

UNIVERSIDAD HISPANOAMERICANA

Thesis submitted to obtain the Licentiate Degree in English Teaching.

**The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software
within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading
Comprehension of Short Passages among 10th grade students at colegio Ciudad de
Niños during the second quarter of 2025**

Tutor: Dra. María José Herrera Araya

Student: Nathalie Solorzano Barrientos

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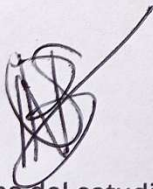
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SWORN DECLARATION

SWORN DECLARATION

Yo Nathalie Solórzano Barrientos mayor de edad, portador de la cédula de identidad número 1-1292-0601 egresado de la carrera de Enseñanza del Inglés de la Universidad Hispanoamericana, hago constar por medio de éste acto y debidamente apercibido y entendido de las penas y consecuencias con las que se castiga en el Código Penal el delito de perjurio, ante quienes se constituyen en el Tribunal Examinador de mi trabajo de tesis para optar por el título de Licenciatura en Enseñanza del Inglés juro solemnemente que mi trabajo de investigación titulado: **The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños during the second quarter of 2025** es una obra original que ha respetado todo lo preceptuado por las Leyes Penales, así como la Ley de Derecho de Autor y Derecho Conexos número 6683 del 14 de octubre de 1982 y sus reformas, publicada en la Gaceta número 226 del 25 de noviembre de 1982; incluyendo el numeral 70 de dicha ley que advierte; artículo 70. Es permitido citar a un autor, transcribiendo los pasajes pertinentes siempre que éstos no sean tantos y seguidos, que puedan considerarse como una producción simulada y sustancial, que redunde en perjuicio del autor de la obra original. Asimismo, quedo advertido que la Universidad se reserva el derecho de protocolizar este documento ante Notario Público. En fe de lo anterior, firmo en la ciudad de San José, a los 19 días del mes de noviembre del 2025.



Firma del estudiante

Cédula 1-1292-0601

LETTER FROM THE TUTOR

San José, 11 de noviembre de 2025.

Destinatario
Carrera
Universidad Hispanoamericana

Estimada señora:

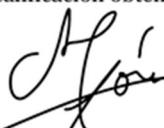
La persona estudiante, Nathalie Solorzano Barrientos, cédula de identidad número 112920601, me ha presentado, para efectos de revisión y aprobación, el trabajo de investigación denominado *The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños during the second quarter of 2025*, el cual ha elaborado para optar por el grado académico de Licenciatura. En mi calidad de persona tutora, he verificado que se han hecho las correcciones indicadas durante el proceso de tutoría y he evaluado los aspectos relativos a la elaboración del problema, objetivos, justificación; antecedentes, marco teórico, marco metodológico, tabulación, análisis de datos; conclusiones y recomendaciones.

De los resultados obtenidos por el postulante, se obtiene la siguiente calificación:

a)	ORIGINAL DEL TEMA	10%	10%
b)	CUMPLIMIENTO DE ENTREGA DE AVANCES	20%	20%
C)	COHERENCIA ENTRE LOS OBJETIVOS, LOS INSTRUMENTOS APLICADOS Y LOS RESULTADOS DE LA INVESTIGACION	30%	30%
d)	RELEVANCIA DE LAS CONCLUSIONES Y RECOMENDACIONES	20%	20%
e)	CALIDAD, DETALLE DEL MARCO TEORICO	20%	20%
	TOTAL	100	100

En virtud de la calificación obtenida, se avala el traslado al proceso de lectura.

Atentamente,


Dra. María José Herrera Araya

205630504

LETTER FROM THE READER

San José, 21 de noviembre de 2025

Universidad Hispanoamericana

Estimado señor(a)

La estudiante Nathalie Solorzano Barrientos, portadora de la cédula de identidad número 112920602, me ha presentado para efectos de revisión y aprobación, el trabajo de investigación denominado **“The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños during the second quarter of 2025”** el cual ha elaborado para obtener su grado de Licenciatura en la enseñanza del inglés.

He revisado y he hecho las observaciones relativas al contenido analizado, particularmente lo relativo a la coherencia entre el marco teórico y análisis de datos, la consistencia de los datos recopilados y la coherencia entre éstos y las conclusiones; asimismo, la aplicabilidad y originalidad de las recomendaciones, en términos de aporte de la investigación. He verificado que se han hecho las modificaciones correspondientes a las observaciones indicadas.

Por consiguiente, este trabajo cuenta con mi aval para ser presentado en la defensa pública.

Atte.



Firma

Nombre Yanory Arguedas Carballo

Cédula 108710072

LETTER OF AUTHORIZATION FROM THE AUTHOR

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Cordialmente,



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Cédula: 1-1292-0601

DEDICATORY

To my mother,

Whose love, strength, and will has guided me through life.

Defender la alegría como una trinchera,

defenderla del escándalo y la rutina,

de la miseria y los miserables,

de las ausencias transitorias

y las definitivas.

Defender la alegría como un principio,

defenderla del pasmo y las pesadillas,

de los neutrales y los neutrones,

de las dulces infamias

y los graves diagnósticos.

Mario Benedetti

Acknowledgments

To my mother, whom I deeply admire and thank for her relentless guidance, strength, and love. Your example has shaped me into a better person, and your support has been the foundation upon which I continue to grow.

To my life companion, Johnny, whose patience and love have kept me grounded and sane throughout this journey. Your presence has healed me from within.

To my tutor, whose guidance and dedication has been a light in moments of uncertainty. Your encouragement and insight helped me to succeed and become a better professional.

And to myself :

Dear Naty, I see you; I forgive you; I love you. Thank you for not giving up, for showing up even when it was hard.

ABSTRACT

This study explores the effectiveness of using Microsoft Read Aloud Text-to-Speech (TTS) software within a Technology-Enhanced Learning (TEL) approach to improve the reading comprehension of short passages among 10th-grade students at Colegio Ciudad de Niños in Cartago, Costa Rica. The research aimed to determine whether integrating digital reading tools could enhance students' understanding of main ideas and details. A quantitative design was implemented using pre-tests and post-tests, along with a self-assessment and teacher interview. The sample consisted of 20 students aged 16 to 18. Results revealed a noticeable improvement in students' reading comprehension scores after the implementation of the Microsoft Read Aloud tool. Students demonstrated increased engagement, confidence, and ability to identify main ideas and specific information in texts. These findings suggest that TTS software can serve as an effective pedagogical resource to strengthen reading comprehension and promote digital literacy in English as a Second Language (ESL) classrooms. The study contributes to the growing body of research supporting technology integration as a valuable strategy for language learning in Costa Rican high schools.

Keywords: Text-to-Speech, Technology-Enhanced Learning, Reading Comprehension, Microsoft Read Aloud, ESL, Costa Rica

RESUMEN

Este estudio explora la efectividad del uso del software Microsoft Read Aloud Text-to-Speech (TTS) dentro de un enfoque de Aprendizaje Mejorado por Tecnología (Technology-Enhanced Learning, TEL) para mejorar la comprensión lectora de pasajes cortos en estudiantes de décimo año del Colegio Ciudad de Niños en Cartago, Costa Rica. La investigación tuvo como objetivo determinar si la integración de herramientas digitales de lectura podía mejorar la comprensión de ideas principales y detalles específicos. Se aplicó un diseño cuantitativo que incluyó prepruebas y pospruebas, junto con una autoevaluación y una entrevista al docente. La muestra estuvo compuesta por 20 estudiantes de entre 16 y 18 años. Los resultados revelaron una mejora significativa en los puntajes de comprensión lectora después de la implementación de la herramienta Microsoft Read Aloud. Los estudiantes mostraron mayor participación, confianza y habilidad para identificar ideas principales e información específica en los textos. Estos hallazgos sugieren que el software TTS puede funcionar como un recurso pedagógico eficaz para fortalecer la comprensión lectora y promover la alfabetización digital en las clases de inglés como segunda lengua (ESL). El estudio contribuye al creciente cuerpo de investigación que respalda la integración tecnológica como una estrategia valiosa para la enseñanza del idioma en colegios costarricenses.

Palabras clave: texto a voz, aprendizaje mejorado por tecnología, comprensión lectora, Microsoft Read Aloud, inglés como segunda lengua, Costa Rica

CHAPTER I: RESEARCH PROBLEM

INTRODUCTION

Learning a second language has many benefits, both professional and personal. This practice boosts mental acuity, improves social communication, enhances memory, and encourages individuals to learn about other cultures. A study of 13,200 third and fifth graders in Louisiana public schools revealed that, regardless of race, gender, or academic level, children taking foreign language classes did better on the English section of the Louisiana Basic Skills Test than those who did not. (Raffoul & Jaber, 2023). This suggests that foreign language instruction not only improves linguistic skills but also strengthens general academic performance. Another study demonstrated that students who participated in foreign language programs for just 90 minutes per week saw significant improvements in both math and language arts scores (Cullen, 2003). These findings emphasize how second language acquisition can positively impact students' cognitive development and academic success across multiple disciplines.

Cognitive and academic improvements have direct consequences for the economy and job market competitiveness. As students acquire a second language, they also develop critical thinking and problem-solving skills that are highly valued in the workforce. Hughes (2014, as cited in Nguyen, 2020) emphasizes that critical thinking and problem-solving skills are considered key skills for the 21st century. These cognitive advantages translate into greater adaptability, creativity, and productivity, which are essential to an increasingly globalized economy. A study by Ennser-Kananen, Fallas Escobar, and Bigelow cited by Kevin Armando Brand Fonseca explores some of the motivations of English as a Foreign Language (EFL) students in Costa Rica. They found that English was considered a tool that

could open job opportunities, well-paid jobs, scholarships, and professional development, among others" (Ennser-Kananen, Fallas Escobar, & Bigelow, as cited in Brand Fonseca, 2022, para.15). This study illustrates how English proficiency is in high demand across sectors, such as tourism, technology, and international business, and how these cognitive and academic gains create a more prepared workforce and increases employability.

Since bilingualism is often considered a competitive advantage as businesses continue to globalize, the demand for employees proficient in multiple languages has grown significantly. According to data from the Costa Rican Coalition of Development Initiatives (CINDE), eight out of ten jobs created in Costa Rica during 2021 required mastery of the English language. This survey highlighted the importance of learning a second language to become an active participant in Costa Rica's workforce. Moreover, these data explain the multiple benefits of learning a second language, both cognitively and professionally, by creating a more skilled and adaptable workforce that is ready to face the challenges that society has nowadays. Recognizing these advantages, many countries, including Costa Rica, have prioritized language education to improve social advancement and economic growth. In fact, the ex-president of Costa Rica, Carlos Alvarado, introduced the Alliance for Bilingualism (ABi) as part of a national action to significantly grow the learning of English in Costa Rica (CINDE, 2018)

Although the promotion of learning a second language has been a national priority for Costa Rica, full bilingualism has yet to be achieved. For example, data from the National Household Survey of 2017 showed that 89% of the Costa Rican population did not master a second language, highlighting the urgency to intervene in the language acquisition process and contribute to its social and educational goals.

The Costa Rican government is aware of the importance of bilingualism in securing the nation's competitiveness in an increasingly globalized world. According to reports from the Costa Rican Coalition of Development Initiatives (CINDE), more than 22,000 new jobs were generated in 2022, and as of March 2023, 3,500 jobs were created, both of which require at least two languages. Faced with data that revealed a significant gap in second-language proficiency and the urge to have a bilingual workforce, the government acknowledged that the lack of foreign language skills was a barrier to the country's social and economic development. In response, a series of educational reforms have been issued. These reforms focused on modernizing language curricula, training teachers in foreign language instruction, and providing access to language-learning resources for students across the country. Institutions and Ministries highlighted the implementation of 6 immediate initiatives that will start in 2018 (CINDE, 2018).

As part of this intervention, the Costa Rican government issued Executive Decree No. 41858, which established the Educational Policy for the Promotion of Languages and its Action Plan 2021-2040. The proposal's goal is to achieve second language education by 2040 so that all students in Costa Rica can understand, converse, and write in other languages such as English, French, Portuguese, Mandarin, Italian, or German. This program is expected to fulfill the needs of students in the globalized world.

As part of the action plan, a graduate profile was established, and a language proficiency test was instituted as a graduation requirement for young people who completed diversified education (TCRN Staff, 2022).

This digitally administered test, consisting of 100 items, aims to assess and ensure that students meet the proficiency levels necessary to achieve the goal of bilingualism set in

the Educational Policy. Through these efforts, Costa Rica aspires to educate its population with the knowledge, skills, and competencies to acquire foreign languages and deal with the intercultural challenges of a globalized society. By promoting bilingualism, the country is working toward greater social and economic inclusion. As explained by Cruz Maduro this policy ensures Costa Rica can be transformed into a plurilingual and bilingual country as any quality gaps and academic limitations are closed and a equality in employment opportunities is reached. (2022). These policy changes signify a long-term commitment to the development of language education in Costa Rica.

1.1.1 Background of the problem

In the present research, there are studies proposed to support the Text – To – Speech Software on improving students’ acquisition on a second language. Three published thesis were conducted to examine the different findings, conclusions, and recommendations of using Text – To – Speech Software as an educational tool.

In 2017 Mary CeCe Young developed an investigation in United States called ‘The Effects of Text-to-Speech on Reading Comprehension of Students with Learning Disabilities’

In the study ‘the Effects of Text-to-Speech on Reading Comprehension of Students with Learning Disabilities’ by Mary CeCe Young (2017) the effectiveness of TTS is researched. This project is particularly relevant, as it focuses on the benefits of reading comprehension.

The population studied was students with learning disabilities between the ages of 14 and 15 enrolled in the freshman self-contained English Class of 2017. The research was

developed by dividing the classroom in base text and TTS during a 48-min, 3 times a week class for 16 weeks. After reading passages on computers the students completed Curriculum-Based Measurements.

The researcher's goals were to extend previous research on the effects of reading interventions with technology on the reading comprehension of students with learning disabilities. In addition, she aimed to evaluate the effectiveness of TTS on the reading comprehension of high school freshman students with learning disabilities in a self-contained class.

The investigation found that TTS increased the reading comprehension of students with learning disabilities. As per CeCe (2017), Lexile scores on the district's universal screener, the SRI indicated that two out of four participants increased their scores after continued exposure to text-to-speech (TTS). They also found that all participants gained oral reading fluency from their initial scores to their final scores.

Some recommendations for future research projects are to instruct struggling readers to use all the features available in TTS (e.g., font size, reading rate, highlighting, and 103 outlining) and the use of personal devices to assist in the acquisition of material.

The second study examined was 'Text-to-Speech Technology: Enhancing Reading Comprehension for Students with Reading Difficulty' written by Jennifer L. Keelor, Nancy Creaghead, Noah Silbert, Tzipi Horowitz-Kraus.

In the research article 'Text-to-Speech Technology: Enhancing Reading Comprehension for Students with Reading Difficulty' Jennifer L. Keelor¹, Nancy

Creaghead, Noah Silbert, Tzipi Horowitz-Kraus explore the impact of text-to-speech (TTS) for students with reading difficulty.

The participants in the research were ten 8-11-year-old children with reading difficulties. Eight females, and 2 males participated in the study. Students in the study had reading scores of 25 or less on Test of Word Reading Efficiency (TOWRE).

The purpose of the research was to evaluate the effectiveness of TTS in students with reading disabilities. Specifically, they aimed to determine whether there was a significant difference between reading comprehension scores when reading a passage with TTS compared to without TTS. Second, they compared reading comprehension scores when reading a passage with TTS compared to without TTS; 2) if there is a significant difference in reading comprehension scores under different TTS conditions (TTS with No Highlighting, TTS with Highlighting, and TTS at a Rapid Rate with Highlighting); and finally, the relationship between reading comprehension scores and executive function abilities when using TTS.

Participants read six passages and responded to three comprehension questions in a multiple-choice format.

Some of the results found that reading comprehension was significantly higher for the TTS versus No TTS condition. There was a difference of 73% in correct answers when using TTS compared to a total of 53% correct answers when not using TTS. Tests revealed a significant difference between Silent Read and all three TTS conditions, with better scores under all TTS conditions with medium to large effective sizes. Another result highlighted by the authors was that there was no significant difference among participants

who used TTS with No Highlighting, TTS with Highlighting, and TTS at a Rapid Rate with Highlighting.

Finally, the researchers provided future recommendations such as incorporating a measure of spoken language skills, particularly listening comprehension. Additionally, they examined the relationship between attention and reading comprehension. Finally, incorporating eye-tracking data during the reading task may provide information regarding the child's attention to the text as well as other reading behaviors.

The third thesis was written by Yi-Ching Huang and Lung-Chuan Liao on A Study of Text-To-Speech (TTS) in Children's English Learning with the aim of studying the effectiveness TTS has on spelling and self-directed learning.

The study population comprised a total of 21 third-grade students and the study lasted for a whole semester. To develop the thesis, the effects of the digital material incorporated into the Text to-Speech system for students' English spelling were explored.

Within the project results and recommendations, the authors mention that the digital vocabulary spelling material strengthens the students' spelling ability and promotes students' self-learning motivation. In addition, 18 students believe that vocabulary teaching materials helped them in learning English words. Finally, the researchers commented that Text-to speech technology provides English educators with a tool for integrating informational teaching and English teaching materials. Moreover, teachers can determine what computer-aided teaching content can be applied without being limited by textbooks, which increases the richness of teaching.

1.1.2 Justification

Choosing a Technology-Enhanced Learning (TEL) Approach is important as it follows modern educational practices. We are seeing a shift of education where technology in the classroom is key to improving the learning experience for both students and educators (Cullen,2023). This method is useful as it prepares students for the mandatory English proficiency test, which is administered digitally. Having students practice reading on a computer also impacts their learning by making students more comfortable reading comprehension tasks in an online format. The Ministry of Education has set technological resources and training a priority in its curriculum (Charpentier,2013). Therefore, integrating technology into education with digital tools like Text-to-Speech (TTS) software can offer innovative solutions to improve language learning and address educational challenges.

This study addresses the reading challenges faced by high school students in Colegio Ciudad de Niños in Cartago, Costa Rica. By proposing a novel approach to improve reading skills, comprehension, and fluency through Microsoft's Read Aloud Text-to-Speech (TTS) software. The selection of TTS software as an educational tool has been researched in multiple studies that highlight its potential to support students' literacy and comprehension. For example, a study found that it has aid students in developing reading speed, fluency, and vocabulary retention (Raffoul & Jaber, 2023).Previous research has demonstrated that TTS technology can help learners develop critical reading skills and improve their comprehension. By integrating TTS tools into the learning process, this study plans to demonstrate how this technology can improve reading skills in students learning English as a second language (ESL).

For example, Keelor et al. (2017) showed that using TTS technology improved the reading comprehension of students with reading difficulties by 20%, with a 73% success rate when TTS was employed, compared to 53% without it. Additionally, Young's (2017) research on students with learning disabilities found that TTS not only enhanced comprehension, but also boosted oral reading fluency, indicating a comprehensive impact on multiple sides of education. These studies validate the use of TTS technology as an effective pedagogical tool to enhance students' reading skills, supporting its application beyond just special education contexts to general ESL instruction. The positive results of these studies suggest that TTS technology could have similar benefits for second language learners, providing a strong basis for applying this approach in the current research to evaluate its effectiveness with ESL students in a Costa Rican high school setting.

