary to blind students, examining their experiences and the benefits of these tools in the learning process.

Chapter I

The Problem

1.1. Research Topic

Innovation and vocabulary learning.

1.2. Title of Project

Exploring The Role of Assistive Technology In Teaching English Vocabulary To Blind Students.

1.3. Problem Statement

Education is a human right, and it is essential for the development of any successful society. and the opportunity to learn must be provided to every person on Earth, which includes those with disabilities. The English language is an important and one of the most spoken languages around the world. Students with visual impairments can benefit from mastering a second language to increase their professional opportunities and enhance their integration into the sighted society; EFL is therefore an important school subject for children with sight loss. (Araluc, 2002).

According to a study published by the World Journal of Advanced Research and Reviews, Visual impairment affects approximately 253 million people worldwide, with 36 million classified as blind and 217 million having moderate to severe vision impairment. This significant demographic faces unique challenges in educational settings, particularly when learning English as a second or foreign language. Traditional English language learning methods are based mainly on visual resources, which are interesting for sighted students, such as

textbooks, written exercises, and visual vocabulary associations, that represent substantial barriers for visually impaired learners (Kanchanasuttirak, journalwjarr, 2025)

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) recognized that Latin America and the Caribbean are avant-garde regions in the last few decades, having had the fastest growth rates in the incorporation of technologies and connectivity. and in the case of education systems, it has not yet developed a relationship with improved learning results. That means Ecuador is in the process of incorporating technology into education; however, technology is one effective way to achieve equitable learning for blind students.

Based on the Equality Plan from Universidad Estatal Península de Santa Elena in Latin America, however, despite its achievements in combating poverty, it remains the most unequal region in the world. This situation is not only reflected in economic indicators, but also in the development of capacities, among which educational capacities stand out.

In addition, UNESCO survey in 2020 to 19 Latin American countries through a self-administered questionnaire, which was requested by nine countries: Argentina, Estado Plurinacional de Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Panamá and Uruguay In this regard, the widespread presence of information related to the participation of persons with disabilities in the education system in all the countries considered is recognized. As a result of this survey, it generally covers all grades of special and regular education, both public and private, ensuring appropriate coverage for monitoring educational trajectories. (Yáñez, 2022)

It is essential to highlight that students with visual impairments encounter challenges in reading, writing, and comprehension, which are further exacerbated by the lack of suitable classroom adaptations. Therefore, visual impairment poses a significant challenge in the

educational field, affecting both the learning process and the social integration of students who experience it. (Heredia-Solorzano, 2025)

In Ecuador, approximately 11% of the population has some disability. (Hugo Arias-Flores, 2020). This highlights a considerable problem for educators at different levels of education, it represents adaptations to satisfy the necessity that blind students have when they learning vocabulary. In public educational institutions, students with a range of disabilities face new challenges in their learning process. To emphasize teaching English vocabulary in Ecuador based on visual materials, such as images, videos, interactive games, and multimedia presentations. This poses a significant barrier for blind students, who rely on other sensory channels, such as auditory or tactile, to access information.

In this context, assistive technologies have become a potential solution to close the educational gap. Tools such as screen readers, braille displays, text-to-speech converters, audiobooks, and accessible apps can facilitate and benefit vocabulary learning for students who are blind. However, implementation in classrooms is not always effective or consistent, whether due to a lack of teacher training, insufficient resources, or limited specialized support. It means that the lack of teacher training is related to the lack of implementation of assistive technology in the classrooms, and they need to be better prepared or update their knowledge to be able to integrate AT to help blind students obtain better acquisition of English vocabulary.

Assistive technologies, such as screen readers, braille displays, tactile graphics, and audio-based tools, have the potential to bridge this gap and make language learning more inclusive, and facilitate the acquisition of English vocabulary. However, despite the availability of these tools, there is limited research on how they are applied in classroom settings and how effective it is in promoting vocabulary acquisition among blind learners.

Another authors state:

For University State of Península de Santa Elena (UPSE) inclusion is comprehending like the process that enhances diversity as an enriching value of university education and expresses the capacity of the educational institutions to guarantee the full exercise of social rights, the economic and cultural rights of students, teachers, and staff, including their access, retention, participation, solidarity, and ownership of results, addressing the educational needs of all people through various mechanisms to meet the educational needs of all people. (Pino, 2024).

Public educacional institutions in La Libertad, Santa Elena province guarantee the educational process as a human right for everybody, regardless of social, economic, and cultural differences. It alludes that in the classroom, teachers provide different types of adaptations in the material for students with disabilities. For blind students, they supply adapted environmental and material modifications to facilitate the learning process. However, the majority of English teachers apply tools designed for sighted students and attempt to assist blind learners; nevertheless, blind students must receive clear instruction in vocabulary to develop their verbal and written skills.

1.4. Problem Question

1.4.1. General Question

How does the use of assistive technology influence the learning of English vocabulary among blind students at public educational institutions in Santa Elena province?

1.4.2. Specific Questions

- How is assistive technology used to teach English vocabulary to blind students in classrooms?
- How do teachers describe the key challenges and opportunities associated with the use

of assistive technology?

- What type of assistive technology offers opportunities to blind students in acquiring English vocabulary?

1.5. Objectives

1.5.1. General Objective

To analyze the role of assistive technology in teaching English vocabulary to blind students, this study employs a qualitative approach based on interviews to understand how these tools influence learning processes.

1.5.2. Specific Objectives

- To examine the experiences of teachers regarding the use of assistive technologies in English vocabulary lessons, through interviews, to identify perceptions and benefits associated with their use.
- To analyze the main challenges teachers face in teaching English vocabulary.
- To identify the most commonly used assistive technologies in English language teaching for visually impaired students

1.6. Justification

The current research project will focus on the role of Assistive Technology in English vocabulary learning for visually impaired students at five public educational institutions in Santa Elena province to identify the most common issues and benefits that affect English vocabulary acquisition in blind students, which is fundamental to the educational process. The students at this institution need the assistive technological tools to achieve good learning outcomes.