This research seeks to explore the use of TTS technology for ESL learners in Costa Rican high schools. Particularly, this study will focus on how TTS can help 10th-grade students improve their reading comprehension skills. The study will use the Voice Aloud Reader tool, a free TTS software integrated into Microsoft Edge, which offers customizable voices, reading speeds, and accessibility features for mobile devices, and tablets. These features improve the learning experience of individual students and contribute to improved reading comprehension. A significant advantage of the Voice Aloud Reader tool is its functionality without an internet connection, ensuring accessibility for all students regardless of their online availability.

Some of the potential benefits of this study also include the opportunity to use this tool across all high school grades. As the tool works with all types of reading, it can be applied to all proficiency levels. Additionally, it can be included to support other subjects,

such as Spanish, French or Social Studies. It can easily be incorporated into all educational curricula. For example, in social studies, the tool can support the comprehension of historical events and cultural narratives by breaking down long texts into smaller auditory segments.

Finally, this research will be conducted over a period of two months, starting with this proposal. It will involve a sample group of 10th-grade students at Colegio Ciudad de Niños, Cartago. Participants will use the Voice Aloud Reader tool to read a variety of texts as part of their English language curriculum. Pre- and post-tests were administered to assess improvements in reading comprehension and vocabulary retention. Additionally, student feedback was collected using questionnaires.

1.1.3 Problematization

Achieving second-language proficiency in Costa Rica is critical for stimulating economic and global trade. Having a proficiency of a second language like English, strengthens Costa Rica's development and projection in three areas that stimulate the economy: tourism, exports and foreign direct investment (CINDE,2018). To achieve this proficiency, the government has set objectives to improve the acquisition of English as a second language in schools and high schools across the country. As part of the objectives, Costa Rican students must take a national exam which includes an English reading comprehension test. This reading comprehension test has a total of 50 items out of 100 items.

Nevertheless, Costa Rica is experiencing a drawback in reading comprehension among students from across the country. According to the 2022 Actualidades Survey, on

average, each person is reading 4.6 books per year, one less than what was recorded by the 2016 National Culture Survey. This lack of reading skills and interest is reflected in both the 2022 PISA tests and PELEX tests. For example, according to Martinez (2023) in the PISA tests, specifically in reading, Costa Rica dropped 11 points compared to those conducted in 2018. It obtained 415 points, compared to 423 in 2018. Additionally, in 2023, the UCR applied a total of 5625 English tests to eleventh and twelfth-grade students across the country. The results were not satisfactory in reading comprehension. In this section, nearly 80% were categorized in the A1 (beginner) and A2 (basic mastery) levels, whereas only 11.5% were in the B1 (pre-intermediate) range (Montero,2023). These results show that students have a lower level of English than the one intended by the MEP and requested by most bilingual companies.

As a result, it is a priority to tackle students' lack of reading skills to stop their reading habits from further decreasing. Tests from the OECD Program for International Student Assessment, or PISA, showed that 74% of Costa Rican students that year had reading skills at levels one or two (Quesada, 2023). Most students struggle with reading long texts, which leads to weak vocabulary and the inability to analyze complex texts. After reading a text students could only partially understand the text with most students finding it difficult to concentrate over a long period making it difficult to complete a text(Quesada, 2023).

Understanding the importance of reading comprehension, teachers must include reading exercises in their classes to ensure that students are prepared efficiently to successfully answer the proficiency test. Moreover, according to Dr. Stephen Krashen, reading helps students to improve “reading comprehension ability, writing style,

vocabulary, grammar, and spelling. In addition, evidence shows that it is pleasant, promotes cognitive development, and lowers writing apprehension". (Krashen, 2004).

Considering this, teachers must consider the advantages of reading, particularly focusing on the benefits for second language acquisition. To successfully implement reading strategies in classes and take into consideration the globalized world in which we live, it is important to implement new methods and resources in English classes. In order for schools and educators to keep up with these changes, there is a need for increased research and training in assistive technology (Davis et al., 2013). Incorporating digital tools is not only innovative but also engages students in more dynamic ways. Through the use of various e-learning and learning assistive technologies, students can access a wide variety of materials according to the curriculum and proficiency level. One of these resources is Text-To-Speech Software. Text-to-speech software provides synthesized speech for a computer or other electronic devices to read out text for users. Therefore, including Text-to-Speech Software as a reading strategy could generate a positive contribution to English high school learners in Costa Rica.

Text -to- Speech (TTS) can help students develop reading skills in several ways. First, students improve word recognition and understanding of sentence structures by allowing them to hear the correct pronunciation and intonation. Additionally, TS readers enhance their reading speed through adjustable audio speeds, allowing learners to progress at a comfortable pace. This auditory reinforcement also aids reading comprehension, as students can process information through hearing and sight simultaneously. Moreover, these tools help to improve focus by providing continuous auditory input that keeps students engaged with the text. Another significant advantage is access to a wide variety of

texts, as TS readers often act as free tools, removing barriers to content. Finally, by breaking down reading tasks into more manageable auditory chunks, students can develop better reading habits and overcome the intimidation of longer passages, creating a more approachable and consistent reading practice. Considering this information, the use of text over speech tools such as Microsoft's Edge Read Aloud has become extremely significant nowadays.

RESEARCH PROBLEM

1.2.1 Problem Statement

Struggles tenth grade students face in comprehending main ideas and details when engaging in reading tasks involving short passages

1.2.2 Research Question

What is the effectiveness of using Microsoft Read Aloud Text-To-Speech software within a Technology-Enhanced Learning (TEL) Approach for enhancing reading comprehension of short passages among 10th grade students at Colegio Ciudad de Niños?

1.3 OBJECTIVES

1.3.1 General Objective

To determine the effectiveness of using Microsoft Read Aloud Text-To-Speech software within a Technology-Enhanced Learning (TEL) Approach to enhance reading comprehension of short passages among 10th grade students at Colegio Ciudad de Niños.

1.3.2 Specific Objectives

Comparing the changes in reading comprehension levels by comparing pre-test and post-test results to determine the effectiveness of the Microsoft Read Aloud tool.

To validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages.

To establish students' proficiency in reading comprehension skills using short passages that focus on understanding main ideas and details.

1.4 SCOPE AND LIMITATIONS

1.4.1 Scope

This research will focus on the implementation of Microsoft Read Aloud Text-To-Speech software within a Technology-Enhanced Learning (TEL) Approach to enhance reading comprehension of short passages among 10th grade students at Colegio Ciudad de Niños. The population of this investigation is a group of 26 students who take English classes. The learners are high school students at an intermediate level of English proficiency, ranging from 16 to 18 years of age.

The purpose of this research is to collect data that can help the investigator determine if the integration of this tool can improve reading skills through classroom activities that facilitate reading comprehension. The Microsoft Read Aloud Text-to-Speech software will be introduced as part of the Technology-Enhanced Learning (TEL) Approach to explore its impact on students' reading outcomes.

Colegio Ciudad de Niños can benefit from the implementation of Microsoft Read Aloud Text-to-Speech software through integrating technology in English classes. By familiarizing students with digital tools, the school prepares them for mandatory digital assessments, increasing their comfort and performance. Teachers will also benefit from training in TTS technology, enriching their planning and strategies used in class. Finally, the tool can be used in all subjects making it a great resource because of its versatility.

1.4.2 Limitations

One of the major limitations is the size of the sample. The investigation would have been more accurate if it had been done with a larger size.

Also, because it is a technological tool students need to have a working tablet and earphones. The tablet has to be in great condition for students to take full advantage of the tool. Broken devices or poor-quality earphones might hinder the advantages of the tool. Furthermore, because the tool has listening input outside noises such as rain, it might affect the clarity of the sound making it harder for students to comprehend and engage with the tool.

A key limitation of this study was the last-minute change of the research site. Initially, the study was intended to be conducted at a different high school, but it required to be applied at another institution shortly before the strategy was applied. Although the new school was supportive and provided students with access to Chromebooks, these devices proved incompatible with the Microsoft Read Aloud tool, which is designed to function optimally on Windows-based systems. As a result, the individualized experience, where each student could read and listen at their own pace, was not possible. Instead, the

researcher had to play the audio for the entire group simultaneously using a speaker. This change made one of the tool's most critical features and pedagogical importance unviable. Therefore, eliminating the possibility of listening tailored to the individual learner's speed and needs . This impacted on students' engagement and reduced the pedagogical value of the sessions. Additionally, the intervention was delivered only once per month or every 15 days, rather than on a more regular basis as originally planned. The limited frequency of exposure may have hindered students' ability to internalize and transfer reading comprehension strategies supported by the tool.

Lastly, the short duration of the study may not allow for a comprehensive assessment of the tool's long-term benefits on reading comprehension and literacy skills.

CHAPTER II. THEORETICAL FRAMEWORK

2.1 CONTEXTUAL FRAMEWORK

This research will be applied at Ciudad de los Niños (CDN), which is a high school located in Cartago, Costa Rica. Ciudad de Niños is a nonprofit social welfare institution in Costa Rica that serves adolescent and young male populations between the ages of 12 and 22 who come from conditions of poverty, vulnerability, and social exclusion. The high school has a humanistic and faith-based vision approach, in which they provide a comprehensive formation guided by the pedagogy of Saint Augustine and the methodology of "learning by doing." This approach aims to promote personal growth, social responsibility, and professional development through both academic and technical education.

CDN's educational model integrates multiple areas of direct care that contribute to the holistic development of its students. These include psychology, counseling, social work, arts and culture, health and nutrition, spiritual formation, sports and recreation, academic and technical education, agricultural and dairy farming activities, as well as human formation through a family-unit model. Each of these components support the institution's mission of encouraging young people to discover their abilities and values in a safe and nurturing environment.

Declared a Meritorious Institution of Social Promotion by the Legislative Assembly of Costa Rica on December 11, 2008, CDN stands as a unique socio-educational model within the country. Its vision is to serve as a national and international reference for excellence in youth formation, providing opportunities for adolescents to face the challenges of modern life while promoting family integration and contributing to a more inclusive and supportive society.

2.2. THEORETICAL FRAMEWORK

This study examines the effectiveness of Microsoft Reading Tool on reading comprehension of short passages. Relating to this analysis, the investigation focuses in the Technology Enhanced Learning approach. This approach is employed to explain how digital technologies are integrated into educational practices and learning theories.

This chapter presents the theoretical aspects of this research that are worth exploring in advance. Aspects such as existing concepts, theories, methodologies and approaches to the reading comprehension strategy for learning and the use of the Technology Enhanced Learning approach. Some of the key elements of this research are the origins of the Technology-Enhanced Learning (TEL) approach, its key elements, the criteria for implementing the Technology-Enhanced Learning (TEL) Approach in ESL classes, and the integration of language skills and Technology Enhanced Learning in high school English education which will be reviewed in detail.

In addition, the origins and definitions of Text-to-Text Speech Software, as well as its key elements and role in education, are explained. Specifically, the researcher delved into the Microsoft Read Aloud Tool. Including features of the Microsoft Reading Tool, benefits of using the Microsoft Read Aloud Tool and challenges and limitations of Microsoft Read Aloud for ESL learners.

Finally, the role of reading comprehension in language learning is closely examined specifically analyzing the benefits of reading comprehension in short passages.

2.3 READING COMPREHENSION

2.3.1 The role of reading comprehension in language acquisition

Reading is a way in which learners can acquire knowledge, it plays a fundamental role in the cognitive development, as well as in strengthening critical thinking skills and imagination (Salas-Acuña,2023). Students' reading frequency is decreasing around the world. For instance, learners in Africa are reading a maximum of 2 hours per day (Samuel, 2022). Students are also not reading for pleasure (Endris, 2022). Costa Rica is facing a similar scenario with 57.5% of people say that they read only if they have to, while 51.5% only do so to search for information. (Montero Bolaños, 2023). Even though reading is dwindling down, one most emphasizes the importance reading has in the language acquisition process. The learner's skill in reading is correlated to their proficiency level in the second language. In a study, the researcher encountered that good readers were better users of the dictionary, derived meanings of words from context and main ideas of a text better than poor readers did. (Shakir, 2015). In addition, reading exposes students to a wide variety of new words which enhances vocabulary growth (Gardner, 2004). Some studies suggest that for a new word to be completely established in a learner's memory the students have to have several encounters with the word. (Nation, 2001). By reading students can see the word and its meaning in different contexts. By understanding the word, they can go and use the word in their speech. The goal is for students to not only pronounce words correctly but also grasp their meaning.

Developing proficiency in reading is essential or students learning English as a foreign language. Reading involves the ability to interpret, analyze, and derive meaning from texts. Students require reading skills to acquire information and knowledge

effectively. In addition, reading is an important skill in modern life as they can access different sources including books, articles, websites and blogs. (Burns,2023).

2.3.2 Reading as a receptive skill

Reading is an essential part of acquiring a language which functions primarily as a receptive skill. It allows learners to decode and interiorize written input rather than producing language (Nunan, 2003). Additionally, it also plays an important role when defining the proficiency level of a user (Rastegar, Mehrabi Kermani, & Khabir, 2017). One can measure a student's reading proficiency by assessing its comprehension. Nunan (2003) defines strategic reading as the capacity in which a learner must accomplish the goal of reading. When learning a second language most students already know how to read in their mother tongue. This makes reading a receptive skill because you are taking in information and decoding it to comprehend a specific language. Nunan (2003) believes that if you already know how to read in your mother tongue you do not need to learn how to read again, instead you need to transfer those existing skills into the new language. In order to successfully transfer those decoding skills multiple sub skills have to be involved. Sub skills such as morpheme recognition, decoding unfamiliar vocabulary, among others (Nunan,2003). Along these skills, strategies must be used to further support reading comprehension. Strategies such as predicting, shadowing, skimming and scanning are examples of useful strategies that can be implemented. As an example, when reading students use an interactive model, they start by decoding unfamiliar vocabulary and also make predictions of what is coming. (Nunan,2003). To verify that students understand the meaning of a text correctly, it is important to monitor reading comprehension by testing it. For instance, verifying the students' predictions is correct. (Nunan,2003). These

assessments measure and provide feedback on the strategies and subsills to reinforce during the learning acquisition process.

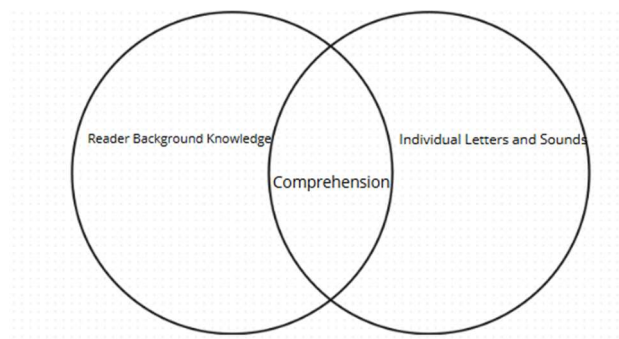
2.3.3 Contextual Reading Comprehension

In the process of decoding meaning from a text students use the information they know to decode any unfamiliar vocabulary. This previous knowledge includes life experiences, knowledge of the language, cultural background and general knowledge (Nunan, 2003). To create effective learning, it is important to rely on what students know so they can build up vocabulary. These can be used in many ways such as doing warm up exercises. Warm up exercises such as eliciting questions and brainstorming help activating prior knowledge and helps to monitor what students know about a specific topic. These strategies help compare and integrate prior knowledge with the new material (Duke & Pearson, 2002).

To better understand the process of reading comprehension it is important to note how reading starts. Nunan (2003) believes that reading starts with background knowledge and created an interactive model by dividing it into 2 components: lower-level reading processes and the top-down models which begin context. By lower reading processes we understand that they are processes in which students begin recognizing letters and sounds and gradually move to morpheme recognition and grammatical structures until they achieve comprehension (Nunan, 2003). Top-down models begin with the student's context and background knowledge. Based on their prior knowledge students can infer a text or predict what is going to happen. By drawing these conclusions and asking themselves questions they are able to understand a text although they might not understand every word written in the text (Nunan, 2003). An interactive model is a combination of both, in which students

use both skills to achieve reading comprehension. By combining prior knowledge and strategies such as predicting along with the recognition of structures to enhance text comprehension students can be supported in both comprehension processes therefore strengthening the student's capacity to build accurate mental representations of new texts.

Figure 1



Note. Interactive model of reading, adapted from Nunan (2003, p. 72).

2.3.4 Student's role in reading comprehension learning

Considering that reading is "the process of extracting and constructing meaning through interaction and involvement with written language" (RAND Reading Study Group, 2002) we can infer that this activity is completed by an individual. This individual will have the task of interacting and extracting the meaning of written language. In this context the individual completing this task will be defined as the student. According to Merriam-Webster Dictionary (n.d.), a "student" is defined as a person who is formally engaged in learning, particularly one enrolled in a school or college to study a subject. The student will have to interact with the written language. This interaction is of great importance, giving the student a major role in the process of reading comprehension learning. Zhao, X., & Ye, L. (2020) define active learning as all instructional activities which involve students in

doing things and thinking about what they are doing.

By understanding what active learning is, we can conclude that the role of students in reading comprehension learning is one in which they have to be actively involved.

2.3.5 Teacher's role in reading comprehension learning

When it comes to defining the teacher's role in reading comprehension, it is necessary to start by defining what we understand as a teacher. According to Merriam-Webster Dictionary (n.d.), the definition of a teacher is "one that teaches especially: one whose occupation is to instruct. " This is vital as it reminds us that the teacher's role is to instruct students specifically in the context learning English as a second language. The process of acquiring a second language is a complex skill, one that involves the four subskills: listening, reading, writing and speaking which must be taught. (Husain, 2015). Understanding the importance of teaching reading as a subskill in the language acquisition process highlights the importance of the teacher as an instructor during the learning process. To prepare effective students for 21st century world teachers must prepare capable and skillful students who can positively satisfy demands of society (Rathee & Sarkar, 2023). Considering this we can determine that the teacher's role in reading comprehension learning is of high importance, as it is responsible but not limited to the curriculum, material selection, assessment and overall guidance of the learning process. As Rathee and Sarkar (2023) state, "Teacher is the key element in transmission of knowledge, skills, values in his students at all levels of educational" (p. 24).

2.3.6 Activities in reading comprehension learning

The learning process is composed of several parts such as teachers, students and learning activities. Davydov (1982) and Hedegaard and Lompscher (1999) define a learning

activity as “a special kind of human activity whose main objective is the acquisition of knowledge, skills, and competencies produced by society in the process of history by means of special learning actions taken upon learning objects in accordance with their substance and structure” (as cited in Podolskiy, 2012, p. 1761). Therefore it can be concluded that activities which promote the acquisition of English as a second language through reading comprehension can be classified as learning activities.

Within the array of reading comprehension learning activities, we can find a vast number of different activities and strategies that can be implemented to encourage practice of this subskill. Making use of different strategies, and purposeful experiences will increase the learner’s engagement and will allow students to comprehend complex texts in order to succeed in their academic and personal lives (Starkie, 2022). Grabe and Stoller (2002) identify prediction, inference, main-idea recognition, and detail-finding as core, interrelated cognitive processes in skilled reading comprehension. Predicting a text is useful as its aim is to involve readers in the higher-level thinking process (DeVries, 2015) These types of activities aid students to identify patterns and key details that indicate future events which improve their critical thinking skills. In addition, teachers can also use guided reading activities, for example students can be given a text to read followed by a writing activity in which they have to make a prediction. This activity can be done individually or in groups. Another cognitive skill used when reading is inferring. Students can infer meaning, a possible hypothesis, and main ideas. Inferring allows students to interact with the text which helps in maintain focus and decoding a text (Soto et al., 2019). For instance, to develop the ability to make inferences, one can prepare inference questions. Students then read a text followed by the inference questions. Afterwards students discuss the questions.

This activity can be done individually or in groups. Moreover, another activity that can be used is to fill in the gaps when meaning is not explicit. According to a study by Noordman and Vonk, integrating vocabulary in context within a text aids in the capacity for students to infer meaning across the text (Noordman & Vonk, 1998, as cited in Molapisi, 2024).

Recognizing the main ideas of a text is another helpful cognitive strategy that can support students' reading comprehension. One can ask students to identify the main ideas and sequence of events. Another beneficial activity is word search where students can be asked to find the main idea in the text. This activity enhances analytical skills and builds summarizing skills and not focusing on every word but rather on the main content of a text (Nunan, 2003). To apply for this activity students can read a passage and write the main idea or the order of events in which a story unfolds.

Multiple choice or true or false exercises are excellent strategies that focus on the cognitive strategy of recognizing specific information. For this activity students can answer a set of questions to assess their understanding of the text. According to Palupiningsih (2011, as cited in Silfia, 2024), assessing students can disclose areas in which students need reinforcement, and measure students understanding. This strategy is especially useful to assess specific details of reading as it promotes active reading.

2.3.7 Definition of short passages in reading comprehension

In order to delve into the topic of reading comprehension, it is important to define what a text is, specifically a short passage. According to Merriam-Webster Dictionary (n.d.) a passage is defined as “usually brief portion of a written work or speech that is relevant to a point under discussion or noteworthy for content or style”. A “short passage” is a brief piece of writing that can read in one sitting. Short passages can take various forms

including articles, job listings, blog posts, poems etc. (Burns,2023).

When selecting a short passage to teach reading comprehension teachers should complement the reading with a specific comprehension activity. For example, students may identify the main ideas or find supporting details. (Burns,2023)

2.3.8 Benefits of reading comprehension in short passages

Reading is an important macro skill that is constantly practiced in the learning process in most academic institutions nowadays. Effective reading is not only recognizing a word, but it is the ability to understand a text, engage with language, decode unfamiliar words and connect meanings from these words. (El Filali & El Aidi, 2022). In Costa Rican secondary schools' students are required to take an English Proficiency test as part of their graduation process. This test has a total of fifty reading comprehension questions. Reading skills emphasizing the practice of selected and short passages is vital for students to be prepared and successfully complete the proficiency test. Therefore, it is important to select and adapt texts into short passages as it would be beneficial so they can master the items. Short passage reading, along with language exercises, can aid students achieve their objectives.

Providing short passages to students for learners to improve their reading skills gradually can benefit students in secondary schools in Costa Rica. As mentioned by El Filali & El Aidi (2022), " The selection and adaptation of this type of passage for the reading class appears to be a powerful incentive for weak readers to improve their reading abilities. " (p.18). By selecting shorter passages students can start preparing for their proficiency test. Similarly, if students prepare themselves by reading short passages this will also prepare them to gradually move to more complex and long texts. For students to

be able to successfully decode a text they must be able to concentrate in the reading. As stated by Burns (2023), being a good reader requires the automatic activation of related knowledge, and when reading a text, all the learner's attention can be concentrated on understanding the text's content (p. 2). With short passages it is easier for students to concentrate as it allows them to concentrate without being overwhelmed with the text. By practicing with short passages, students can build their knowledge and attention span to tackle longer texts over time. Gradual practice with short passages thus serves as a foundation that strengthens their overall reading proficiency and prepares them for more challenging academic tasks.

2.4 ASSESSMENT OF READING COMPREHENSION

2.4.1 Definition of assessment tools as evaluation strategies

In the educational field it is common to evaluate the educational process as well as the different factors that play a role in the learning acquisition process. An assessment tool is a technique or method of evaluating data to determine factors such as overall understanding or insights of a specific framework or theory (Longe, 2024). Some characteristics of an assessment tool are validity, and standardization. The validity of an assessment tool refers to how relevant it is to a specific area (Longe, 2024). The standardization of an assessment tool refers to the uniformity of the testing techniques. (Longe, 2024). Assessment tools can be applied in many ways, for example to diagnose students, proficiency and performance. They can also be applied individually or in group.

2.4.2 Importance of assessment tools in language teaching

Developing a student's communicative proficiency is indispensable in the language teaching. According to Huang (2012), assessing the student's abilities is vital for language teaching and learning. In order to understand how students are developing, assessing students can help to provide feedback and students as well as to measure a student's proficiency level and understanding of a topic. Bachman (1990) asserts that "language tests can be valuable sources of information about the effectiveness of learning and teaching" (as cited in Huang, 2012, p.15). Recognizing the usefulness and importance of quantifying a student's abilities should be considered in the learning acquisition process.

2.4.3 Pre-tests and post-test

Pretests and posttests are available resources to assess students. Pretest testing can aid as a starting diagnosis before the application of a strategy. It serves as a diagnostic instrument, establishing the baseline knowledge of a learner. As explained by Majka (2024), "It establishes a foundational benchmark, allowing researchers to discern the starting point of participants or variables under study" (p.1). This allows researchers to measure any changes that happened after the strategy is implemented. Some common pretests are interviews, observational studies, and questionnaires. These instruments can be structured or semi-structured, allowing them to be used in quantitative or qualitative research depending on the researcher's needs (Majka, 2024). Due to their versatility and usefulness to measure the initial knowledge of a topic pretests can contribute to the measuring of a research outcome.

After the strategy is applied, a post test is conducted to assess the results of the strategy applied. As stated by (Majka, 2024) "Its primary objective is to gauge the changes

or outcomes resulting from the intervention compared to the baseline established during pre-testing” (p.1). Post tests are used to measure how effective the application was in achieving its objective and to evaluate this process summative assessments are often used. Some common summative assessments are performance tasks, and structured questionnaires which aid evaluating a strategy at the conclusion of a program. Moreover, posttests allow researchers to monitor the performance, progress and impact of the applied strategy (Majka, 2024). Post tests measure both the outcome of research and provide useful information to consider in the future application of strategy.

2.4.4 Multiple-choice tests as assessment tools

Multiple-choice tests can be used as summative assessment tools. By multiple choice tests we understand that they are instruments composed by a question and a set of potential responses in which the test taker has to select the best possible answer (Butler, 2018). Multiple choice tests are a versatile instrument which can be used to evaluate a wide variety of content. Because of their structured assessment format, they are effective when evaluating specific aspects of reading comprehension such as identifying main ideas and specific details in a text. Moreover, some of the advantages it has are that they offer great objectivity since scoring is standardized and doesn't need input from the teacher diminishing the possibility of a biased score. They are quantitatively and it takes less time for students to respond in comparison to other assessment tools such as open-ended questions (Butler,2018). These advantages are vital in research since their quantitative nature helps collect and analyze data for the research in an objective form.

2.5 EDUCATIONAL TECHNOLOGY AND READING

2.5.1 Educational Technology Applied to Reading

Technology is a part of our lives, widely used in different sectors such as tourism, agriculture and education. Educational technology refers to the use of technology to enhance the educational process. It is globally applied to improve educational goals (Norman,2023). Educational technology applied to reading refers to the use of digital tools such as audiobooks, e-books, and text-to-speech software. These technological tools aim to support students in their reading comprehension process by aiding in vocabulary recognition, reading rate, and comprehension among others. Digital textbooks and e-books can be read on smartphones, tablets, and computers. Some of the benefits include adjustability, motility, and cost-effectiveness. (Vaarala and Jalkanen, 2010). Digital textbooks and eBooks are more commonly used as they provide a variety of educational reading materials. They can be found in both digital textbooks and eBooks. These materials are usually free or at a lower cost than physical materials. There are many websites including www.Freekidsbooks.org. These websites function as a library to be read online or downloaded as PDF. Books are separated into toddlers, children, older children, and young adults. In addition, you can search for books by author, grade, or English level. Additionally, your literary resources may be found in different languages such as: Farsi, French, German, Hindi and Spanish. Text -to -speech is another available resource that can enhance students' reading abilities. As stated by Biancarosa and Griffiths it "has shown promise in developing early reading skills and in giving readers with visual impairments or language-based disabilities access to texts" (2012, p.143)

Moreover, this technology can be applied to specific skills in reading such as identifying main ideas, word recognition and identifying specific details among others. For example, it was found that highlighting a text and reading it at the same time helps vocabulary recognition. (Bus et al., as cited in Biancarosa & Griffiths, 2012). In addition, digital tools have helped students with specific reading comprehension areas such as inference, identifying specific details, use of reading strategies and understanding of texts (Biancarosa & Griffiths, 2012)

2.5.2 Definition of Text to Speech Software

Speech synthesis is an artificial production of human speech using technology. The first computer-based speech synthesis system was developed in the late 1950s (Wikipedia, n.d.). An example of a speech synthesizer is the text-to-speech (TTS) system that converts text into speech. TTS engine transforms text into a phonemic representation and then converts the phonemes into waveforms that can be output as sound. (Wikipedia, n.d.)

The early stages of speech synthesis technology primarily utilized parametric synthesis methods. In 1971, Wolfgang von Kempelen, a Hungarian scientist, constructed a device using intricate bellows, springs, bagpipes, and resonance boxes to produce basic sounds. However, the resulting speech is extremely difficult to comprehend. To improve this, Klattalk was developed in 1980. Nevertheless, the challenge of accurately extracting formant parameters means that the quality of synthesized speech still falls short of practical requirements. (Klatt, 1980)

The introduction of the Pitch Synchronous Overlap Add algorithm in 1990 significantly enhanced the quality and naturalness of speech. (Krupenko, 2024). However the resulting speech still lacks the natural quality of human speech.

To address these issues, researchers have worked on speech synthesis technologies to improve the naturalness of the synthesized speech. Extensive experimental results have shown that these models have significantly improved both the quality and naturalness of the synthesized speech. (Zen, Senior, & Schuster, 2013). TTS engines are available in different languages, dialects, and specialized vocabularies through third-party publishers (Microsoft 2007). As speech synthesis technologies have advanced, text-to-speech research has shifted from achieving intelligibility and clarity to enhancing naturalness and expressiveness.

2.5.3 The Text-to- Speech Software key elements

TTS technology has different key elements. Speech synthesis is a core element in which text is analyzed and converted into speech. Phoneme recognition is another important part of this process, which ensures the accurate pronunciation of words. Next, this system includes a vocoder that produces voice sound waves and converts the processed text into audible speech. These components work together in a TTS tool to produce sounds. Technology often involves a combination of software and hardware to process and deliver audio output effectively.

The transformation from digital text to sound begins with text analysis. The first step is to examine the structure and grammar of the text to understand its meaning. TTS identifies words and punctuation. Subsequently, linguistic processing takes place. Here, words are changed into phonemes. A dataset was used to map these phonemes to sound

waves, thus forming the basis for voice synthesis. A vocoder, which performs speech coding, generates voice sound waves to create audible speech from text. Finally, phonemes are synthesized into speech. Advanced systems use deep learning to perfect their quality and naturalness. The outcome is a voice output that mimics human speech and allows computers to effectively vocalize digital text. (Krupenko, 2024). Voice quality and customization are also important elements of TTS software as they often include options for voice selection, allowing users to choose from different voices, accents, and languages. Customization options may enable users to adjust their pitch, speed, and volume according to their preferences. In addition, TTS works with a variety of digital devices such as computers, smartphones, and tablets. All types of text files can be read aloud, including Word and PDF documents. In some cases, online webpages can also be read aloud. 2.5.6

The text-to- speech software in Education

In costa Rica text over speech software is a tool that has not being sufficiently explored and that many teachers remain ignorant about the possible benefits of this technology. (Charpentier, 2022). However, Text-to-speech technology offers many advantages in ESL language acquisition. For example, it improves the user experience through better engagement and increases productivity, especially for individuals with different needs. This technology also promotes inclusivity and accessibility, ensuring that the content is available to a wider audience. Additionally, it supports better understanding and retention for learners. (Krupenko, 2024) In education, TTS can be used to support students with diverse learning needs. This allows students to engage with text-based materials by reading passages to improve their comprehension. Teachers can use TTS to create educational tools useful for different learning styles. Additionally, TTS through

exposure can help with pronunciation and intonation by providing clear examples of how words are correctly pronounced.

Text-to-speech software is a great tool that has been used to support students in different areas. One of the biggest is how they have helped students with learning disabilities. For example, students that have dyslexia benefit from the tool as it reduces the decoding effort required to reading.

It is another great tool that students with sight disabilities benefit as it can produce voices in different accents and speeds to provide audio for online websites, pdf and other documents. Another great advantage is that it reads different languages and speeds. Because of it, it can be seamlessly merged with other educational tools to enhance the overall learning process. Additionally, this technology can be used to perform different listening activities. For example, it allows teachers to use voice over speech as dictation, fill in the gaps, or to gather main ideas among other strategies.

2.6 THE MICROSOFT READ ALOUD TOOL

2.6.1 History of the Microsoft Read Aloud Tool

The Microsoft Read Aloud Tool allows makes a text audible by using text-to-speech (TTS) to play back written text as spoken words in devices such as tablets, computers and smartphones. Read Aloud is available for Office 2019, Office 2021, and Microsoft 365. Within the tool there are multiple functions including the read aloud: this feature can read a specific excerpt of your document or the full document. It is available for Word in Windows and MacOS.

Then it also has a feature named immersive reader which is a set of tools that help improve reading fluency and comprehension. You can use this tool in the Microsoft Edge browser. The toolbar includes buttons to play audio, skip to the next or previous paragraph, and adjust Voice options. Voice options allow you to change the reader's voice and slow down or speed up their reading pace.

Lastly, it also has 3 more components, speak, narrator and speech. The speak feature reads only the text you've selected and is available for Windows only. Narrator is the Windows Screen reader app which has the capacity to read dialog boxes, buttons, and other user interfaces as well as the text. Finally, speech is available in the Mac operational system only. It allows you to select a text and have it read by pressing a previously defined keyboard combination.

2.6.2 Features of the Microsoft Read Aloud Tool

It can be used in word documents or through the browser Microsoft Edge.

To access the tool through Word you need to locate the option View in the tool bar. From there you need to click where it says Immerse Reader. Afterwards you need to click where it says read aloud. To hear the paragraphs read to you, select the Play button. You can also select a certain part of the text read to you by highlighting it.

You can also control the voice speed by sliding the speed control. By Moving it to the right you can increase its velocity, and by moving it to the left you can decrease it. Choosing whether is a female or male voice is also available.

To use the Microsoft Read Aloud Tool in the Microsoft Edge open the Microsoft browser and navigate to page you want read. Once there click on the Read Aloud icon in

the tool bar. When you click it the tool will start to read the website. In addition, a menu will appear at the top of the page. This menu will provide the options for selecting a speed rate for the articles to be read and to select a voice.

These voices include different accents such as American, British, Canadian and Irish among others. Besides, it lets you choose whether you would prefer a male or female voice.

To use the tool to read PDFs, open a PDF in Microsoft Edge then select Read aloud in the toolbar. It will also allow you to read the whole document or just a fragment of it. Additionally, you can choose from a variety of available voices.

This technology is available in both online and offline modes, however, only less voice options are available when using it offline.

2.6.3 Usability of the Microsoft Read aloud tool

When using a technological educational tool, the usability of the resource is vital to fully understand the use and advantages it has to a specific learning goal. Usability can be explained through efficiency, satisfaction and effectiveness it has on a specific tool.

2.6.4 Benefits of using Microsoft Read Aloud for ESL learners

Some of the benefits of using Microsoft Read Aloud Tool are that the use of technology is innovative and is a way to add some energy, and fun to the classroom. It provides the possibility for learners to hear the words and be exposed to the text simultaneously. It can also activate imagination, build vocabulary, and improve overall understanding of the language.

Text-to-speech systems have been proven effective in improving language learning. For example, Notable advancements in decoding skills, reading fluency, and pronunciation accuracy have been found when using these tools (Al-Jarf ,2022).

Specifically, Microsoft Edge Read Aloud is a powerful tool that can be used by English teachers to aid students reading comprehension and writing skills. One of the advantages is that this technology can be customized to meet the needs of individual students. For example, students can customize the rate and accent they feel the most comfortable with.

In addition, it can be used to promote independent reading. Students can read at their own pace and withing a large variety of topics. For example, teachers can ask students to choose reading depending on their proficiency level and taste. This will improve students' concentration and motivation. By allowing this freedom it also encourages self-discipline and independent reading. Since students can use headphones and read from their desk.

On the other hand, the reading can be heard through speakers, allowing the whole class to follow the reading on a projector or interactive board. This will be useful to ensure all the class is reading at the same rate and completing the text.

Additionally, the Microsoft Read Aloud Tool is a free technological resource that can be accessed from different devices such as computers, tablets, Android or Mac smartphones. Also, it can be used with or without internet connection which is a great tool when internet or electricity is not available during the class.

Finally, the Microsoft Read Aloud tool is also essential to make sure students get accustomed to reading on a computer, a skill that is increasingly important nowadays. Besides, in Costa Rica as part of their graduation i students must do a proficiency test This proficiency test has 100 items that are reading comprehension. Having students familiarize themselves with reading out of the screen can be beneficial for students as it makes the transition from paper to digital seamless. By practicing with Microsoft Read Aloud, students not only improve their reading comprehension but also gain confidence and efficiency in navigating and understanding text on a screen.

2.6.5 Challenges and limitations of Microsoft Read Aloud for ESL learners

Some challenges are that students must have installed the Microsoft browser in their devices as it is not compatible with other browsers such as Google Chrome. The tools demand some computer literacy from both students and teachers.

According to the Fox Technologies Website Team (2024), some challenges arising from the tool are: start-up lag, and paragraph transition lag. By startup lag is understood that there is a delay from the moment the user clicks on the start button and from when the tool begins. In a similar way, there is also a paragraph transition lag which interrupts the flow of the reading. This can cause decreased productivity and directly impact on the use of the software. (Fox Technologies,2024).

Another challenge students might face is that the tool will not function properly. For example, one customer on the Microsoft support forum mentioned issues with the Read Aloud Feature in Edge, as she was unable to read PDFs using the tool . (Microsoft, 2024).

Finally, another customer mentioned that if the browser is not fully updated it might have compatibility issues (Microsoft, 2024).

2.7 TECHNOLOGY-ENHANCED LEARNING (TEL)

The following section explains the Technology-Enhanced Learning approach in the ESL classrooms in detail. The reader will find the definition of the Technology-Enhanced approach, as well as its use in education, the criteria to implement it, and how it can be integrated into the language acquisition process.

2.7.1 Technology-Enhanced Learning (TEL) Approach

Life nowadays is characterized by the use of technology. Technology plays a crucial role in our everyday life. For that reason, countries around the world have to adapt to the use of technological advancements in order to stay updated in the today's global landscape. This is because technology enhances efficiency and reduces the time required to complete tasks. The influence of technology can be observed across various sectors, with education being a notable example (Nagasubramani,2018). The use of technology is a part of our lives, and its use has grown in the educational field as new educational resources become available in the language acquisition process. The term "technology", as used here, refers to the use of technological procedures, methods, or expertise to accomplish a learning or instructional goal (Mustafa, 2019). The incorporation of TEL is vital as explained by D. Laurillard et al

Learners are being prepared for a world in which technology is increasing the speed of innovation and change, but they are being prepared by an education system that is not

oriented towards rapid change in the way it is managed and operated. TEL systems could help education adapt to a world that is rapidly changing in response to technology. (p292).

The Technology-Enhanced Learning (TEL) approach prepares students and teachers by integrating education along with the technological demands of 21st century society. Those demands include flexibility, adaptability and digital literacy as crucial skills in this globalized world.