The present research is justified by the need to identify inclusive educational practices that guarantee access to English learning opportunities, examining the role of assistive

technology in teaching lexis to students with visual impairment. This study provides information on teachers' practices in inclusive classrooms that promote equitable English learning. It aims to understand the type of AT they use in teaching vocabulary classes to ensure fair and significant learning outcomes.

Nowadays, learning the English language is a priority, considering that English is the third spoken language in the world. Every person, regardless of their economic, social, and physical conditions, must have the right of learning, especially those who are visually impaired. Vocabulary is a vital component in English language acquisition as a foreign language; however, methods to teach are usually based on visual materials, such as flashcards, videos, and pictures, to make the content enjoyable. This particular aspect can become a barrier for visual students due to the lack of this specific sense, and taking advantage of the rest of their senses depends on teachers' strategies.

The present research aims to provide and share information focusing on blind and visually impaired students in public educational institutions in La Libertad, Santa Elena province. This investigation seeks to examine the type of AT and adaptation teachers apply in the teaching vocabulary process to blind students in the acquisition of a second language.

Chapter II

Theoretical Framework

2.2 International Background

International researchers are interested in finding answers about the role of assistive technology in teaching English vocabulary, and according to previous research ¨*The role of assistive technology devices in fostering the participation and learning of students with visual impairment in higher education institutions in Tanzania*¨, by (S. E. Kisanga, 2020) revealed that the study found that students with visual impairment were well-acquainted with the meaning of assistive technology. However, their knowledge was limited to the assistive technology devices available at their institution. Most of the students with visual impairment depend on the support of either sighted students or a more skilled person.

In addition, a second author of ¨*Investigation of the Opinions of Pre-Service Special Education Teachers on the Use of Assistive Technologies in Special Education*¨ by (Kurt & Erden, 2023) highlighted the results of the research and explained that the participants found the use of assistive technology in special education mostly beneficial, especially the technology-related courses they took in undergraduate education; however, it was observed that they stated that the existing trainings were insufficient.

In the research work, ´´*Perceptions of High-Tech Assistive Technology Held by Students with Visual Impairments*¨, results provide that Teachers of students with visual impairments need to be prepared to teach their students assistive technology skills that are both general and device-specific, depending on the student's needs. The authors consider that one of the most important aspects is the teacher training to guarantee real and effective teaching (Booths, 2022)

2.4. National Background

To begin, assistive technology is a relatively new term in Ecuador. However, in many developed countries, the use of assistive technology is already quite frequent, especially in specialized educational centers. However, learning through digital media used for teaching blind students has gained significant importance. Many teachers, along with others, have been interested in this topic. Therefore, recent studies can contribute meaningful information to this research project. Some of the most relevant are the follows as ones:

First, in accordance with the University of Manabi all universities must offer equal opportunities to all its students in the classroom environment for teaching and learning English as a second language, university, professors, using their knowledge, creativity, and the support of the multitude of resources that digitalization offers today, can successfully achieve this goal for all students, particularly those who are blind. (Celene Margarita Casierra Parraga, 2021)

In conformity with the author, teachers must be take advantage of a variety of digital resources that digitalization offers to achieve the main goal, that is, teaching every student in an educational institution, making environmental adaptations so that blind students can receive the same opportunities, emphasizing the importance of technology in learning English.

Secondly, in line with (Cassia Cristiane de Freitas Alves, 2009), assistive technology is applied to the education of students with visual impairment; however, teachers indicate the need for infrastructure and pedagogical support. Information technology is an important tool in the inclusion process and can promote the independence and autonomy of students with visual impairment.

According to the authors, assistive technology has a vital role in the education process of visually impaired students, and AT supports and facilitates the expansion of the lexicons of this group through the application of different technologies whose function is to support and satisfy

the specific needs they have. The teachers need to adapt the content became these materials in a tool accessible for every student in the learning process, making the students autonomous. However, the infrastructure and pedagogical support are also vital to achieve the goal of autonomy and Independence.

2.5. Pedagogical basis

The pedagogical basis aims to justify the applied methodology in this research work and the approach used to address the role of assistive technology in teaching English vocabulary to blind students. Through these bases, teachers can comprehend the type of methodology that are effective and facilitates the learning process in an inclusive classroom.

2.5.1. *Assistive Technology in Education*

"Assistive Technology" (AT), according to the World Health Organization (WHO), is a generic term that designates all systems and services related to the use of assistive products and the performance of services (José María Fernández-Batanero, 2022) Assistive technology in education (AT) refers to any equipment, software, such as screen readers, braille displays, tactile graphics, and audio-based tools, have the potential to bridge this gap and make language learning more inclusive, and facilitate the acquisition of English vocabulary. However, despite the availability of these tools, there is limited research on how they are applied in classroom settings and how effective they are in promoting vocabulary acquisition among blind learners that helps students with disabilities overcome learning or functional barriers such as screen readers, braille displays, tactile graphics, and audio-based tools, have the potential to bridge this gap and make language learning more inclusive, and facilitate the acquisition of English vocabulary. However, despite the availability of these tools, there is limited research on how they are applied in

classroom settings and how effective they are in promoting vocabulary acquisition among blind learners.

Assistive technology can be either low or high-tech hardware or software that can help people who have difficulty communicating through speaking, typing, and writing; additionally, tools can aid users by increasing their functional capabilities in remembering, seeing, hearing, walking, learning, etc. As technology mediates more and more educational offerings and learning experiences, there is an opportunity to individualize and tailor instructional opportunities while maintaining learning contexts and environments that support collaboration and inclusión. (Vanesa Ayon, 2021)

The authors acknowledge that assistive technology offers the potential to provide equal learning opportunities for students with specific educational needs. Assistive Technology in general, is a tool that teachers can use to facilitate learning and communication in a classroom. AT supports the process of acquiring vocabulary in an inclusive class.

2.5.2. Visually Impaired Students

Inclusive Education (UNESCO, 2020) suggests that all students, regardless of their condition, have access to a quality education, and AT is a vital condition for visually impaired students not to be excluded from learning. To achieve this goal, teachers need to be trained to include these tools in the classroom.