The term Technology-Enhanced Learning (TEL) is defined as the application of information and communication technologies in teaching and learning environments (Kirkwood and Price, 2013). This approach applies digital tools to enhance student-centered learning experiences. Allowing diverse approaches to play a role in acquiring language skills. By integrating TEL, educators can create dynamic learning classes that support language acquisition and prepare students to succeed in a globalized manner.

2.7.2 Use of TEL in education

To successfully apply TEL, one must understand the range of available opportunities that go beyond the use of devices such as tablets, mobile phones, and interactive boards, and is extended to resources such as platforms and software. Digital technologies are available in many forms and create opportunities for change and innovation (Laurillard,2008). Currently, there are many resources that both students and teachers can access to enhance their classes. Today's TEL environments include games, podcasts, videos, mobile learning, and online collaborative tools to create immersive experiences that align with student-centered learning theories (Brown et al., 2017). These variety of tools can be used to improve the learning English acquisition in classes.

Some of the available resources that can be used in the learning acquisition process include collaborative tools, eBooks, games, and educational platforms. Collaboration involves two or more people working together for a special purpose (Cambridge Dictionary, n.d.). Technology has provided new and faster ways for people to work together. Collaborative tools allow students and teachers to exchange resources in multiple ways. “Today’s collaboration tools feature text annotation, video, audio, and other synchronous tools that allow multiple ‘hands’ to manipulate ideas, objects, and concepts from remote locations” ((Lomas, Burke, & Page, 2008, p. 2). Tools include document and resource sharing and collaboration as well as web conferencing. Examples include Zoom, Google Classroom and Miro.

In addition, online games, video games, and apps are another available resource. A game is defined as “a physical or mental contest played according to specific rules, with the goal of amusing or rewarding the participant” (Peña-Miguel & Sedano Hoyuelos, 2014, p. 230). Educational games can be enjoyed in groups or as single players and may include a wide variety of topics including grammar, vocabulary, and fluency exercises. Educational games allow students to develop skills such as critical thinking and strategy skills. In addition, educational games can be used to review specific educational topics or skills such as reading, listening, writing or speaking. For example, Wordwall is an online learning website. Wordwall has many games to choose from, including, but not limited to speaking cards, crosswords, and flash cards. Another resource is Kahoot which was launched in 2012. Kahoot turns the classroom content into an interactive experience by transforming it into a series of interactive activities. Some of the available activities are taking polls, creating quizzes, and jumbles.

Educational platforms support language learning, literacy, and subject-specific content. Educational Platforms have become more common in primary, secondary, and higher education (Van Dijck et al.,2018). They can be used to aid grammar, vocabulary, listening, and reading exercises. For instance, the Richmond platform stores and shares external content, images, videos, and other resources, tracks student progress, and has a digital version of the student’s book. Some other examples include the Cambridge and Macmillan Education.

2.7.3 Criteria for Implementing the Technology-Enhanced Learning (TEL) Approach in ESL classes.

Implementing Technology-Enhanced Learning (TEL) in ESL classrooms has become common as it involves all types of technologies used to help the learning or teaching experience (Schweighofer & Ebner, 2015). To successfully implement the use of technology is important to consider “a pedagogical framework that considers five components: pedagogical framework context, pedagogical approaches, assessment techniques, current pedagogical practices implemented in national curricula and national specifics, and teacher training” (Granic, Mifsud, & Cukusic, as cited in Schweighofer & Ebner, 2015, p. 27).

To have a better understanding of the implementation criteria of the Technology Enhanced Learning approach one can take as an example Costa Rica’s national curriculum. For example, in, Costa Rica, the Ministerio de Educación Pública is responsible for creating programs to be implemented across national curricula and specifics. To correctly implement the TEL approach in Costa Rica’s current educational context, one must check the specific learning programs provided by the MEP. For instance, taking into consideration

that “the A2 band was established as an exit requirement for primary school learners and B1 or B2 for high school students, depending on the study plans of the respective curriculum (e.g., number of English lessons per week, and/or organization of groups)” (Ministerio de Educación Pública [MEP], 2016, p. 5) when selecting resources and assessment techniques. The technological resources selected should not only serve as supplementary resources but also actively contribute to achieving language learning outcomes, such as improving listening, speaking, reading, and writing skills (Zhao & Ye, 2020). Tools such as text-over-speech software, speech recognition, and collaborative tools can effectively support language acquisition if they are incorporated meaningfully into lesson plans.

Another aspect to consider when implementing TEL in the learning process is ensuring that all students have access to the technological resources being used. Having versatile resources that allow learners to access it from different devices, such as phones, tablets, and computers, is crucial to class development. Moreover, different operational systems such as Safari, Android, and Windows, must be considered. In addition, if using tools that need an Internet connection, teachers must ensure that students have access to reliable Internet connections in and out of their classrooms to fully participate in TEL activities. This is especially important for equitable access because disparities in technology availability can lead to unequal learning opportunities. Institutions and educators must address these accessibility needs to ensure that all students benefit from TEL (Zheng et al. 2019).

Therefore, teachers’ preparedness is critical. Educators must research these tools beforehand to ensure that they provide clear instructions to students. Having prior

knowledge of the tool ensures that they can answer any questions that might arise and ensure that the content aligns with the educational objective and is age appropriate.

Teachers should have the digital curiosity to go under professional development and continuous training to stay current with TEL advancements

Finally, the adaptability of materials is another important criterion when choosing a material. TEL resources should be customizable to meet learners' needs. Some aspects to consider include proficiency level, learning style, and learning disabilities. Following the criteria of material adaptability, technological adaptability and equality must also be taking into consideration. Teachers must select technologies which are customizable, allowing educators to adjust their learning experiences to be more inclusive and supportive of each student's progress.

2.7.4 Integration of language skills and Technology Enhanced Learning

In recent years, educators and researchers have applied various technologies to assist language learning and instruction. Technology was introduced into classrooms to enhance the learning process and support speaking, reading, listening, and writing skills in schools during the process of language acquisition. The overnight technological changes of the 21st century (e.g., computer-assisted language learning, data-driven technology, blended learning approaches, and technologies such as online games) have modified the way we teach and learn a foreign language (Lai & Bower, 2019).

The TEL approach offers various resources that can be used in classes to enhance language acquisition. Resources such as YouTube videos, podcasts, and online audio tools that teachers can use. Most of these resources cover a large number of topics and have

diverse proficiency levels. In addition, one can find different accents, dialects, and speech rates that can broaden the learner's auditory comprehension. These TEL resources are useful when implementing specific learning skills, such as for reading strategies.

Reading strategies in TEL mostly consist of scaffolding using platform design or software programming (Lai & Bower, 2019). Scaffolding activities included pre-reading activities, guided reading questions, and post-reading group discussions. These activities support students in several skills such as predicting, clarifying, summarizing, and critical thinking.

When applying TEL into speaking there are meaningful strategies to be used. For example, teachers could benefit from AI speaking partners that are capable of facilitating interactive English conversations. Speech recognition software, pronunciation feedback apps, and video conferencing tools are available. Most speaking tools work with Internet connections, and some of the days are paid services with only a few available for free.

When administering writing strategies supported by TEL one could look into collaborative writing platforms, grammar-checking software, and feedback tools that allow students to practice written expression in an interactive format. They can correct their grammar, punctuation, flow, and so on. In addition, TEL tools, such as Google Docs or writing apps with peer-editing features, enable students to receive real-time feedback from teachers or classmates.

Utilizing Technology Enhanced Learning in listening comprehension strategies during the language acquisition process is beneficial for students. Some available resources to apply when doing listening comprehensive exercises are dictation activities, filling in the

blanks, and comprehension questions. In order to apply dictations for students, teachers might use a video from YouTube which are free videos that have a variety of topics, durations and accents. Another activity taking into consideration YouTube videos are for students to fill in the gaps using a song. Lastly, students could watch a video of interest and then have a class discussion regarding the topic and its understanding. Besides the video platform YouTube teachers and students have access to plenty more resources in the Internet such as ELLO.org and the BritishCouncil.org.

2.7.5 The TEL in Costa Rica's English education

The use of technology in classes has recently increased worldwide. "Computer technology has brought about many changes in language learning and has become ecological and normalized rather than a supporting tool in the language classroom " (Zhou & Wei, 2018, p. 471). Currently, devices such as mobile phones, computers, and tablets are becoming more common around the world. In Costa Rica 98% of the population has a mobile phone. (América, 2024) While the use of the Internet in the classroom is being used globally as part of the language acquisition process, a study conducted by the Paniamor Foundation and the University of Costa Rica (UCR) revealed that the educational use of these technologies in Costa Rica is low. This is indicated by the Kids Online 2023 survey, which investigated the access, capabilities, and skills of minors regarding the use of the internet, applications, and digital platforms, as well as other technological devices.

Among the main findings, it was determined that on a scale of 0 to 10, 2.53% of the teaching population uses the Internet tool in class for pedagogical purposes. This statistic is considered low and emphasizes the challenge of maximizing the use of the internet and technology in teaching-learning processes. These results also show that institutions do not

promote the use of technological resources and do not train teachers on the advantages and correct use of Technology-Enhanced Learning.

Despite the fact that in 2010 the Constitutional Chamber of Costa Rica declared that access to the Internet is a fundamental human right, some high schools do not have access to the Internet or technological resources. This limits opportunities for students to develop essential 21st-century skills and engage meaningfully with learning materials.

2.8 IMPROVEMENT OF STUDENTS' READING COMPREHENSION

In order to research the improvement of students' reading comprehension it is highly important to define the parameters in which this improvement can be classified. For this research the Common European Framework (CEFR) will be used. The Common European Framework classifies the proficiency level as A1, A2, B1, B2, C1 and C2. This classification takes into consideration several skills. For example, at an A1 level students can understand very short messages. Furthermore, for an A2 level students can understand simple letters, and B1 students can understand the description of events. In addition, level B2 can read information related to a field of interest, and finally a C1 student can read complex texts (CEFR Levels, n.d.). Understanding this classification will allow researchers to apply for the pretest and post-test aligned with the CEFR.

2.8.1 Measuring Reading Accuracy: Main Ideas and Details

In this research it is important to take into consideration reading accuracy. As cited per Pasquarella et al. (2015), "word reading accuracy refers to the ability to accurately identify single words from print" (p.372). This ability allows students to comprehend information accurately. According to the CEFR students can progress according to their

level of proficiency, allowing them to start with simple texts and move toward more complex texts (CEFR Levels, n.d.). Assessing reading accuracy allows us to measure how well students identify single words, understand main ideas and identify details before and after applying the Microsoft Reading Tool.

By main idea we understand that it is the central idea an author wants to convey, it provides essential facts and data. On the other hand, supporting details reinforce the main idea with specific details, explanations, or examples (Despins,2024) The students' progress in reading accuracy will be measured through the use of pre and posttests, focusing on the ability to comprehend main ideas and supporting details of short passages.

2.8.2 Goal Setting

The CEFR provides performance indicators that can be used to set up student expected progress and track improvement. This research will take 10th-grade students as the sample population. As per the MEP national curriculum, students should achieve level B1 by the end of 10th grade. This research has set specific goals supported by CEFR desired level of B1, pretest and post-tests, aligned with the CEFR indicators.

CHAPTER III: METHODOLOGICAL FRAMEWORK

3. METHODOLOGICAL FRAMEWORK

In this chapter the researcher will develop the methodological part of the research as indicated in the title. The author will be focusing on the main concepts, characteristics, and theories about the research. The researcher will delve into the purpose of the research, the temporal dimension, the framework and sources investigated in the research. Another important aspect to be analyzed will be the sample, the techniques and instruments to gather data as well as the variables that were researched.

3.1 Purpose of Investigation

To successfully complete an investigation the author has to fully understand the purpose of the investigation. “The term Research is related to finding out information and understanding on a specific topic or subject” (Mishra & Alok, 2017). By understanding the different purposes of the research and the objectives of the investigation the author can select the type of research that targets the investigation’s purpose. By analyzing the research purpose, the researcher has selected to employ the applied research. “The aim of applied research is to find out a solution for some critical practical problem” (Mishra & Alok, 2017, p. 3) As “applied research refers to finding a solution for specific, practical problem facing by an individual, society or an industrial or business organization.” (Mishra & Alok, 2017, p. 3). This research purpose aligns with the objective of the author to solve the problem stated.

3.1.2 Temporal dimension

The duration of an investigation in order to get the results proposed is defined as the temporal dimension of research. Two very important types of temporal dimensions when

completing an investigation are the longitudinal and transversal (also known as cross-sectional study or survey). Although both studies aim to observe a specific subject without any external influences, however, they differ in several aspects.

Cross-sectional research refers to “studies where data are collected from the study population at a single point in time. Exposure and outcome are determined simultaneously” (Ranganathan, 2020, para. 8).

As defined by Ranganathan (2020),

A longitudinal study, like a cross-sectional one, is observational. So, once again, researchers do not interfere with their subjects. However, in a longitudinal study, researchers conduct several observations of the same subjects over a period of time, sometimes lasting many years.

Considering the time allocated to develop this research it can be concluded that a transversal study is the type of research selected. Bearing in mind that transversal studies are shorter and inexpensive to conduct (Wang & Cheng, 2020), and in addition, plenty transversal studies are completed through questionnaires or interviews (Wang & Cheng, 2020), which are some of the instruments set to develop this study.

3.1.3 Framework (micro)

It is important to define the theoretical framework of the investigation to provide a clear foundation and structure for research. A theoretical framework reviews existing

theories that will help set a map to further develop the key concepts, variables and connections that will be used in this current study. This allows us to explain and build upon existing theories that support your research, showing that the research topic is relevant and grounded in established ideas. (Vinz, 2022). The theoretical framework guides the research by creating a roadmap which then is limited by the different levels it can be understood and interpreted (Vinz, 2022). For example, the research can be understood from a mega, macro and micro level.

To better understand the levels in which this research is structured we will define the mega, macro and micro levels of it. A mega level “study interactions at the broadest level, such as interactions between and across nations, states, or cultural systems.” (Mauldin, 2020, p. 40). Considering the broadest level this research will take place in Costa Rica. It will be done in the province of Cartago, specifically in the Agua Caliente district.

The following research will be carried out at Ciudad de Ciudad de Niños High School. The Colegio Ciudad de Ciudad de Niños is located in Agua Caliente de Cartago. This can be understood as the macro level of study. At a macro level researchers “tend to study the experiences of groups and the interactions between groups” (Mauldin, 2020, p. 40). Ciudad de Niños is a non-profit social welfare institution located in Cartago, Costa Rica. The high school belongs to the Order of the Augustinian Recollects, whose purpose is the integral formation of adolescent and young males between the ages of 12 and 22, based on Augustinian pedagogy. Ciudad de Niños teaches English as a second language starting in 7th grade and finishing in 12th grade. Students have access to 4 weekly lessons in which they learn using the four macro skills: reading, listening, speaking and writing.

The field research for this study will be conducted at Ciudad de Niños High School, addressing 10th grade students. This selection constitutes the micro level of study. A “micro-level research studies individuals and one-on-one interactions” (Mauldin, 2020, p. 40). Learners will be selected at the end of the beginning of the year. The project will involve students aged 15 to 19. The research aims to support their second language acquisition by enhancing their reading comprehension skills.

3.1.4 Nature (Quantitative)

For the following research it is important to understand the nature of the investigation. Quantitative research is constructed on the feature of quantity. As explained “It is related to object that can be expressed in terms of quantity or something that can be counted.” (Mishra & Alok, 2017, p. 3). To measure the general objective of the investigation this research relies on numerical data. As commented “such type of research involves systematic experimental analysis of observable phenomenon via statistical, mathematical or computational techniques in numerical form such as statistics, percentages, etc” (Mishra & Alok, 2017, p. 3). Since this research has pre tests, post-tests which are measurable outcomes and statistical analysis to assess the effectiveness of Microsoft read aloud tool we can conclude that the investigation is quantitative.

3.1.5 Character of the Investigation

A type of study has to be selected to collect and analyze the data that work along with the instruments being applied in the field. Understanding the study type is fundamental for the project to be completed and approached from the angle desired by the

investigator. For this investigation the author has selected to use the exploratory and descriptive character.

“The objective of exploratory research is the creation of hypotheses rather than their testing, whereas formalized research is those with significant structure and with specific hypotheses to be tested” (Mishra & Alok, 2017, p. 2). Continuing with the author’s definition, we can conclude that using exploratory research is useful and relevant to define the nature of a problem as the investigator gains knowledge of the research problem. In addition, exploratory research is helpful to investigate a topic which has not been over-invested. Finally, the use of an exploratory study is relevant to investigating the effectiveness of the Microsoft Read aloud tool in class and the impact it has on improving reading comprehension skills.

“Descriptive research consists of survey and fact-finding investigation of different kinds. The main purpose of descriptive research is explanation of the set of circumstances as it is present as such” (Mishra & Alok, 2017, p. 2). Since the instruments that will be applied are questionnaires, this research type aligns with the research purpose.

3.2 SUBJECTS AND SOURCES OF INFORMATION

3.2.1 Subject and sources of information

The study will take place at the Colegio Ciudad de Niños, which is a non-profit social welfare institution that serves male youth between the ages of 15 to 17 who come from low-income backgrounds, vulnerable conditions, and poverty. The high school is divided into 6 grades that range from seventh to twelfth grade, with each grade lasting one academic year. The language training program at the institution offers a well-rounded

curriculum designed to progressively enhance students' language skills. This structure ensures that learners establish a solid foundation at each stage, which is crucial for achieving fluency and confidence in English.

Table 1

Inclusive and exclusive characteristics of the thesis “ The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños during the second quarter of 2025 ”

Inclusive characteristics	Exclusive Characteristics
Students currently in the 10 th grade	Students in a different grade level
Students enrolled at Ciudad de Niños	Students not enrolled at Ciudad de Niños
Students who voluntarily consent to participate fully during the four-session intervention period.	Students who are not willing to participate fully during the four-session intervention period.

Note. Data collected by Solórzano (2025).

3.2.2 Sources of Information:

The sources of information are essential for the proper development of an investigation. Such data can be collected through people, objects, books, websites, or places according to the needs of the researcher. The source of information can be divided into three categories, primary, secondary, and tertiary:

3.2.2.1 Primary Sources:

Table 2*Primary Sources*

Author(s)	University / Organization	Country	Year
Mary Cece Young	Illinois State University	USA	2017
Keelor, J. L., Creaghead, N. A., Silbert, N. H., Breit, A. D., & Horowitz-Kraus, T.	University of Cincinnati	USA	2023
Huang, Y.-C., & Liao, L.-C.	Central Taiwan University of Science and Technology	Taiwan	2015

Note. Data organized by Solórzano (2025).

3.2.2.2 Secondary Sources**Table 3***Secondary Sources*

Author(s)	University/ Organization	Country	Year
El Filali & El Aidi	University of Hong Kong	Hong King	2022
Salas-Acuña	Universidad Nacional de Costa Rica	Costa Rica	2023
Cullen	University of Glasgow	Scotland	2023

Note. Data organized by Solórzano (2025).

3.2.2.3 Tertiary Sources

Table 4

Tertiary Sources

Author(s)	University / Organization	Country	Year
Merriam-Webster Dictionary	Merriam-Webster, Incorporated	USA	(n.d.)
Wikipedia	Wikimedia Foundation	USA	(n.d.)
Cambridge Dictionary	Cambridge University Press	United Kingdom	(n.d.)

Note. Data organized by Solórzano (2025).

3.3 SAMPLING SELECTION

3.3.1 Population

The population of this research corresponds to students from the high school Ciudad de Niños in Costa Rica. This is important to limit as it refers to the group that has the qualities a researcher needs. (Thomas , 2023). Among these qualities are students enrolled in 10th grade between the ages of 15 years old and 18 years old.

3.3.2 Sample

As noted by Cohen, Manion, and Morrison (2017) “Researchers must take sampling decisions early in the overall planning of research, not least of which is whether to have a sample or an entire population” (p. 202). For this particular investigation it has been deemed appropriate to take a sample of the population. A sample refers to a smaller group of a population chosen for observation and analysis. It consists of a part of the individuals

of a population which is selected to represent the population (Cohen, Manion, & Morrison, 2017). Taking into consideration the significance of a sample, the researcher has decided to select purposive or convenience sampling. Convenience sampling is a method of selecting the population based on ease of access. (Golzar, Noor, & Tajik, 2022.) This method is efficient for small sample universe.

Table 5

Classification table by sex and age range for the thesis

Age/Sex	Men	Woman	Total
15 years	3		3
16 years	7		7
17 years	4		4
35 years		1	1
Total	14	1	15

Note. Data organized by Solórzano (2025).

3.3.3 Non- Probabilistic Investigation

The sample of the research is non-probabilistic because the individuals were chosen from a population in a non-random method. Since non-probability is understood as a sampling technique, and not a probability sampling (Kim, 2022). The participants of this research will consist of students who currently were enrolled in the 10th grade of Ciudad de Niños. The investigation will be conducted on a total of 25 male students between the ages of 16 and 18 years old.

3.4 TECHNIQUES AND INSTRUMENTS FOR DATA COLLECTION

The data collection process is essential to evaluate the two main variables in this study: the Microsoft Read Aloud tool and the levels of reading comprehension (main ideas and details) among 10th-grade students. To ensure the data collection, the researcher has selected a series of instruments to provide accurate and comprehensive results.

The first instrument is a pre-test, designed to establish the baseline reading comprehension proficiency level of students before intervention. A total of 12 multiple-choice questions will measure their ability to identify main ideas and details in short passages, supported by a scoring rubric categorizing students into basic, intermediate, or advanced proficiency levels.

Following the pre-test, the intervention phase will involve integrating Microsoft Read Aloud into a series of classroom activities aimed at improving comprehension. Students will engage with short passages read aloud using the tool, which supports auditory and visual learning simultaneously.

Upon completing the intervention, a post-test identical in format to the pre-test will be administered. The results from the pre-test and post-test will be directly compared to assess any significant changes in students' reading comprehension levels. A scoring rubric similar to the pre-test will determine their proficiency, ensuring consistency and reliability.

Additionally, an observation checklist will document students' engagement, usability of the Microsoft Read Aloud tool, and behaviors indicative of improved comprehension during the intervention sessions.

3.4.1 Pre-Test

The pre-test serves as a baseline measurement tool to determine students' initial reading comprehension levels before the intervention. According to Lange (2016), a pre-test is a valuable method to observe and evaluate students' understanding of key concepts before instruction, providing insight into their starting abilities (p. 99). Using the 15-item multiple-choice test on short passages, the researcher aims to identify strengths and weaknesses in identifying main ideas and details.

3.4.2 Post-Test

The post-test is administered at the conclusion of the intervention to evaluate student progress. Dell'Olio and Donk (2007) explain that post-tests allow educators to assess learning outcomes after instructional interventions, enabling a comparison of pre- and post-performance (p. 432). This process will highlight the impact of Microsoft Read Aloud on students' comprehension skills. Results will reflect the extent of progress or stagnation, providing insights into the tool's effectiveness.

By analyzing data from the pre-test, post-test, observation checklist, and questionnaire, the researcher aims to address the study objectives and hypotheses effectively.

3.4.3 Self-Assessment

The self-assessment survey is a well-established qualitative tool for collecting data through the participants' experience. It allows the researcher to monitor and document student behaviors systematically, noting specific indicators of reading comprehension improvement (Nwuegbuzie & Smit, 2018). In this study, self-assessment will be utilized

during three pivotal phases: the beginning, middle, and end of the intervention. This phased observation ensures a comprehensive understanding of how students engage with the activities, process the content, and reflect measurable progress in their reading comprehension journey.

3.4.4 Teacher Interview

Interviews are commonly used instruments in research studies. For this investigation an interview will be applied to the teacher to gather data on the experience and point of view of the use of the Microsoft Read Aloud tool for reading comprehension in general ideas and specific details. For this type of data interviews are beneficial as they allow to gather specific information from experience and in-depth data around a specific strategy. (Taherdoost, 2021). Another advantage is that this method permits the interviewer to share his or her knowledge freely and to provide their own perspectives.

Through a set of closed-ended interview format using a five-point Likert scale this interview will validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages.

3.5 OPERATIONALIZATION OF VARIABLES:

3.5.1 Conceptual, operational, and instrumental definition

The table below outlines the method employed by the researcher to analyze variables, including the different instruments which will be used in the investigation. The table below includes the main objective, the variables related to each specific goal, their conceptual meanings, measurement tools, techniques used to gather information, and clear operational definition corroborating the validity of all variables.

Table 6*Operationalization of variables table*

Specific Objective	Variable	Conceptual Definition	Instrumental Definition	Operational Definition
To compare the changes in reading comprehension levels by comparing pre-test and post-test results to determine the effectiveness of the Microsoft Read Aloud tool.	Changes in reading comprehension levels	Reading comprehension is the ability to process, understand, and interpret written texts. A pre-test is conducted at the beginning of the study; a post-test is administered after applying the tool to measure progress.	A test with 12 multiple-choice questions assessing students' ability to identify main ideas and details in short passages.	Results will be categorized as follows: 0–4 = Basic, 5–8 = Intermediate, 9–12 = Advanced. The variable will be considered valid if at least 70% of students show improvement from pre-test to post-test.
To validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages.	Usability of Microsoft Read Aloud Tool	Refers to the tool's features, benefits, challenges, and how it supports ESL learners' engagement and comprehension of short texts.	A self-assessment survey (5 items) and a teacher interview will be used to assess student experience and tool management.	Usability is validated if at least 70% of students report positive results (Agree or Strongly Agree) or if effective tool use is observed in 70% of classroom tasks.

To establish students' proficiency in reading comprehension skills using short passages that focus on understanding main ideas and details.	Use of short passages in reading tasks	Short passages are brief texts used to practice reading comprehension. They help focus on specific reading skills and support gradual learning.	Same 12-question test used in pre/post-test format to evaluate comprehension of short passages (main ideas and details).	The strategy will be considered effective if student performance improves and learners engage more actively with shorter texts. The reading level classification remains the same as in the first objective.
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Note. Data organized by Solórzano (2025).

3.5.2 Validity of the investigation

The validity of an investigation is crucial to maintain the value of an investigation. To assess validity one can use different techniques such as qualitative and quantitative methods (Andersson, Boateng, & Abos, 2024). The data collected throughout this research will be analyzed using quantitative methods. Descriptive statistics will be used to interpret quantitative data obtained through structured questionnaires or tests. Descriptive statistics are categorized into measures of central tendency. Central tendency refers to values like the mean, median, and mode, whereas dispersion includes indicators such as standard deviation, variance, and the minimum and maximum values (Hayes, 2024). This includes calculating means, percentages, and frequency distributions to identify trends and patterns in students' reading comprehension outcomes.

To ensure the validity of the study, the research instruments will be designed based on theoretical and previously validated frameworks related to reading comprehension and technology-enhanced learning. Content validity will be established through expert review, where experienced professionals in education and ESL instruction will assess whether the instruments adequately capture the intended constructs.

3.5.3 Reliability of the investigation

To strengthen the reliability of the findings, triangulation will be employed through the use of multiple data sources and instruments. By reliability we understand the consistency of an investigation, which is key to ensure the outcomes can be replicated (Hayes, 2024).

Overall, the integration of these strategies aims to ensure that the results of this study are both trustworthy and meaningful, providing a well-supported foundation for conclusions regarding the effectiveness of the intervention at Ciudad de los Niños.

**CHAPTER IV: ANALYSIS AND INTERPRETATION OF
DATA**

The following chapter analyses the tools that were used by the researcher to collect valuable data through four instruments created for the chosen participant group. The four instruments are: a pretest, a post test, a self-assessment and a teacher interview. Each instrument was designed according to the specific objectives purposed in this investigation. Furthermore, this chapter contains the results of each instrument alongside the analysis of each instrument and its objective.

4. DIAGNOSTIC OF THE CURRENT SITUATION

Before applying the instruments, the investigator introduced herself and the instruments that will be applied throughout the sessions in order to gain insight from the class. The instrument's purpose was explained in relation to how the research methodology is connected to the research framework and outlines the methods the investigator follows to make sure the data collected is valid and reliable in relation to its specific subject.

This chapter will provide a precise analysis of the results gathered to provide reliable and accurate conclusions of the research. To achieve this reliability a quantitative analysis will be performed combined with the triangulation of instruments to ensure the validity of data.

The subsequent section presents the results gathered through two instruments designed by the researcher for the sample being considered: the pre-text and the post-text. These instruments were applied to a group of students in tenth grade at the Ciudad de Niños High School in Agua Caliente, Cartago.

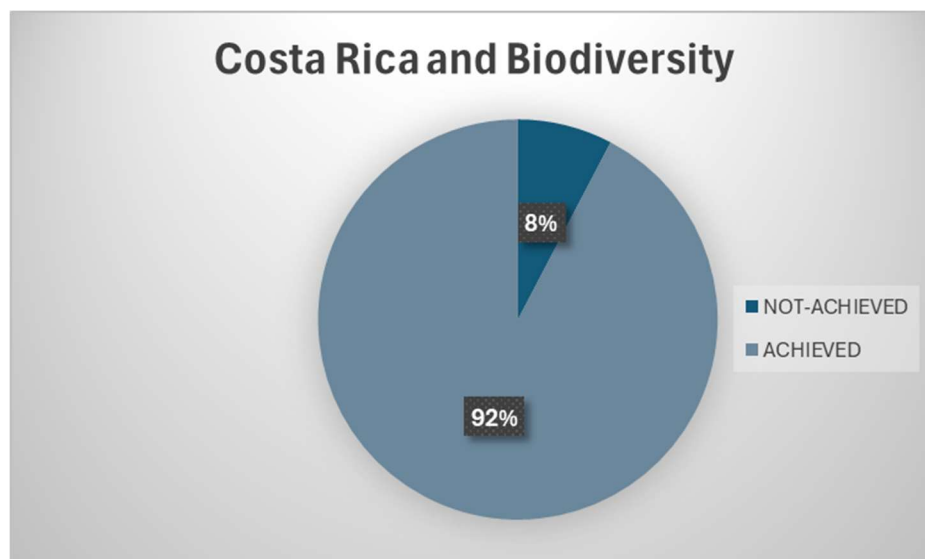
4.1.1 Description of data of the first specific objective

The first instrument was applied for the students in 10th-grade of Ciudad de los Niños. The instrument aimed to compare the changes in reading comprehension levels by comparing pre-test and post-test results to determine the effectiveness of the Microsoft Read Aloud tool.

The Pre Test consists of 12 multiple choice questions and 4 short text passages. Each passage has a total of 3 questions . This instrument permits a structured and objective analysis of students' initial performance in reading comprehension. It is directly linked to the research variable of technology-enhanced learning, specifically the use of Microsoft Read Aloud, and evaluates if students could identify main ideas and specific details before the intervention of the strategy.

Figure 2 Item 1

What percentage of the world's species is found in Costa Rica?



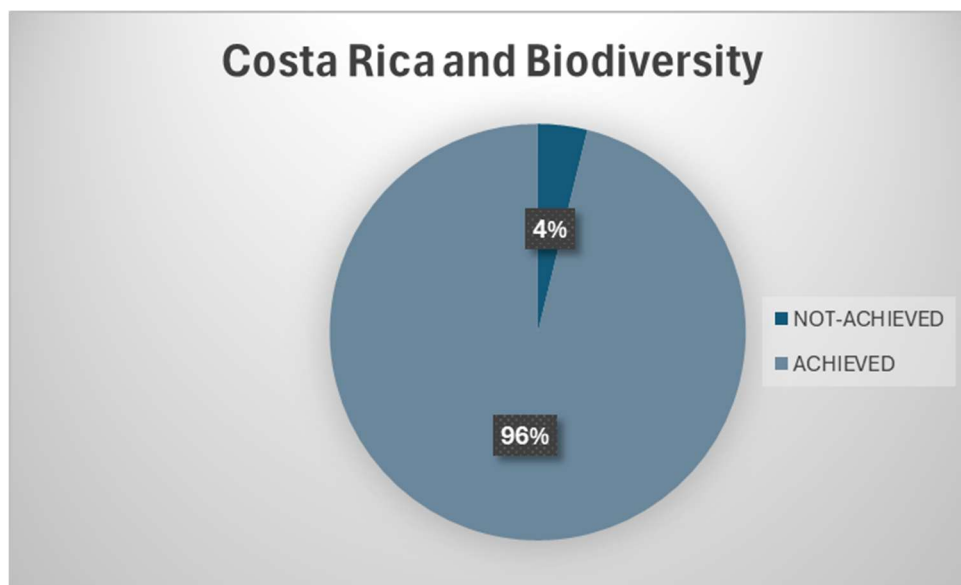
Note. Data collected by Solórzano, 2025.

Figure 1 shows that 92% of the students were able to correctly answer the question: “What percentage of the world’s species is found in Costa Rica?”

This graph shows that most of the participants correctly identified the statistics, displaying they can effectively find specific details in the passage .

Figure 3 Item 2

Why does Costa Rica have such high biodiversity?



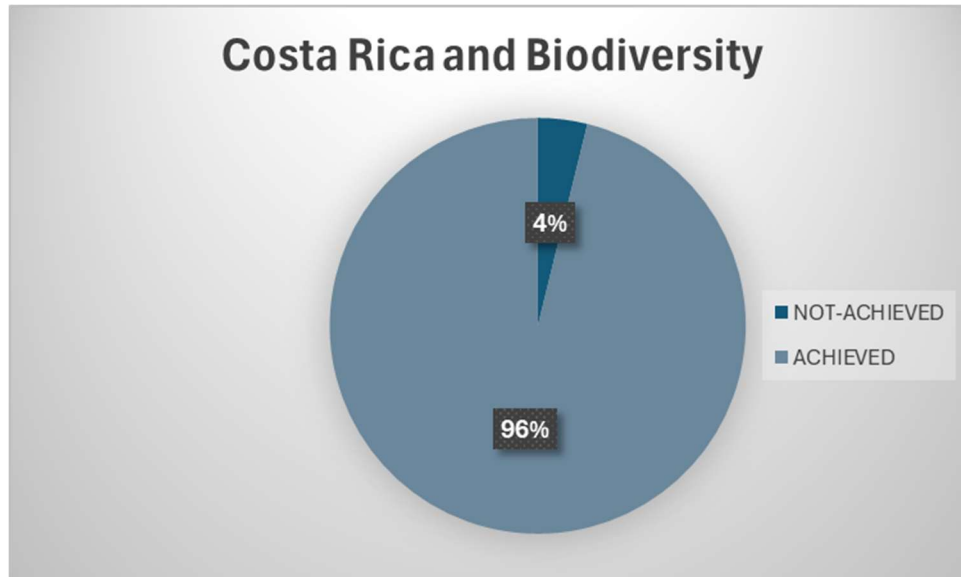
Note. Data collected by Solórzano, 2025.

Figure 2 shows that 96% of the students were able to correctly answer the question: “Why does Costa Rica have such high biodiversity?”

This graph shows that most of the participants correctly identified the correct answer, displaying they can effectively find main ideas in the passage .

Figure 4 Item 3

What type of people are mainly attracted to Costa Rica because of its biodiversity?



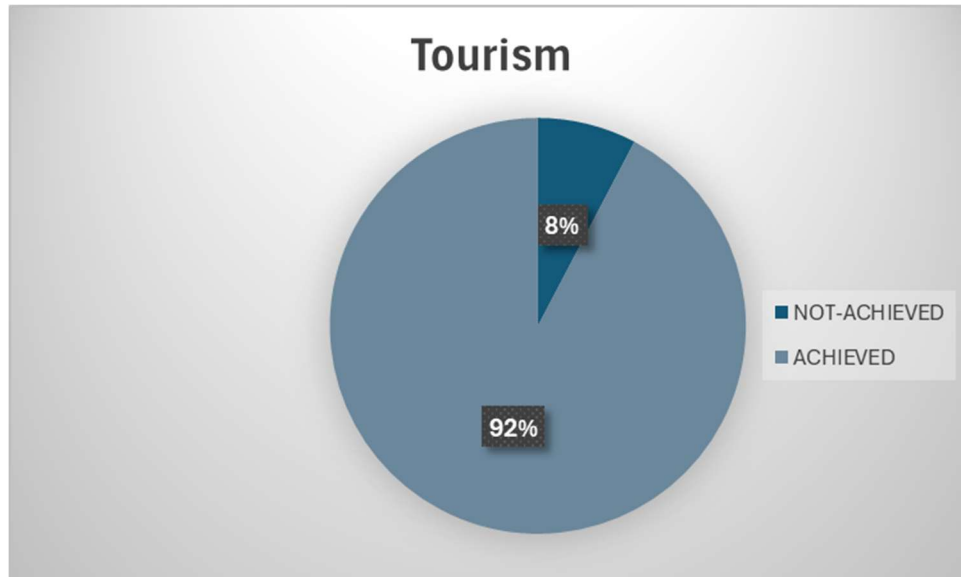
Note. Data collected by Solórzano, 2025.

Figure 3 shows that 96% of the students were able to correctly answer the question: “What type of people are mainly attracted to Costa Rica because of its biodiversity?”

This graph shows that most of the participants correctly identified the correct answer, displaying they can effectively find specific details in a passage about the type of people attracted to the country.

Figure 5 Item 4

What type of tourism is Costa Rica most famous for?



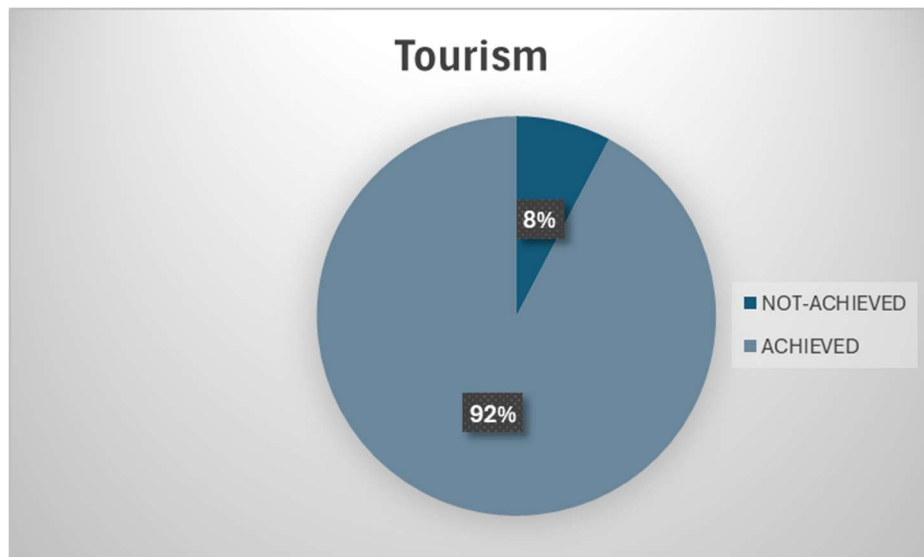
Note. Data collected by Solórzano, 2025.