As defined by the ADA, a disability is a physical or mental impairment that substantially limits a major life activity, such as walking, seeing, hearing, speaking, learning, breathing, caring for oneself, performing manual tasks, or working. The ADA covers those who have a disability; those who have a record of having a disability; and those who are regarded as having a disability, whether or not they have one. (BaltimoreCity, 2025)

The World Health Organization mentions that young children with irreversible severe visual impairment from early onset may suffer delays in motor, linguistic, emotional, social and cognitive development, with lifelong consequences. School-age children with visual impairment may also have lower levels of academic achievement (0rganization world healt, 2023)

2.5.3. Second Language Vocabulary Acquisition

Vocabulary is central to language and of critical importance to the typical language learner. Nevertheless, the teaching and learning of vocabulary have been undervalued in the field of second language acquisition (SLA) throughout its varying stages and up to the present day (Zimmerman, 2012)

For Krashen's input Hypothesis (1982), vocabulary is acquired when students receive a comprehensible input, a little bit advanced than their current level. For blind students, AT can become an input inaccessible as visual text in a comprehensible as audio or braille in a simple definition, we could say that to acquire words is to integrate them into one's mental lexicon, which belongs, following Van Patten's model, to the abstract, implicit and underlying domain of the language that is called mental representation (García, 2024)

For visually impaired students, acquiring a second language is a goal to develop their professional skills in a sighted society. And this development can only be achieved through assistive technology, using different tools that facilitate access to their activities and participation in their educational environment.

2.5.4. ***Inclusive Education***

The term 'inclusion' has been contrasted with 'integration'. The latter has been concerned with the physical placement of learners from special schools to mainstream schools and was often linked to notions of readiness, did the learner have the necessary skills and attributes to

literally ‘fit into’ the mainstream school? The former term is concerned with the acceptance of diversity amongst the school’s community

Inclusion in education is an educational policy issue receiving global attention. A response to diversity can be positive, eliminating barriers to participation and creating opportunities for all groups, including students, administrators, teachers, families, and communities. A direct, flexible, and adaptive approach challenges responsibility and education based on respect for the differences of all people (Salgado Carrera Nayla Karina, 2025)

According to the Ministry of Education, the inclusive educational model considers three pillars for an effective response to diversity: Accessibility, which facilitates resources, measures, and support for access, mobility, communication, participation, and learning for all students; flexibility and adaptability, which involve the ability to adapt the curriculum and teaching to meet students' needs; and a socio-emotional climate that provides an environment of trust, acceptance, and appreciation for diversity and individual potential, supporting students' comprehensive development.

2.5.5. Universal Design for Learning (UDL)

Universal Design for Learning (UDL) is an educational framework for creating learning environments that address the diverse needs of learners. At its core, UDL provides students’ flexibility in the ways they access and engage with course materials and demonstrate mastery of learning objectives. (Stapleton-Corcoran, 2022)

Universal Design for Learning (UDL) can be effectively integrated into the inclusive education framework to create a more equitable and accessible learning environment for all students. Inclusive education aims to include students with diverse needs and abilities in general

education classrooms. Here's how UDL can be seamlessly incorporated into the inclusive education framework. (Mary, 2024)

UDL purpose to adapt the content and material for individual needs of students, for how information is presented, how students respond or demonstrate their knowledge and skills, and how students are engaged in learning. UDL implementation provides the opportunity for all students to access, participate in, and progress in the general-education curriculum by reducing barriers to instruction (Ralabate, 2011)

2.6. Theoretical basis

The theoretical basis of this research work is the intention of revealing the basis that supports this work in the use of assistive technologies, which includes social influence and innovativeness. This section provides a theoretical foundation regarding the role of both individual and institutional factors influencing teachers to use assistive technology.

2.6.1. Vygotsky's Sociocultural Theory

This author mentions that (gowriensw, 2022) Vygotsky viewed language as an essential tool for communication and that culture and social behaviour were understood through language. Vygotsky also highlighted the critical role that language plays in cognitive development. Vygotsky's theory says that social interactions help children develop their ability to use language

Also, Vygotsky's interest in the study and treatment of children with special needs, which started in the early 1920s, continued to the end of his life and career. Vygotsky wrote on the education of deaf and blind children, the role of peer interaction for the special needs child, and the question of "integration" or "mainstreaming" see Vygotsky, 1983, 1993. Apart from leaving a rich collection of writings. (: H. Daniels, 2007).

The first theory emphasizes the importance of language, as the author comprehends behavior through language, playing a vital role in the cognitive side. On the other hand, the second author is focused on the special needs of children, giving importance to the social interaction in learning through their environment. In conclusion, both authors agree on the importance of language learning in developing social skills, and they need receive the same opportunities.

2.6.2. Multimodal Learning Theory

Multimodal learning is teaching a concept through visual, auditory, reading, writing, and kinaesthetic methods. It is meant to improve the quality of teaching by matching content delivery with the best mode of learning for the student. Multimodal learning is teaching a concept using more than one mode. By engaging the mind in multiple learning styles at the same time, learners experience a diverse learning style that collectively suits all of them (Litonjua, elearningindustry, 2025)

While, according to Massaro (2012) and Jewitt (2012), multimodal learning refers to teaching strategies and learning situations that involve multiple sensory systems simultaneously. Teachers can create materials for students with different learning styles, such as auditory, visual, kinesthetic, reading, and writing. Multimodal learning keeps students engaged, encourages them to apply what they learn in real-life situations, provides more variety, and develops learner autonomy (Al-Jarf, 2024.)

To add, Multimodal focuses on the design of discourse by studying the contribution of semiotic sources (language, motion, image) deployed in various modalities (audio, visual, physical), as well as interaction and integration in the text coherence process. The multimodal approach considers how linguistic and visual choices meet the purpose of texts, audiences, and

contexts, and how they work together in the organization and development of information and ideas (Firmansyah, 2018)

All authors concur that multimodal learning theory is when teachers have to teach to a classroom with different learning styles to engage, encourage students using visual, auditory, kinesthetic, reading, and writing, according to their needs, and making an reflection, through this model, teachers can assist in the vocabulary acquisition to visually impaired students becoming in a key option to fulfi an efective learning covering the needs of students with dissabilities have.

2.6.3. Constructivist Learning Theory

Learning involves language: the language we use influences learning. On the empirical level. researchers have noted that people talk to themselves as they learn. On more general level. there is a collection of arguments, presented most forcefully by Vygotsky, that language and learning are inextricably intertwined. Learning is a social activity: our learning is intimately associated with our connection with other human beings, our teachers, our peers, our family, as well as casual acquaintances, including the people before us or next to us at the exhibit (Hein, 1991)

Constructivism is essentially a theory based on observation and scientific study of how people learn. It states that individuals build their own understanding and knowledge of the world through experience. When we discover something new, we tend to relate it to our previous ideas and experiences; it may change our beliefs, or we might dismiss the new information as irrelevant. We are active creators of our own knowledge. To do this, we need to explore and evaluate what we know. In the classroom, the constructivist view of learning can lead to various teaching practices. (Education, 2015). In this context, in an inclusive classroom, the teacher

should encourage students with special needs; for instance, blind students need to explore their environment using all their senses.

2.6.4. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a theory in information systems that explains how users are encouraged to accept and utilize new technology, focusing on two key determinants: perceived usefulness and perceived ease of use. The model suggests that higher adoption rates occur when users believe an application will enhance their performance and requires less effort to use (Ooi, ND)

TAM has been the focus of several studies that examine individuals' beliefs, intention to use, and technology use. TAM employs perceived ease of use and perceived usefulness as the determinants of intention, which in turn determines use, Several theoretical models have been developed and applied to study the acceptance and usage behavior of information technologies, but among the various theories proposed, the Technology Acceptance Model (TAM) is considered one of the most influential and most widely used by researchers to describe the acceptance of a particular technology by individuals, studying the influence of human factors in the adoption of new technologies (Patrícia Silva (Federal University of Paraíba, 2015)

2.6.5. Cognitive Load Theory (CLT)

Cognitive Load Theory (CLT), formulated by John Sweller, describes how working memory processes information and categorizes it into three types: intrinsic, extraneous, and germane. Each type of cognitive load plays a crucial role in educational technology and instructional design, and by minimizing extraneous cognitive load and promoting germane cognitive load, educators can enhance learning effectiveness. CLT has become widely recognized as an influential framework in educational research, guiding instructional practices and fostering

continuous improvement in designing effective and engaging learning experiences for students (Clark, nd)

CLT is based on cognitive theories of human architecture, and one major assumption is that a human's working memory has only a limited capacity. When learning, humans allocate most of their cognitive resources to this activity, and in many cases, it is the instructional format that causes an overload. Consequently, the basic idea is to reduce such external load to make available more capacity for actual learning so that better learning and transfer performance is achieved. (Bannert, february 2002)

For visually impaired students, CLT is a support in English vocabulary teaching because they do not need to exert unnecessary effort memorizing in a format they do not recognize; on the contrary, through the audios or screen readers, and braille, they can optimize the learning process.

2.7. Legal basis

This research is based on la constitución de la república del Ecuador y la ley orgánica de discapacidad.

2.7.1. ´´Constitución de la República del Ecuador´´

Título: Capítulo III: Derechos de las personas y grupos de atención prioritaria: Sección VI: Personas con discapacidad.

Artículo 4: El Estado garantizará políticas de prevención de la discapacidad y, junto con la sociedad y la familia, buscará la igualdad de oportunidades para las personas con discapacidad; junto con la sociedad y la familia, buscará la igualdad de oportunidades para las personas con discapacidad y su integración social.

Artículo 7: Persona con deficiencia o condición discapacitante.

Se entiende por persona con deficiencia o condición discapacitante a toda aquella que, presente disminución o supresión temporal de alguna de sus capacidades físicas, sensoriales o intelectuales manifestándose en ausencias, anomalías, defectos, pérdidas o dificultades para percibir, desplazarse, oír y/o ver, comunicarse, o integrarse a las actividades esenciales de la vida diaria limitando el desempeño de sus capacidades; y, en consecuencia, el goce y ejercicio pleno de sus derechos.

Título: Capítulo II: Derechos de las personas con discapacidad: Sección II: De la educación.

Artículo 28: Educación inclusiva. La autoridad educativa nacional implementará las medidas pertinentes, para promover la inclusión de estudiantes con necesidades educativas especiales que requieran apoyos técnico-tecnológicos y humanos, tales como personal especializado, temporales o permanentes y/o adaptaciones curriculares y de accesibilidad física, comunicacional y espacios de aprendizaje, en un establecimiento de educación escolarizada.

Chapter III

Methodological Framework

3.1. Method

3.1.1. Qualitative Methodology

Qualitative research is more exploratory and focuses on understanding the subjective experiences of individuals, and determines relationships between collected data and observations. Researchers rely on qualitative observation research methods that explain why a particular theory exists and what respondents have to say about it. (Bhat, 2022). Some identified characteristics are: The qualitative method focuses on explaining and understanding experiences and perspectives, the qualitative method uses images, words, and observations to present non-numerical data, generally utilizes mini sample sizes, and usually highlights interpretation and in-depth exploration. Also, data analysis involves interpretation and narrative análisis, and results are presented descriptively.

The methodological framework for studying the experiences of teachers teaching English vocabulary to blind students in public educational institutions in La Libertad, Santa Elena Province, outlines the approach to collecting and analyzing the data acquired. The methodology helps the reader understand the issue under investigation through interviews with open-ended questions. The qualitative-interpretive research model was applied in this research work because it seeks to understand the experiences of teachers attributed to the use of assistive technology in English teaching vocabulary to students with visual impairment.

3.2. Theoretical basis

3.2.1. Phenomenological study

A phenomenological study is a qualitative research approach that seeks to explore and understand individuals' lived experiences and the meaning they assign to those experiences. The methodology originates from phenomenology, a philosophical movement founded by Edmund Husserl, which emphasizes the direct examination of phenomena as they are perceived by consciousness, without the application of preconceived assumptions by the observer (Melbourne l. g., 2025).