Figure 4 shows that 92% of the students were able to correctly answer the question: “What type of tourism is Costa Rica most famous for?”

This graph shows a lower number of correct answers, although the majority of students are still capable of recognizing specific details in the passage.

Figure 6 Item 5

How does eco-tourism help the environment?



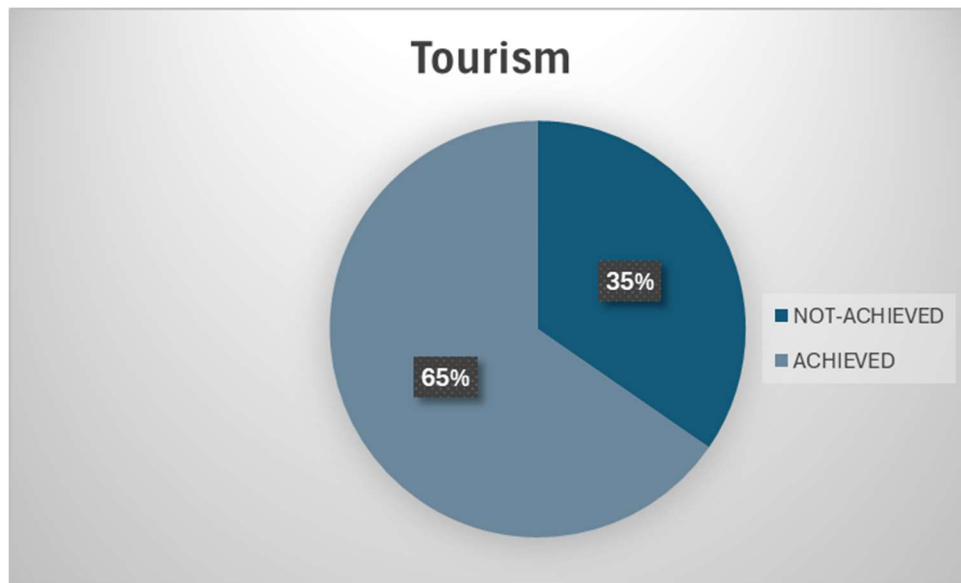
Note. Data collected by Solórzano, 2025.

Figure 5 shows that 92% of the students were able to correctly answer the question: “How does eco-tourism help the environment?”

This graph shows a high number of correct answers, with the majority of students being capable of recognizing the main idea of the passage.

Figure 7 Item 6

What benefit does eco-tourism offer local communities?



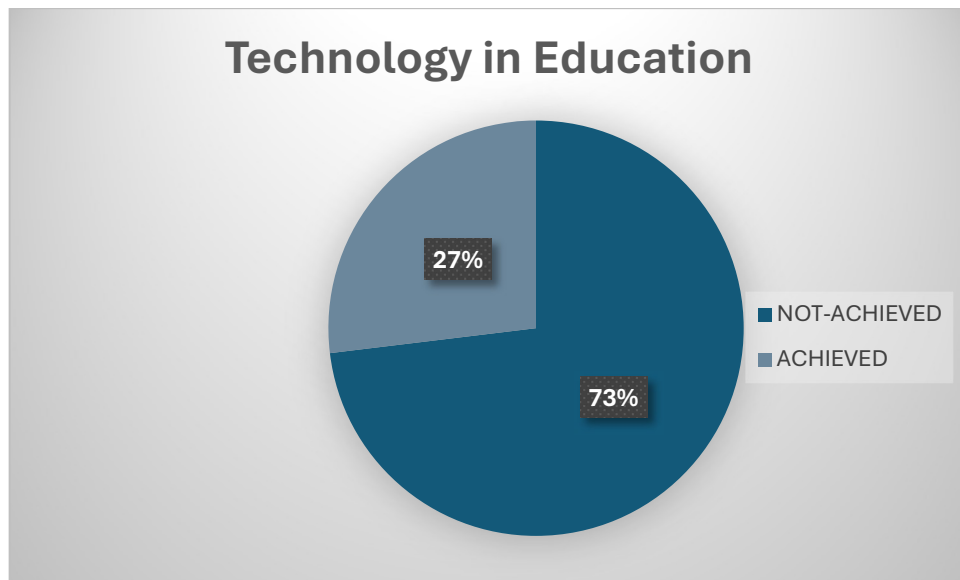
Note. Data collected by Solórzano, 2025.

Figure 6 shows that 65% of the students were able to correctly answer the question: “What benefit does eco-tourism offer local communities?”

This graph shows that only some students were capable of recognizing the main idea of the passage.

Figure 8 Item 7

What does the program “Hogar Conectado” aim to do?



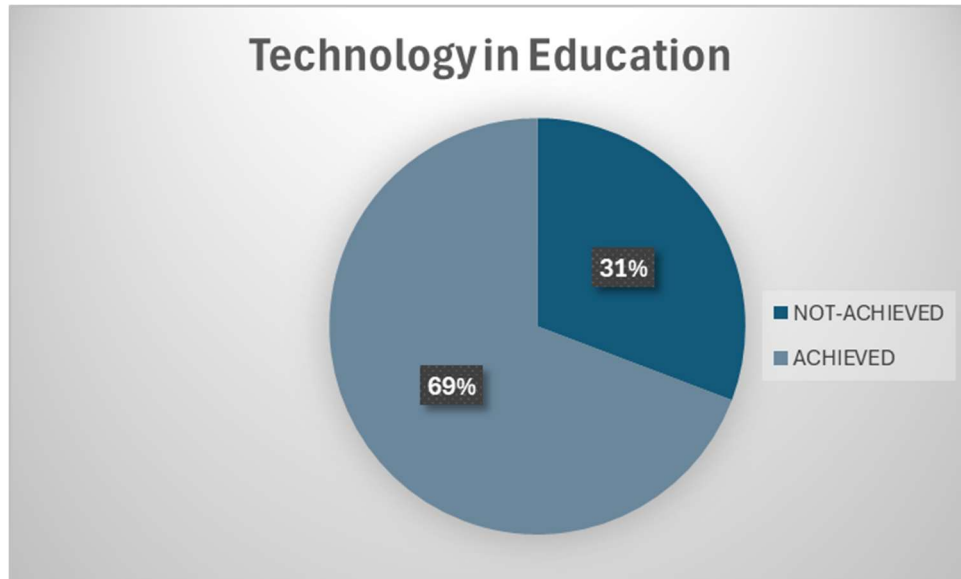
Note. Data collected by Solórzano, 2025.

Figure 7 shows that 27% of the students were able to correctly answer the question: “What does the program “Hogar Conectado” aim to do?”

This graph shows that just a few students were capable of recognizing the program’s objective according to the passage.

Figure 9 *Item 8*

Who benefits most from programs like “Hogar Conectado”?



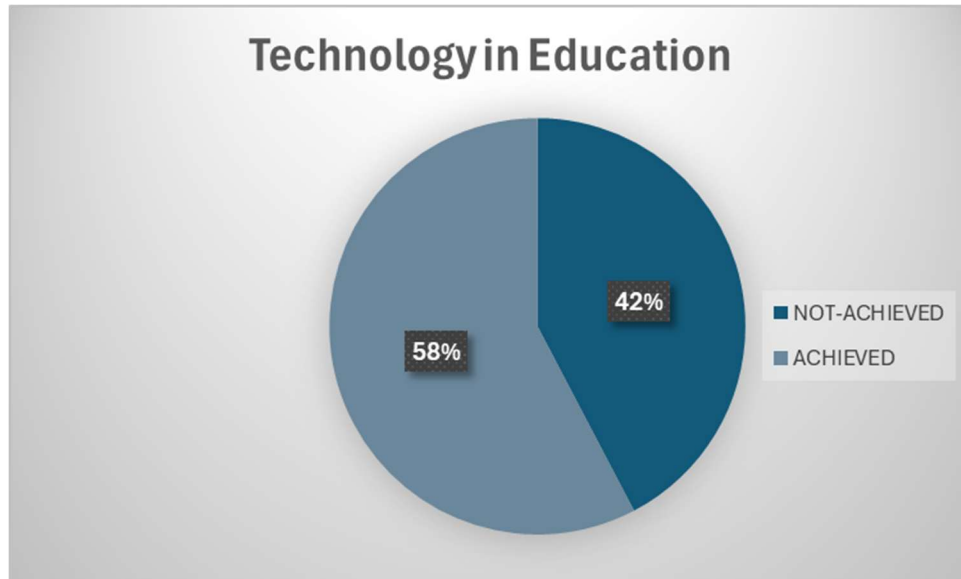
Note. Data collected by Solórzano (2025)

Figure 8 shows that 69% of the students were able to correctly answer the question: “Who benefits most from programs like “Hogar Conectado”?”

This graph shows that less than 70% of the students were able to select the correct answer, showing limited comprehension of the passage.

Figure 10 *Item 9*

Why is access to the internet important for education?



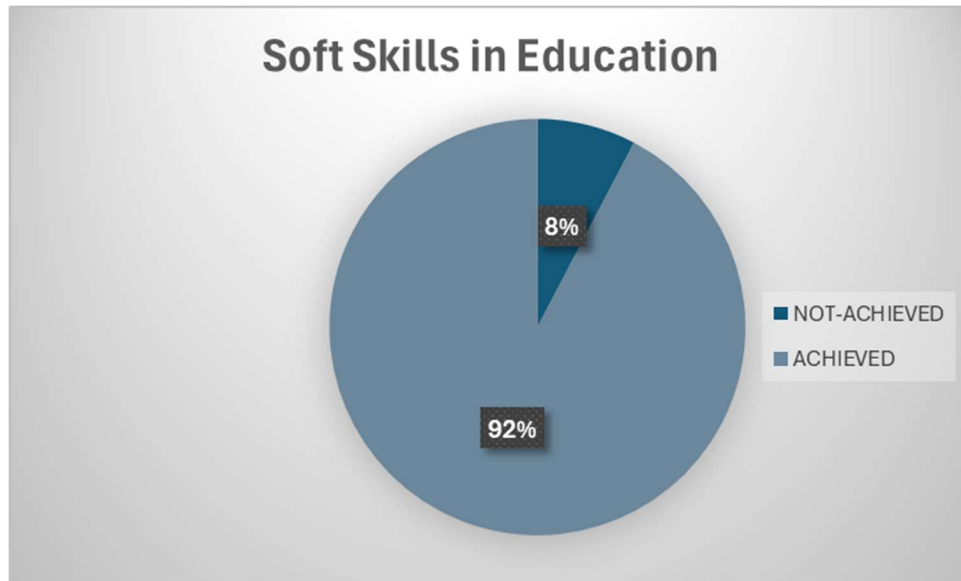
Note. Data collected by Solórzano, 2025.

Figure 9 shows that 58% of the students were able to correctly answer the question: “Why is access to the internet important for education?”

This graph shows that a little bit over half of the students were able to find the main idea of the passage.

Figure 11 *Item 10*

What is an example of a soft skill?



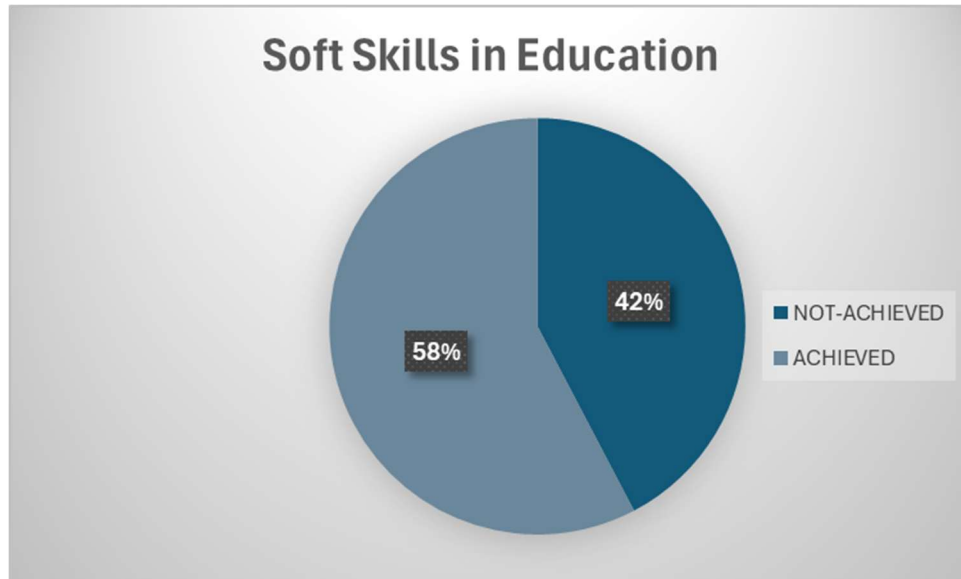
Note. Data collected by Solórzano, 2025.

Figure 10 shows that 92% of the students were able to correctly answer the question: “What is an example of a soft skill?”

This graph shows that most students were able to accurately identify teamwork as a soft skill.

Figure 12 *Item 11*

Why are soft skills important?



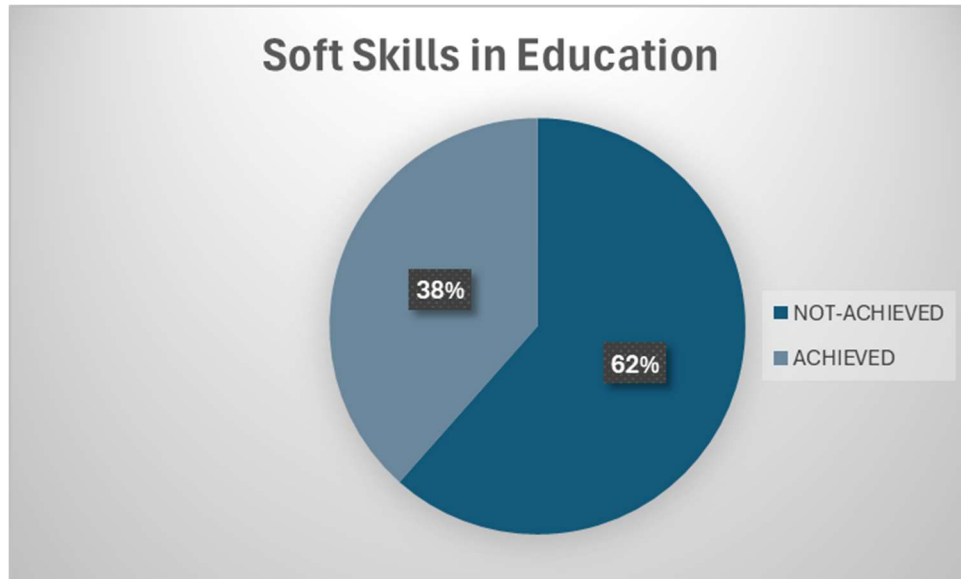
Note. Data collected by Solórzano, 2025.

Figure 11 shows that 58 % of the students were able to correctly answer the question: “Why are soft skills important?”

This graph shows that around half of the students grasped why soft skills are important.

Figure 13 *Item 12*

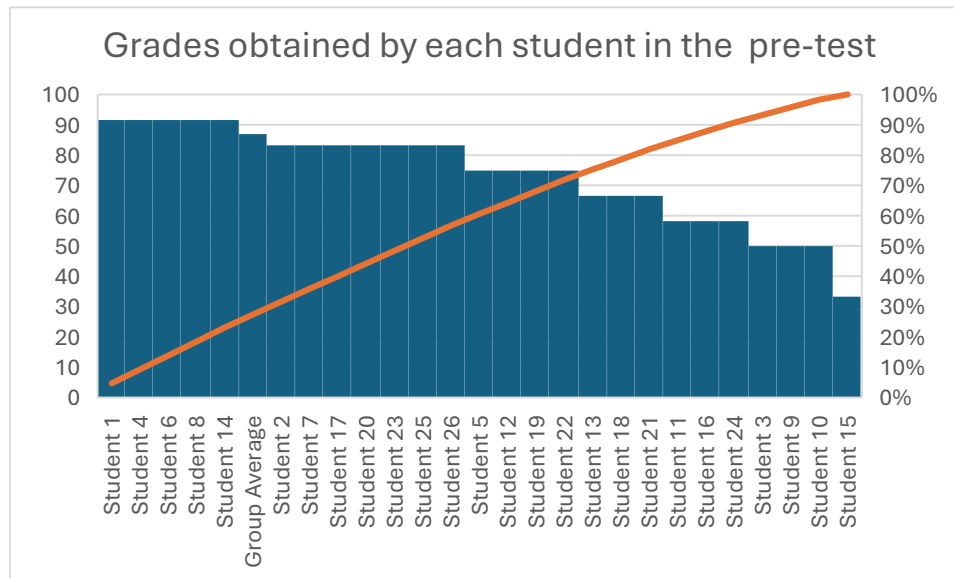
What have Costa Rican education programs focused on in recent years?



Note. Data collected by Solórzano, 2025.

Figure 12 shows that 38 % of the students were able to correctly answer the question: “What have Costa Rican education programs focused on in recent years?”

This graph shows that very few students could select the focus on soft skills, indicating limited comprehension of the passage.

Figure 14 Item 13

Note. Data collected by Solórzano, 2025.

Note. The item read as follows: Grades obtained in the pre-test, and group average.

The graph above shows the individual scores of 26 students in the pre-test. As demonstrated in figure 13, the group average score was 8.7, which serves as a starting point to assess the effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños .

One student achieved the highest score of 92, demonstrating excellent comprehension of main ideas and specific details. A group of eleven students grouped at 83, showing medium high comprehension of the short passages.. Several students scored in the 75-point range, showing they are on track but with some areas for improvement. At the lower end, a group of students scored between 50 and 67, indicating persistent challenges in the comprehension of small details and main ideas.

Table 7*Grades obtained by each student in the pre-test*

Student	Grade Obtained
Student 1	91,67
Student 2	83,33
Student 3	50
Student 4	91,67
Student 5	75
Student 6	91,67
Student 7	83,33
Student 8	91,67
Student 9	50
Student 10	50
Student 11	58,33
Student 12	75
Student 13	66,67
Student 14	91,67
Student 15	33,33
Student 16	58,33
Student 17	83,33
Student 18	66,67
Student 19	75
Student 20	83,33
Student 21	66,67

Student 22	75
Student 23	83,33
Student 24	58,33
Student 25	83,33
Student 26	83,33
Group Average	87

Note. Data collected by Solórzano, 2025.

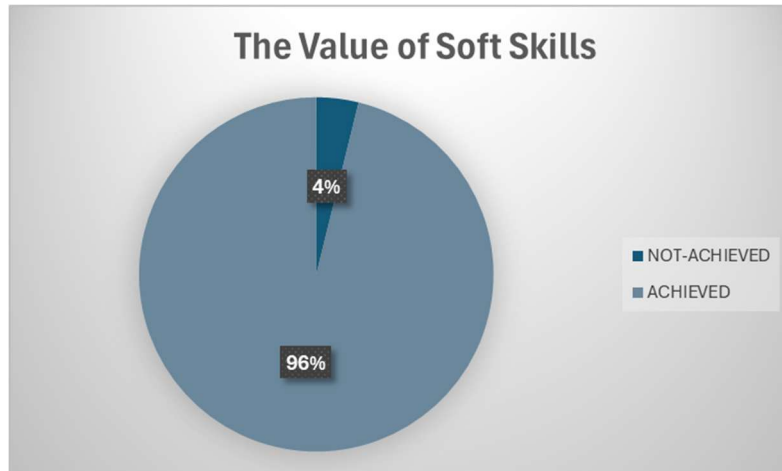
Note. The item read as follows: Grades obtained in the pre-test, and group average.

The posttest was applied for the students in 10th-grade of Ciudad de los Niños. The instrument aimed to compare the changes in reading comprehension levels by comparing pre-test and post-test results to determine the effectiveness of the Microsoft Read Aloud tool.

The Post Test consists of 12 multiple choice questions and 4 short text passages. Each passage has a total of 3 questions . This instrument permits a structured and objective analysis of students' initial performance in reading comprehension. It is directly linked to the research variable of technology-enhanced learning, specifically the use of Microsoft Read Aloud, and evaluates if students could identify main ideas and specific details after the intervention of the strategy.

Figure 15 Item 1

What is an example of a soft skill?



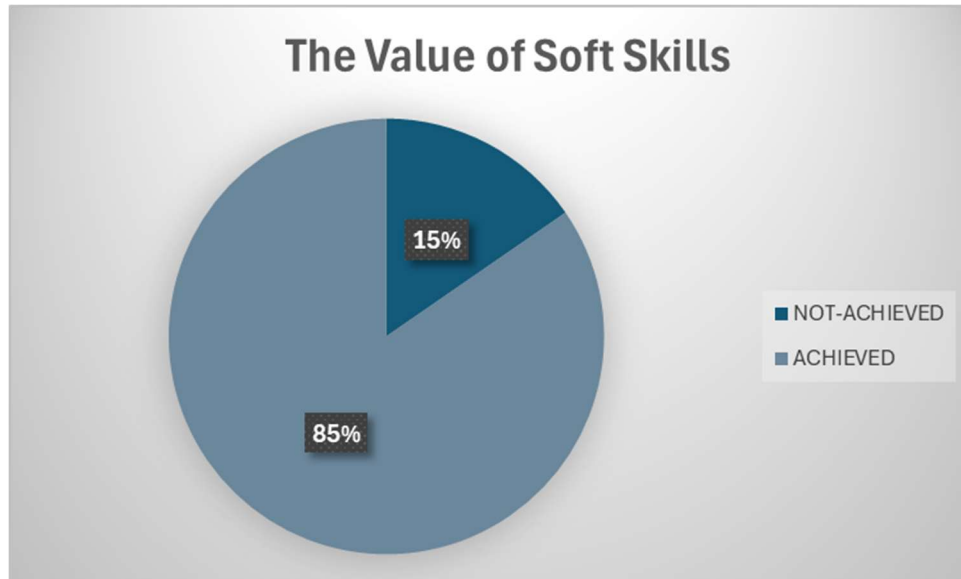
Note. Data collected by Solórzano, 2025.

Figure 14 shows that 96 % of the students were able to correctly answer the question: “What is an example of a soft skill?”

This graph shows most students could select an of a soft skill, indicating vast comprehension of the passage.

Figure 16 *Item 2*

Why are soft skills important?



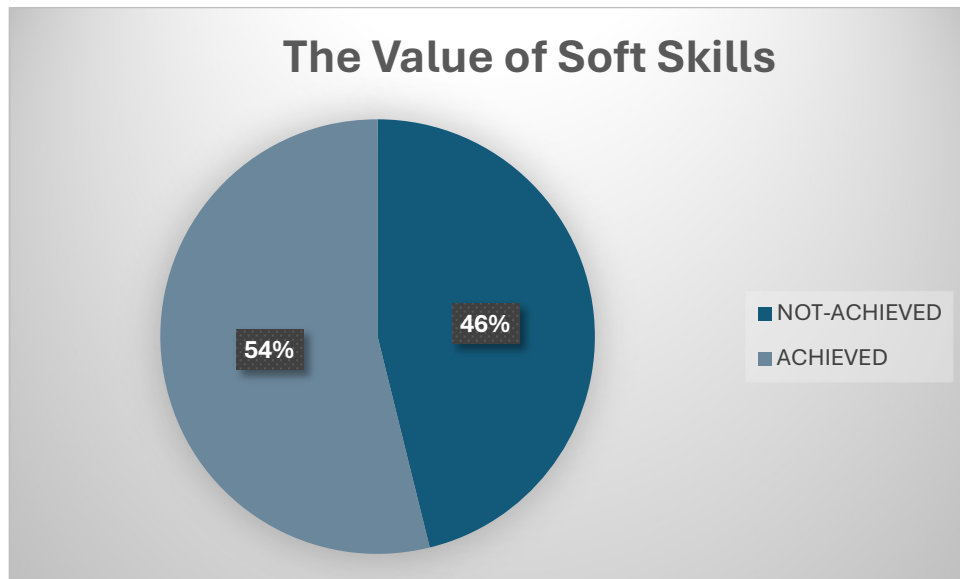
Note. Data collected by Solórzano, 2025.

Figure 15 shows that 85 % of the students were able to correctly answer the question: “Why are soft skills important?”

This graph shows that most could select the focus on soft skills, indicating limited comprehension of the passage.

Figure 17 Item 3

What have Costa Rican education programs focused on in recent years?



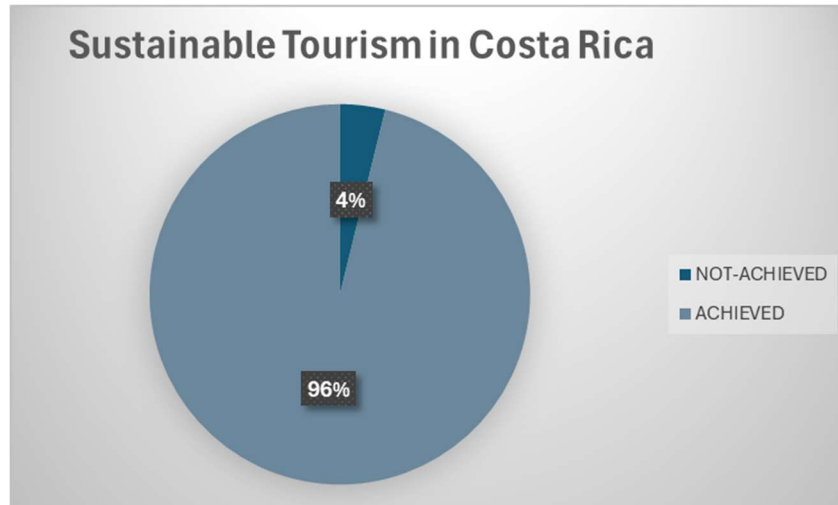
Note. Data collected by Solórzano, 2025.

Figure 16 shows that 50 % of the students were able to correctly answer the question: “What have Costa Rican education programs focused on in recent years?”

This graph shows that half of the students could select the focus on soft skills, indicating limited comprehension of the passage.

Figure 18 Item 4

What sustainable practice is emphasized in eco-tourism?



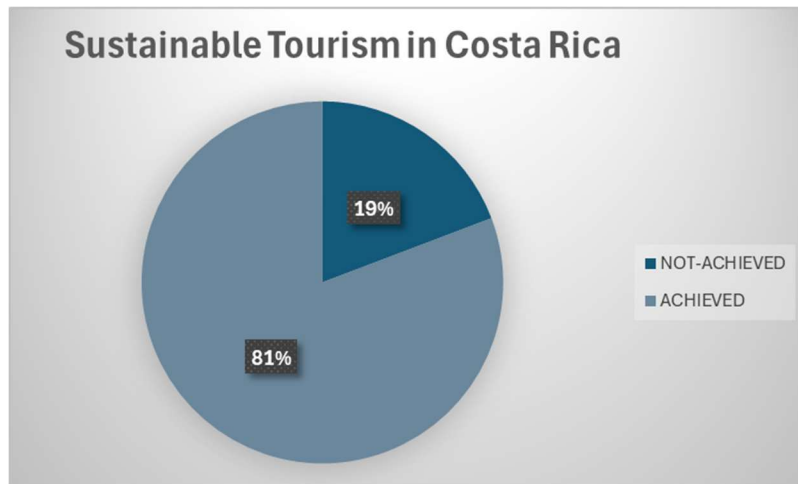
Note. Data collected by Solórzano, 2025.

Figure 17 shows that 96 % of the students were able to correctly answer the question: “What sustainable practice is emphasized in eco-tourism?”

This graph shows that most of the students could select the main idea of the passage displaying comprehension of the passage.

Figure 19 Item 5

What does eco-tourism in Costa Rica aim to preserve?



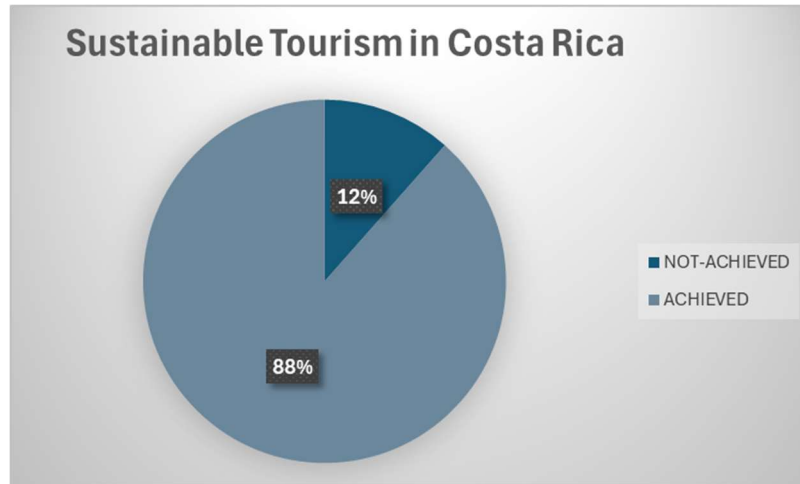
Note. Data collected by Solórzano, 2025.

Figure 18 shows that 81 % of the students were able to correctly answer the question: “What does eco-tourism in Costa Rica aim to preserve?”

This graph shows that many students were able to correctly select the type of eco-tourism Costa Rica aims to preserve , indicating comprehension of the passage.

Figure 20 Item 6

What has eco-tourism done for Costa Rica globally?



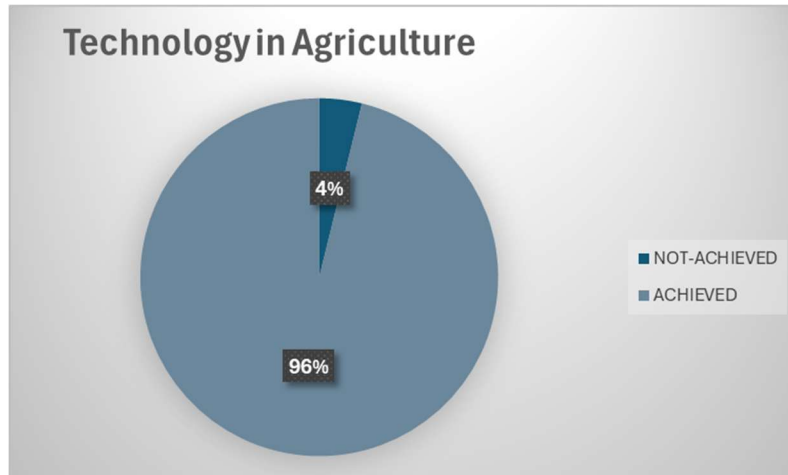
Note. Data collected by Solórzano, 2025.

Figure 19 shows that 88 % of the students were able to correctly answer the question: “What has eco-tourism done for Costa Rica globally?”

This graph shows that a large number of students could select the focus on eco-tourism done for Costa Rica , displaying comprehension of the passage.

Figure 21 *Item 7*

What technology is commonly used in Costa Rican agriculture?



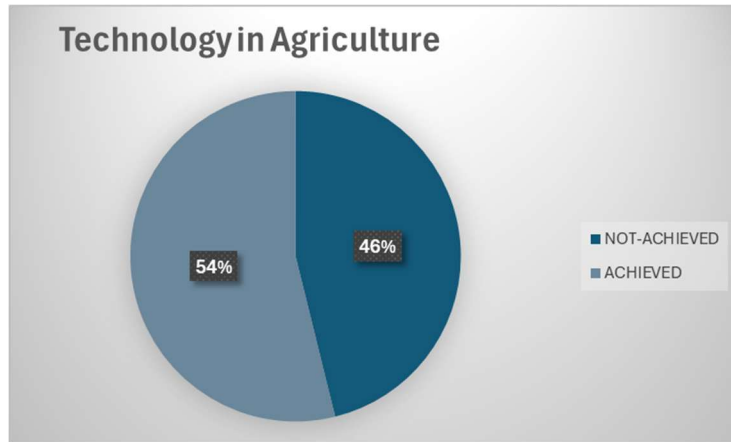
Note. Data collected by Solórzano, 2025.

Figure 20 shows that 96 % of the students were able to correctly answer the question: “What technology is commonly used in Costa Rican agriculture?”

This graph shows that most of students could accurately identify the main idea of the passage

Figure 22 Item 8

What is one benefit of using technology in farming?



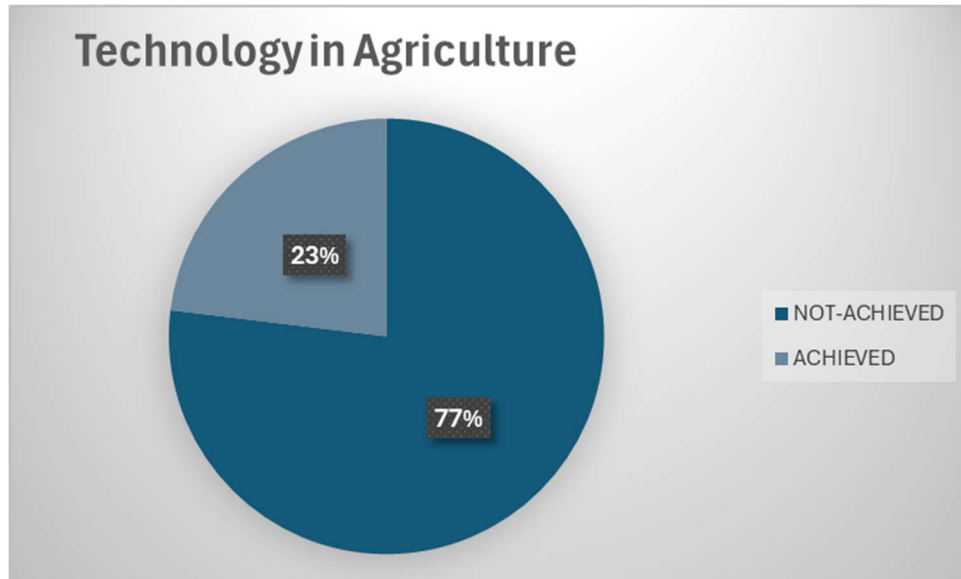
Note. Data collected by Solórzano, 2025.

Figure 21 shows that 54 % of the students were able to correctly answer the question: “What is one benefit of using technology in farming?”

This graph shows that only about half students could select the appropriate answer, indicating limited comprehension of the passage.

Figure 23 *Item 9*

How does technology support sustainability in agriculture



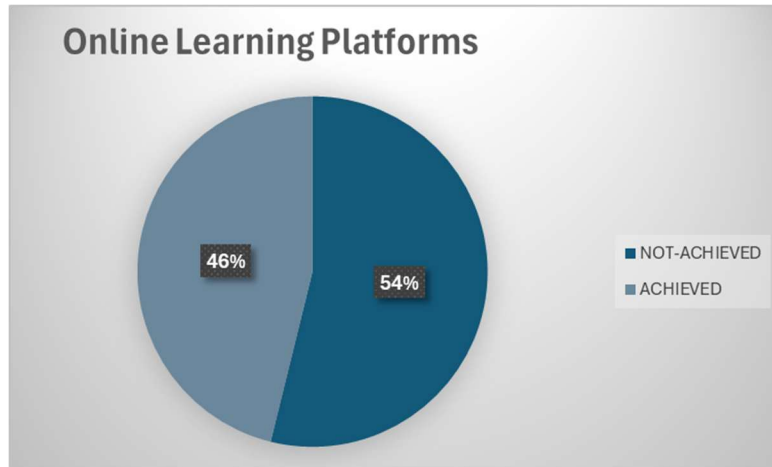
Note. Data collected by Solórzano, 2025.

Figure 22 shows that 23 % of the students were able to correctly answer the question: “How does technology support sustainability in agriculture?”

This graph shows that very few students could select the right answer, indicating limited comprehension of the passage.

Figure 24 *Item 10*

What is one benefit of online learning platforms?



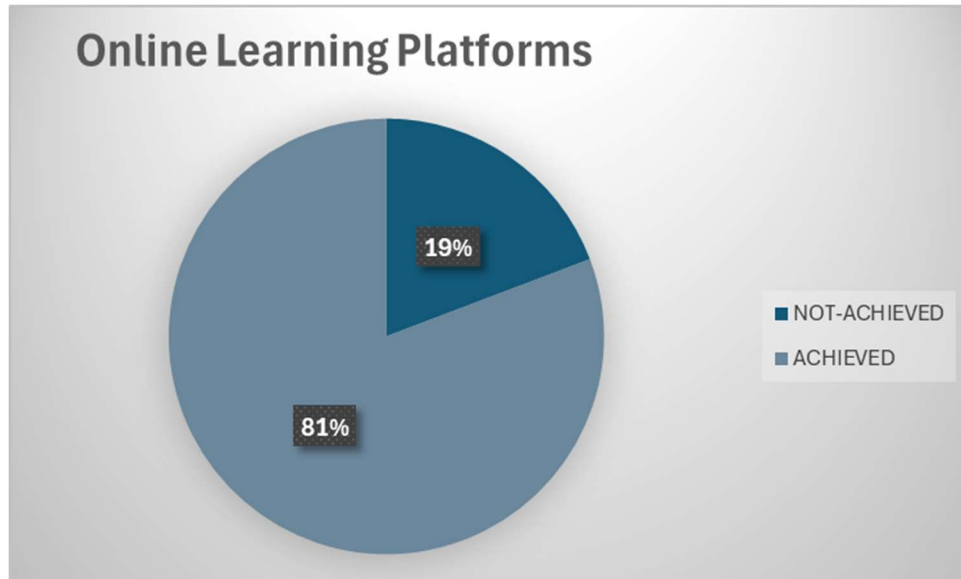
Note. Data collected by Solórzano (2025)

Figure 10 shows that 46 % of the students were able to correctly answer the question: “What is one benefit of online learning platforms?”

This graph shows that less than half of the students were able to indicate a specific detail of the passage.

Figure 25 Item 11

Why is Microsoft Read Aloud helpful to students?



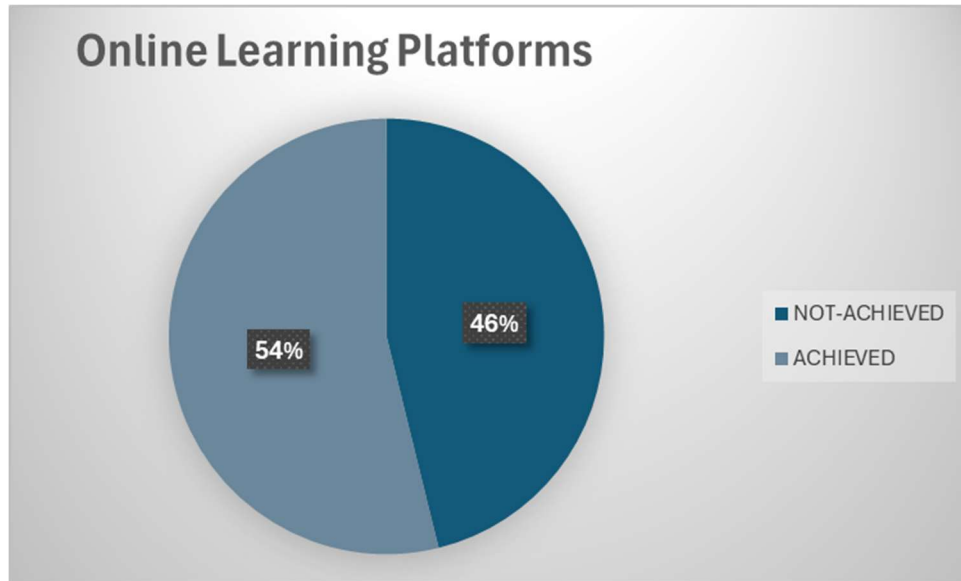
Note. Data collected by Solórzano, 2025.