Phenomenology in qualitative research is characterized by a focus on understanding the meaning of lived experience from the perspective of the individual. Instead of testing hypotheses or seeking to generalize findings to a larger population, phenomenological research aims to illuminate the specific and to challenge structural or normative assumptions by revealing the subjective experiences and perceptions of individuals (McLeod, 2024). The researcher conducts in-depth interviews with individuals to find common themes among the experiences.

3.3. Data Collection Technique

3.3.1. One-on-one interview

For this research work, interviews were conducted online to gather the needed information for the respective analysis. This modality is the most used when the interviewer looks for specific characteristics for a better understanding of the reader. The following are definitions of a one-on-one interview from the authors.

One-on-one interviews are interviews that are in person or online and occur between one interviewer and the interviewee. The format of these interviews is typically rather

straightforward, and this style tends to be more of what applicants are expecting when called in for an interview (ndsu.edu, nd)

One-on-one interview when the interviewer, or moderator, asks a contributor a series of questions about behavior, preferences, attitudes, and experiences on a topic or item of interest.

Interviews can be conducted in person or online, and are used to gather data to build, construct customer journeys and better understand contributor work practices. These interviews are often used in the discovery phase of investigation to collect requisities, recognize context, and determine needs (Usertesting, October 10, 2024)

The one-to-one interview is a commonly used data collection method in health and social research. Increasing attention has been given in the literature to the process of conducting an interview, particularly with respect to the role of the interviewer and the relationship between the interviewer and interviewee. The individual interview is a valuable method of gaining insight into people's perceptions, understandings and experiences of a given phenomenon and can contribute to in-depth data collection (Frances Ryan, 2009).

3.4. Instrument

3.4.1. Questionnaire

The questionnaire is a tool that allows data collection in an interview. The set of specific questions to obtain information about the studied topic. It is a list of questions or items used to gather information from respondents about their experiences or opinions. For this research, the type of questions used is five open-ended questions focused on the application method in person.

The reason for this questionnaire is to obtain vital information for this research, which is looking for detailed characteristics of the role of assistive technology in teaching English vocabulary to blind students at public educational institutions in Santa Elena.

3.5. Data Collection Processing and Resources

Data will be collected through eight questions conducted in one-on-one interviews with five teachers from different elementary school levels in La Libertad, Santa Elena province, Ecuador. The interviews will take place in the evenings at various times to avoid interfering with the teachers' work schedules. Each interview will use a questionnaire with open-ended questions to explore teachers' experiences regarding the benefits that assistive technology offers to blind students. Before starting the interviews, teachers were informed of the research's purpose, and they agreed that the interviewer would not record the sessions. Teachers were assured that their personal and school information would remain confidential, and their names would be replaced with interview numbers.

More specific details are provided in the next table:

Table 1

Data Collection, Processing, and Resources

Questions	Explanations
What?	English teachers
Where?	Zoom
When?	Academic Period 2025
How?	Through a questionnaire with eight open-ended questions
What for?	To explore the perceptions about the teaching of English vocabulary.

Note. Created by Tomalá Carlos Kerly Paola, 2025

3.6. Population and Sample

In this research, the population refers to the entire group of individuals, objects, or events that share a common characteristic and are the focus of the study. It represents the complete set of elements that the researcher aims to study and draw conclusions about (Nurhafizah Ahmad, 2023). Details will be explained in paragraphs to clarify the terms for choosing the population.

The population of this research consisted of English teachers from five public educational institutions that are involved in teaching visually impaired students. Teachers play a vital role in the teaching-learning process in English vocabulary learning because they are in control of applying assistive technology, a factor that facilitates vocabulary learning.

This is a qualitative study; the population is not limited in quantitative terms, and its criteria are linked to the phenomenon studied. In this sense, the population of this study was formed by teachers with experience in teaching vocabulary to visually impaired students in public educational institutions in La Libertad, Santa Elena Province.

The population chosen for this research work was identified to find answers to a specific problem, which has as its main objective to select a group of teachers of public educational institutions in La Libertad, Santa Elena province, working in schools with visually impaired students. it was aimed to reach the extent of this research.

3.6.1. Sample

The sample was formed by five teachers who are in a range of ages from twenty-five and twenty-six years old; they are four males and one female, and these teachers are part of different educational institutions. The type of sample that was used for this investigation is non-probabilistic because the participants were intentionally selected to obtain and deepen their experiences, disposition to collaborate with relevant information and experiences about the researched topic. The selection of these five participants is justified for theoretical saturation, which is important because it allows a deep analysis of the data. The interviews were conducted with five English teachers because this research work is limited in time; for this reason, the selection only required a minor number of teachers. The inclusion criteria were teachers in public educational institutions with blind students in charge in La Libertad, Santa Elena Province; the exclusion criteria were teachers without an inclusive class in Santa Elena Province.

Table 2

Characteristics of Teachers

Code	Gender	Age	Education Status	Total of Teaching Experience	Teaching Time at School for the VI	Interview Date	Time of Interview
T1	Female	26	Bachelor	3 years	2	17/10/2025	20
T2	Male	26	Bachelor	3 years	2	14/10/2025	19
T3	Male	26	Bachelor	3 years	3	16/10/2025	15
T4	Male	25	Bachelor	3 years	3	15/10/2025	17
T5	Male	26	Bachelor	3 years	3	13/10/2025	20

Note: Created by Kerly Paola Tomalá Carlos, 2025.

Chapter IV

Analysis of Findings and Discussion

4.1. Brief explanation of the findings

In the literature, there are studies related to the experiences of educators that focus on the use of assistive technology for teaching visually impaired students, which is associated with this research study. The data collected from one-on-one interview sessions underline how teachers use assistive technology, their perceptions of the effects assistive technology has on teaching in natural learning environments with adapted materials, and how A T is related to success in the vocabulary acquisition of English.

The fourth chapter presents an analysis of the data obtained from the interviews. It provides an interpretation of perceptions of the teachers about the role of assistive technology in teaching vocabulary to visually impaired students. Each question is strongly related to the authors who support this research, as well as the variables and objectives present in this research work. The opinions of the teachers, dictated by their experiences, provide vital aspects for the development of this work. The interviews with the teachers were recorded on a cell phone.

The answers are linked to the personal experiences of teachers; they found multiple opportunities when they used assistive technology, while others highlighted the challenges they face. The participants provide clear information on the role of assistive technology in the teaching-learning process in an inclusive classroom.

Analysis of the interview

1. How does assistive technology affect your experience when teaching English vocabulary to blind and visually impaired students?

Picture 1

Assistive technology: enhancing quality of life for persons with disabilities

Note: (incpartservices, 2023)

The primary objective of the first question is to examine how assistive technology can shape the experiences of teachers when teaching English vocabulary. Teachers agree that assistive technology provides an inclusive teaching environment, facilitating interaction and autonomous learning that develops their linguistic skills. They also highlight that assistive technology has notably changed their teaching experience through vocabulary instruction, making it more inclusive and accessible. They highlight that even in its most basic forms, assistive technology is a valuable tool for creating a more inclusive learning environment. And in their experiences, it helps promote dynamic learning, receiving the same curriculum content as her peers, but the teaching methods are adapted to meet their specific needs by incorporating audio, tactile materials, and interactive tools. assistive technology allows students to participate.

Celene Margarita Casierra Parraga (2021) emphasized that professors, using their knowledge, creativity, and the support of the multitude of resources that digitalization offers today, can successfully achieve the goal of learning English vocabulary for all students, particularly those who are blind. This author supports the relationship between answers from the interviewee and the basis of this study.

2. What type of assistive technology have you used to facilitate the teaching and learning process for blind and visually impaired students?

Picture 2

Assistive Technology Guide

Note: (ataem.org, nd)

The second question aims to identify the assistive technology that teachers use in English vocabulary classes to comprehend the effective tools they apply to obtain positive learning results. Teachers concurred that they used a variety of strategies for their students with visual impairment, including realia, textured flashcards, and audio recordings, Braille, voice recorders, audio-based resources, screen readers, and tactile materials, because all these technological tool allows blind and visually impaired students to have the same opportunity of learning a foreign language.

The interviewees mentioned that they used a variety of strategies for their student with visual impairment, including realia, textured flashcards, and audio recordings. In class, they introduce the vocabulary, play the corresponding audio, and have to repeat the words to reinforce pronunciation and retention. also, incorporate tactile experiences, such as letting them touch objects related to the vocabulary, which helps create meaningful associations. Additionally, they

encourage them to practice at home with the audio recordings, which strengthens their learning and confidence. This multi-sensory approach has proven to be very effective in supporting their vocabulary acquisition.

Jose María Fernández Batanero (2022) mentions that Assistive technology in education refers to any equipment, software, such as screen readers, braille displays, tactile graphics, and audio-based tools, that have the potential to bridge this gap and make language learning more inclusive, facilitating the acquisition of English vocabulary. which helps create meaningful associations in the learning of visually impaired students, allowing the teacher to adapt the material to meet the various needs of the students. The author and the interviewer agreed when they mentioned that assistive technology has a vital role in teaching and learning English vocabulary to visually impaired students.

3. According to your experience, how does assistive technology help blind and visually impaired students in the acquisition and retention of English vocabulary?

Figure 3

Assistive Technology

Note: (nd, 2022)

The third question aimed to examine the opinions on how assistive technologies help blind and visually impaired students. The analysis reveals that people living in a technological era and teachers are fortunate that they have many tools available to use in their classes. they believe that assistive technology helps students with visual impairment learn vocabulary through continuous repetition. In other words, even though these students have a visual disability, they can listen to words and practice correct pronunciation.

While, according to Massaro (2012) and Jewitt (2012), multimodal learning refers to teaching strategies and learning situations that involve multiple sensory systems simultaneously. Teachers mentioned that they can create materials for students with different learning styles, like auditory, which provides more variety and develops learner autonomy, directly related to the answers of the interview.

4. **In your experience as a teacher, what challenges are you facing in the integration of assistive technology into your English vocabulary lessons?**

Figure 4

Assistive Technology

Note: (Danawanone, 2025)

The purpose of this question was to explore the challenges teachers face in integrating assistive technology into their English vocabulary classes. They agreed that the main challenges are the context in which they currently work. Sometimes, there is no internet access at some schools, which makes it difficult to use technological tools constantly. For that reason, they apply additional alternatives, such as pre-recording audio conversations to play them whenever needed. Moreover, having large classes and students with different needs makes individualization difficult. Therefore, the same activity that was originally designed often needs to be adapted so that everyone can understand.

For Cassia Cristiane de Freitas Alves (2009) assistive technology is applied to the education of students with visual impairment; however, teachers indicate a need for infrastructure and pedagogical support. Information technology is a vital tool in the inclusion process that can promote the independence and autonomy of students with visual impairment. The answers of teachers in this research are related to the author, who emphasized that they need infrastructure, pedagogical support, training, and information technology.

5. From your perspective, how do visually impaired students respond to the use of assistive technology in the classroom?

Figure 5

Assistive Technology for the blind and visually impaired

Note: (Halpin, reciteme.com, nd)

The fifth question was designed to analyze the perception of the teachers about how their students respond to the use of assistive technology in their English lessons. One of the teachers shared her experience with a 6-year-old student with visual impairment. Teachers said that her student is very attentive and has responded positively to vocabulary learning because they play audio recordings of the words. Furthermore, teachers agreed that they want their students to learn and also use realia. Support at home is also very important and has greatly contributed to her learning progress. Patricia Kelly (2011) stated that UDL offers options for how information is presented, how students respond or demonstrate their knowledge and skills, and how students are engaged in learning. Usually, the result of the UDL is positive, while the answers of teachers are related when they highlight their positive responses to vocabulary learning, because they play audio recordings of the words.

6. Explain from your position how assistive technology can contribute to the learning of blind students?

Figure 6

Note: (Zakharenkov, 2020)

The sixth question was elaborated to identify the benefits associated with AT, and the analysis is the follows: Teachers strongly believe that assistive technology significantly supports the learning process of students with visual impairments. Nowadays, there are many applications, voice recorders, and software programs that can be used to enhance their learning, especially when the goal is to learn a new language. However, this must be accompanied by proper teacher training. In their cases, factors such as the context, lack of connectivity, and limited access to technological tools, among others, restrict the teaching and learning process.

Vanesa Ayon (2021) highlights that assistive technology can help people who have difficulty communicating through speaking, typing, and writing; additionally, tools can aid users by increasing their functional capabilities in remembering, seeing, hearing, walking, learning, etc. And teachers answer that assistive technology significantly supports the learning process of students with visual impairments through applications and programs that allow students access to the information provided by the teacher to achieve the goal of learn a new language vocabulary.

7. What kind of training or support do teachers need to use assistive technology in inclusive classrooms effectively?

Figure 7

Screen Reading Technology

Note: (Halpin, reciteme.com, nd)

The seventh question was directed to examine the importance of teacher training to use assistive technology**.** Teachers believe that they should receive training with concrete and specific examples, introducing practical technological tools that can be used in classrooms with many students. Training should include guidance on using these tools effectively and strategies for adapting technology to meet the needs of students with different abilities, including those with visual or cognitive impairments. Additionally, learning how to integrate these tools into lessons and create engaging activities, along with ongoing support, would ensure that technology becomes a meaningful part of the learning process.

Inclusive Education (UNESCO, 2020) suggests that all students, regardless of their condition, have access to a quality education, and AT is a vital condition for visually impaired students not to be excluded from learning. To achieve this goal, teachers need to be trained to include these tools in the classroom; all these aspects are relevant for teachers interviewed, and they agree with the author because they emphasized the importance of teacher training to apply assistive technology in an inclusive classroom to obtain effective learning.

8. **How does assistive technology contribute to inclusive education in the context of English vocabulary learning?**

Figure 8

Note: (Dikusar, 2018)

The last question was centered on exploring the perceptions of teachers related to assistive technology. Teachers perceive that AT promotes inclusion and, through it, they guarantee education for all students regardless of their conditions. They also reflect that they can provide equal opportunities to learn English language vocabulary only if they know how to use assistive technology. Assistive technology plays a crucial role in promoting inclusive education in English language learning by removing communication and learning barriers. It allows students with diverse needs to access the curriculum more effectively. By providing personalized support, such as audio recordings, tactile materials, or interactive software, assistive technology helps create an equitable learning environment where all students have the opportunity to succeed and participate fully in the learning process.

For Salgado Carrera Nayla Karina (2025), Inclusion can eliminate barriers to participation and create opportunities for all groups, including students, administrators, teachers, families, and communities. Teachers concur with the author, and they perceive that AT promotes inclusion and, through it, they guarantee education for all students regardless of their conditions.

Table 3

Source of questions Tomalá Carlos Kerly Paola interviewee Interpretation

Categories	**Answers**
Experiences of teachers using assistive technology.	Teachers mentioned that assistive technology provides an inclusive teaching environment and facilitates interaction and autonomous learning, developing their linguistic skills
Types of AT used by teachers.	Educators recognized that they use Braille, voice recorders, audio-based resources, screen readers, and tactile materials
The use of assistive technology in English vocabulary lessons.	Teachers emphasized that AT facilitates Access to information, and helps to achieve better comprehension and retention
Challenges associated with the use of AT.	Teachers said that they faced challenges like the lack of technological resources, the lack of teacher training to use AT, and pedagogical aspects.
Understanding the perspective of teachers on the challenges of visually impaired students.	Teachers highlight the positivity of the students, they feel included in the classroom at the moment of access at the same content as the rest of the class
Benefits associated with AT.	Teachers agreed that AT is a vital tool to guarantee educational equity and allows blind students to

	develop their academic Independence, encourages inclusión and eliminates educational barriers, and strengthens their linguistic skills and self-esteem
Integration of AT to fulfill the needs of visually impaired students	Teachers affirm they need formation in the application of assistive technology
Perception of the benefits of assistive technology promotes inclusión.	Teachers consider that AT promotes inclusion and guarantees education for all students, regardless of their conditions, and provides equal opportunities to learn the English language vocabulary.

Note. *Created byTomalá Carlos Kerly Paola, 2025.*

Chapter V

Conclusions and Recommendations

The principal purpose of this research is to explore the role of assistive technology in teaching English vocabulary to blind students. previous to the compilation of a wide range of research, the conclusion was that the use of assistive technology has transformed the experiences of teachers in the classroom. Several elements influence teaching English vocabulary to visually impaired students, and assistive technology offers key factors for teachers to achieve effective teaching, facilitating interaction, confidence, and autonomy to develop linguistic skills. It is important to innovate in the classroom, leaving behind classic materials for the lesson, at least for teachers who have blind and visually impaired students.

1.1. Conclusions

Through the qualitative exploration of the experiences of teachers, it was possible to recollect predominant aspects in understanding the impact of applying assistive technologies properly integrated in the English vocabulary classes, thus the limitation for the visually impaired is reduced, but also improves English language acquisition. The findings underline the impact of the tools that transform and encourage access to education for every student. For the interviewees, these factors form a foundation that supports the teaching and learning process. emphasizing how the technology allows teachers to use tools to satisfy a variety of needs in a classroom. Each tool offers a specific function to facilitate the comprehension and access to information that promotes learning in visually impaired students. Nevertheless, their correct applications depend on pedagogical support and knowing how to use these tools correctly. the motivational impact that assistive technology has on blind and visually impaired students

Despite the positive results, some challenges were identified for the teachers, including a lack of technological resources, infrastructure, technical difficulties, and a lack of teaching resources. These aspects represent barriers, and assistive technology offers a promising solution. The potential of these tools can be taken advantage of by educational authorities to eliminate barriers. Assistive technology plays a crucial role in teaching English vocabulary to blind and visually impaired students. as example, the use of auditory tools presents the opportunity to foster retention and make students feel confident and participative, which reveals that the process of inclusive teaching is more than material adaptation and planning; it is also a process that requires empathy, collaboration, and teacher creativity.

However, its effectiveness relies on factors such as teacher training, infrastructure, and internet connection; these elements are discussed in the previous bibliography as well as in the interview responses. Furthermore, the research disclosed that the effectiveness of assistive technology is directly linked to teachers ' professional preparation and innovation. Teachers mentioned that the most used devices, such as Braille displays, screen readers, and audio-based learning applications, are valuable elements; nevertheless, all depend on adequate training and the support that public educational institutions offer. This highlights the necessity of continuous pedagogical preparation of teachers and the policies of educational inclusion that prioritize access, the sense of permanence, and participation in the educational process.

1.2. Recommendations

The study showed that assistive technology greatly impacts how blind students learn English vocabulary. When teachers use tools like screen readers, Braille devices, and audio materials, students not only pick up new words but also feel included and confident when participating in a sighted class. Assistive tech resources make learning more accessible and help students express themselves freely, allowing every student to learn.

It is recommended that public educational institutions in La Libertad, Santa Elena province, promote spaces of continuous pedagogical and assistive technology training for teachers in elementary and high schools, and create educational policies. The training is not only about how to use devices, but also about developing teaching strategies that effectively integrate them into English vocabulary instruction. Furthermore, it would be advisable to create spaces for teachers to exchange experiences, resolve doubts, and collectively develop new inclusive practices, such as integrating artificial intelligence or creating a haptic environment.

It is recommended that educational policies in public educational institutions in La Libertad, Santa Elena, province include assistive technologies as part of their regular lessons to make vocabulary teaching and learning process more dynamic and inclusive. The distribution of resources, modern and preserving technological tools such as screen readers, electronic Braille displays, and inclusive applications. At the same time, it is relevant to perform regular evaluations to assess the effectiveness of these tools to certify their pedagogical use in the classroom.

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Annexes

Annex A: *Certified Anti-Plagiarism System*

La Libertad, 29 de octubre de 2025

Certificado Sistema Anti-Plagio

En calidad de tutor del Trabajo de Integración Curricular denominado “EXPLORING THE ROLE OF ASSISTIVE TECHNOLOGY IN TEACHING ENGLISH VOCABULARY TO BLIND STUDENTS” elaborado por la estudiante, Tomala Carlos Kerly Paola de la Carrera de Pedagogía de los Idiomas Nacionales y Extranjeros, de la Facultad de Ciencias de la Educación e Idiomas, de la Universidad Estatal Península de Santa Elena, me permito declarar que una vez analizado en el sistema anti plagio COMPILATIO, luego de haber cumplido los requerimientos exigidos de valoración, el presente trabajo de investigación, se encuentra con 8% de la valoración permitida, por consiguiente se procede a emitir el informe.

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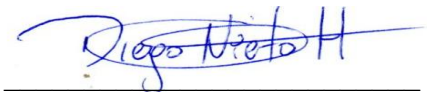

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Annex B: *Questionnaire*

1. In what ways has assistive technology shaped your experience when teaching English vocabulary to blind and visually impaired students?
2. What types of assistive technologies have you used (or seen used) to support blind and visually impaired students in learning vocabulary?
3. In your opinion, how do assistive technologies help blind and visually impaired students acquire and retain English vocabulary?
4. What challenges do you face when integrating assistive technology into your English vocabulary lessons?
5. How do visually impaired students respond to the use of assistive technology in the classroom?
6. Explain from your perspective how assistive technology can contribute to the
7. What kind of training or support do teachers need to use assistive technology in inclusive classrooms effectively?
8. How does assistive technology contribute to inclusive education in the context of English language learning?

Annex C

Table 2

Data Collection, Processing, and Resources

Questions	Explanations
What?	English teachers
Where?	Zoom
When?	Academic Period 2025
How?	Through a questionnaire with eight open-ended questions
What for?	To explore the perceptions about the teaching of English vocabulary.

Note. Created by Tomalá Carlos Kerly Paola, 2025

Table 2

Characteristics of Teachers

Code	Gender	Age	Education Status	Total of Teaching Experience	Teaching Time at School for the VI	Interview Date	Time of Interview
T1	Female	26	Bachelor	3 years	2	17/10/2025	20
T2	Male	26	Bachelor	3 years	2	14/10/2025	19
T3	Male	26	Bachelor	3 years	3	16/10/2025	15
T4	Male	25	Bachelor	3 years	3	15/10/2025	17
T5	Male	26	Bachelor	3 years	3	13/10/2025	20

Note: Created by Kerly Paola Tomalá Carlos, 2025.

Table 3

Source of questions Tomalá Carlos Kerly Paola interviewee Interpretation

Categories	**Answers**
Experiences of teachers using assistive technology.	Teachers mentioned that assistive technology provides an inclusive teaching environment and facilitates interaction and autonomous learning, developing their linguistic skills
Types of AT used by teachers.	Educators recognized that they use Braille, voice recorders, audio-based resources, screen readers, and tactile materials
The use of assistive technology in English vocabulary lessons.	Teachers emphasized that AT facilitates Access to information, and helps to achieve better comprehension and retention
Challenges associated with the use of AT.	Teachers said that they faced challenges like the lack of technological resources, the lack of teacher training to use AT, and pedagogical aspects.
Understanding the perspective of teachers on the challenges of visually impaired students.	Teachers highlight the positivity of the students, they feel included in the classroom at the moment of access at the same content as the rest of the class
Benefits associated with AT.	Teachers agreed that AT is a vital tool to guarantee educational equity and allows blind students to

	develop their academic Independence, encourages inclusión and eliminates educational barriers, and strengthens their linguistic skills and self-esteem
Integration of AT to fulfill the needs of visually impaired students	Teachers affirm they need formation in the application of assistive technology
Perception of the benefits of assistive technology promotes inclusión.	Teachers consider that AT promotes inclusion and guarantees education for all students, regardless of their conditions, and provides equal opportunities to learn the English language vocabulary.

Note. *Created byTomalá Carlos Kerly Paola, 2025.*