Figure 24 shows that 81 % of the students were able to correctly answer the question: “Why is Microsoft Read Aloud helpful to students?”

This graph shows that most students located the correct example, demonstrating understanding of concrete details.

Figure 26 Item 12

What challenge do many public institutions face?



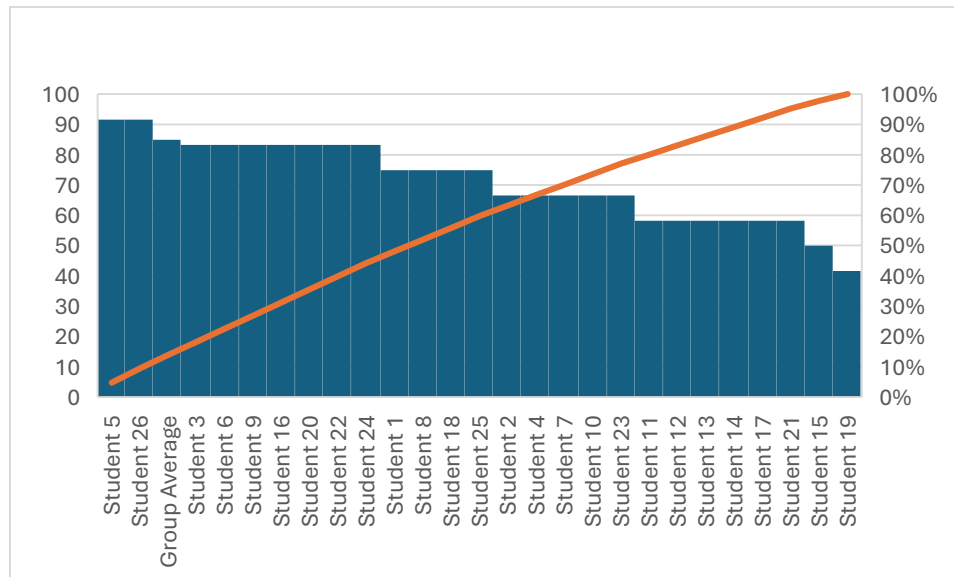
Note. Data collected by Solórzano, 2025.

Figure 25 shows that 81 % of the students were able to correctly answer the question: “What challenge do many public institutions face?”

This graph shows that students identified the challenge many public institutions face, showing grasp of the passage’s central message.

Figure 27

Grades obtained by each student in the post-test



Note. Data collected by Solórzano, 2025.

The graph above shows the individual scores of 26 students in the post-test. As demonstrated in figure 26. The class average performance was 85, suggesting a minimal decline in overall performance after the strategy was applied. This result may indicate that while some students improved, others did not benefit as expected, balancing the average downward.

One student achieved the highest score of 92, demonstrating excellent comprehension of main ideas and specific details. A group of eleven students grouped at 83, showing medium high comprehension of the short passages.. Several students scored in the 75-point range, showing they are on track but with some areas for improvement. At the lower end, a group of students scored between 58 and 67, while one student scored 50 and another fell to 42, indicating persistent challenges in comprehending both key details and overall main ideas.

Table 8

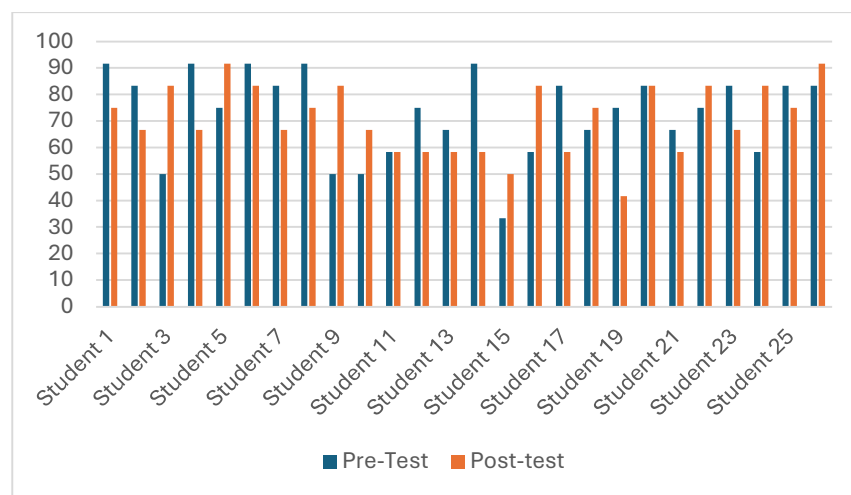
Student	Grade Obtained
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Student 8	75
Student 9	83,33
Student 10	66,67
Student 11	58,33
Student 12	58,33
Student 13	58,33
Student 14	58,33
Student 15	50
Student 16	83,33
Student 17	58,33
Student 18	75
Student 19	41,67
Student 20	83,33
Student 21	58,33
Student 22	83,33
Student 23	66,67

Student 24	83,33
Student 25	75
Student 26	91,67

Note. Data collected by Solórzano (2025)

Figure 28

Comparison of pre-test and post-test results



Note. Data collected by Solórzano, 2025.

The comparison of pre-test and post-test results for the 26 students reveals mixed outcomes, with relevant improvement cases as steady and case which declined. Although the group average decreased slightly from 87 to 85, individual performances can also be seen.

Almost half of the participants demonstrated important progress. For example, student 3 improved from 50 to 83.3, student 9 displayed an improvement from 50 to 83.3, and both Student 16 and 24 from 58.3 to 83.3. These results show substantial improvement in their ability to identify main ideas and specific details. Similarly, Student 5 advanced

from 75 to 91.7, and Student 26 from 83.3 to 91.7, reaching the highest achievement levels in the group. Other positive cases include Student 10 (50 to 66.7), Student 15 (33.3 to 50), Student 18 (66.7 to 75), and Student 22 (75 to 83.3), all of whom demonstrated considerable growth.

On the other hand, several students experienced a decline in performance. Among those who began with strong results, Student 1 dropped from 91.7 to 75, Student 4 from 91.7 to 66.7, Student 6 from 91.7 to 83.3, Student 7 from 83.3 to 66.7, Student 8 from 91.7 to 75, Student 14 from 91.7 to 58.3, Student 17 from 83.3 to 58.3, Student 19 from 75 to 41.7, Student 21 from 66.7 to 58.3, Student 23 from 83.3 to 66.7, and Student 25 from 83.3 to 75. Despite these declines, many of these students still remained in mid-to-high performance ranges, suggesting that the drop may be tied to specific challenges with the post-test passages rather than the use of the strategy implemented.

In closing, the data shows that 10 students improved, 2 maintained their scores, and 14 experienced declines. The improvements highlight the intervention's potential benefits for reading comprehension. However, the declines among higher-scoring students suggest the need for additional strategies and alternatives to avoid further decline among the students.

4.1.2 Description of data of the second specific objective

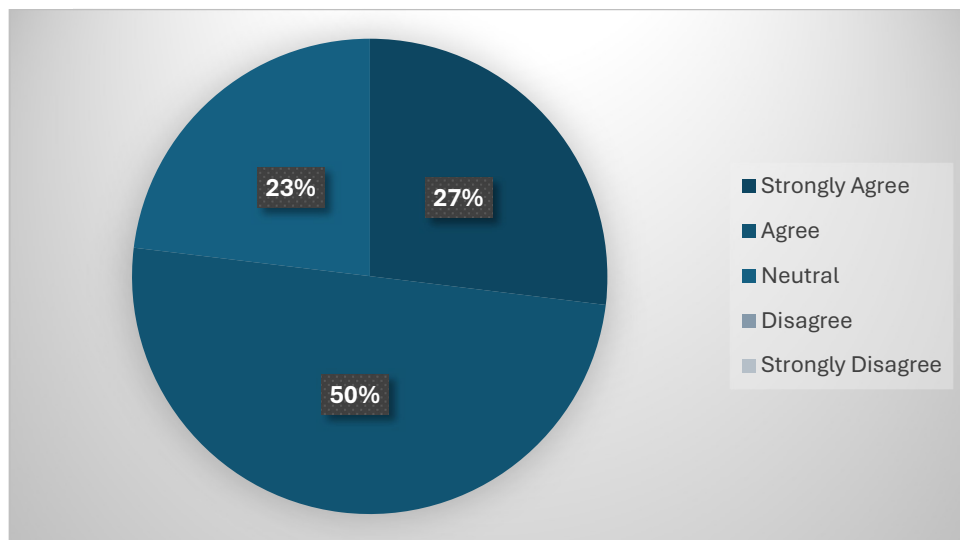
To validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages 2 instruments were applied. First a self-assessment questionnaire was given to students after each of the

sessions in which the strategy was applied. The results are closely analyzed and compared below.

The first statement was: I understood the short passage better thanks to Microsoft Read Aloud. The graph below reflects their responses.

Figure 29

I understood the short passage better thanks to Microsoft Read Aloud.



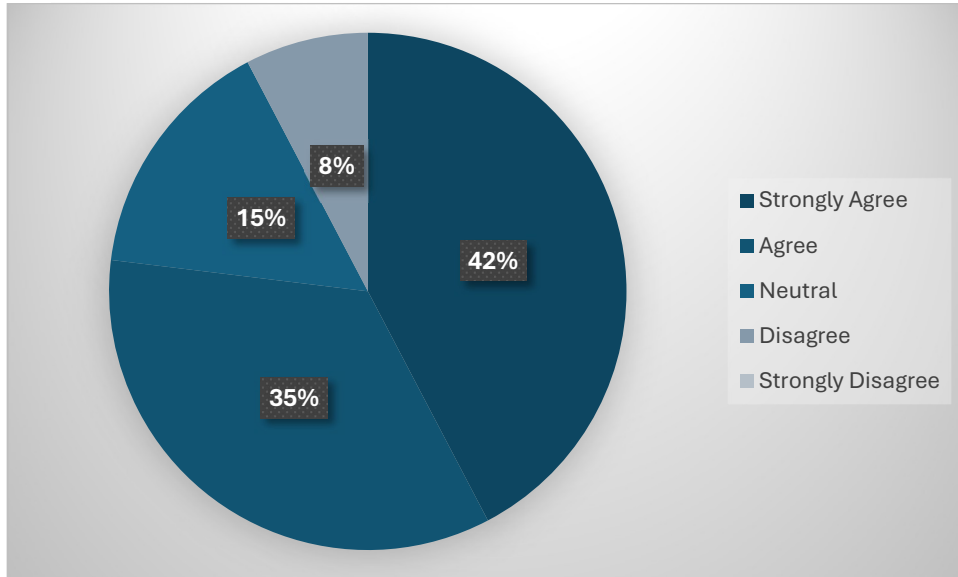
Note. Data collected by Solórzano, 2025.

The gathered data shows that most of the students believe that the tool is helpful when it comes to understanding a passage better. Particularly, 50% percent of the students agree and 27% strongly agree with the statement, which is a combined total of 67% positive responses. A 23% percent of the students are neutral and neither of the participants disagree with the statement.

The second statement was if Microsoft Read Aloud helped me identify the main idea if a short passage

Figure 30

Microsoft Read Aloud helped me identify the main idea if a short passage



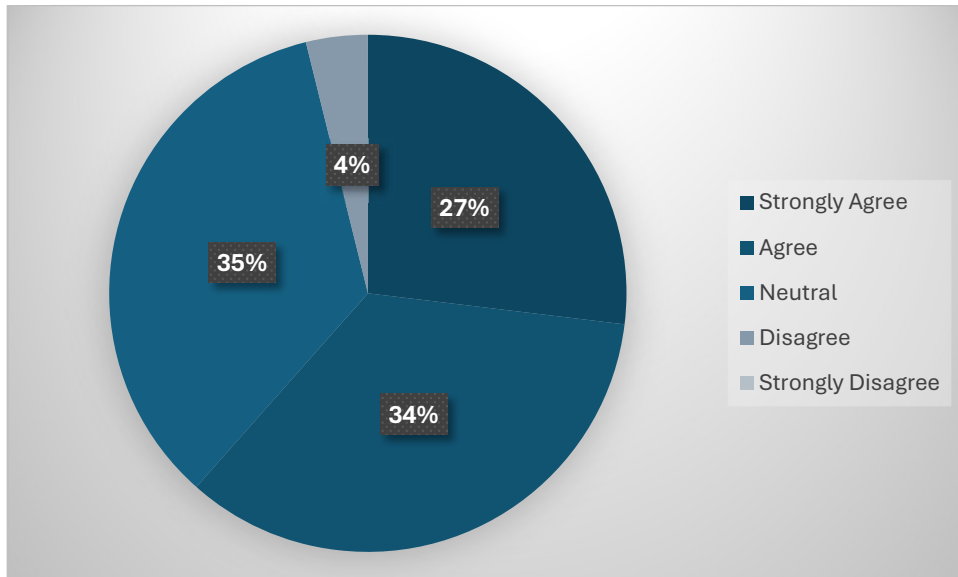
Note. Data collected by Solórzano, 2025.

The results disclosed generally positive reviews as students tool supported them in identifying the main idea of a passage, 67% again responded positively, 15% were neutral, and only 8 expressed disagreement. These suggest that the Microsoft Read Aloud tool is effective in helping students identify higher-order comprehension skills such as grasping the overall main idea of a passage.

The third statement Microsoft Read Aloud helped me identify specific details also had positive responses.

Figure 31

Microsoft Read Aloud helped me identify specific details.



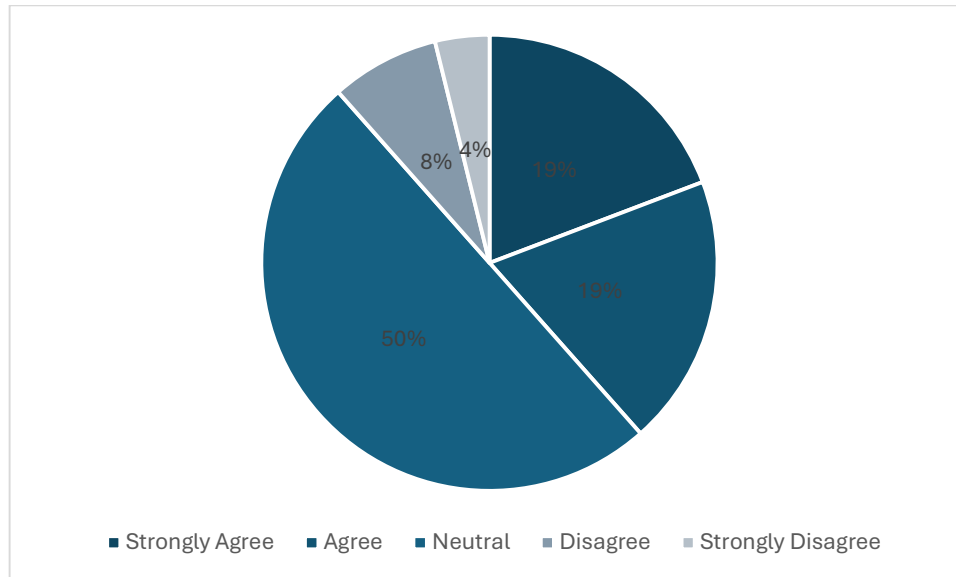
Note. Data collected by Solórzano, 2025.

A total of 27% of the students agree that Microsoft is a valuable aid to identify specific details. Moreover, 34% agree with the statement. Nevertheless, 35% of students are neutral and 4% strongly disagree. In conclusion, even though the responds are positive the increase of neutral responses shows that some learners may not really of Microsoft Read aloud Tool to help them identify specific details on passages.

The fourth statement was if I was more engaged in the reading activity than usual.

Figure 32

I was more engaged in the reading activity than usual



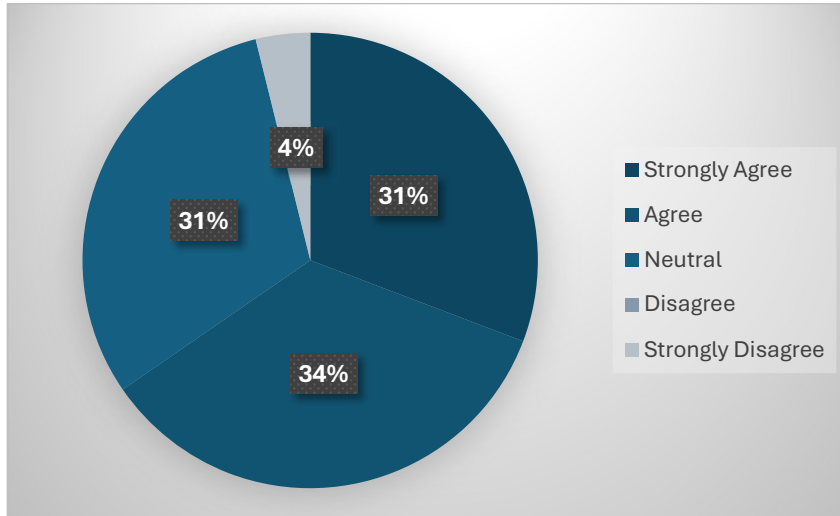
Note. Data collected by Solórzano, 2025.

Regarding student engagement the collected data responses have mixed results. Since under half of the students agreed that they were more engaged in the reading activity than usual. Half of the participants were neutral and 12% of the students disagreed with the statement. Engagement therefore emerges as the weakest area, suggesting that while Microsoft Read Aloud improves comprehension, it may not automatically increase student motivation or interest in the reading task.

The fifth and last statement was I would like to continue using Microsoft Read Aloud in future lessons.

Figure 33

I would like to continue using Microsoft Read Aloud in future lessons.



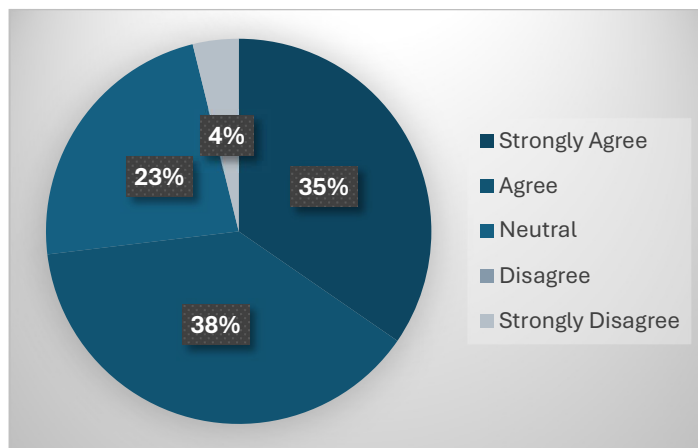
Note. Data collected by Solórzano, 2025.

. More than half of the participants (57%) expressed interest in continuing using Microsoft Read Aloud in English lessons, 27% remained neutral. This data suggests overall acceptance of the tool.

For the second self-assessment some changes were presented. The first statement was: I understood the short passage better thanks to Microsoft Read Aloud. The graph below reflects their responses.

Figure 34

I understood the short passage better thanks to Microsoft Read Aloud.

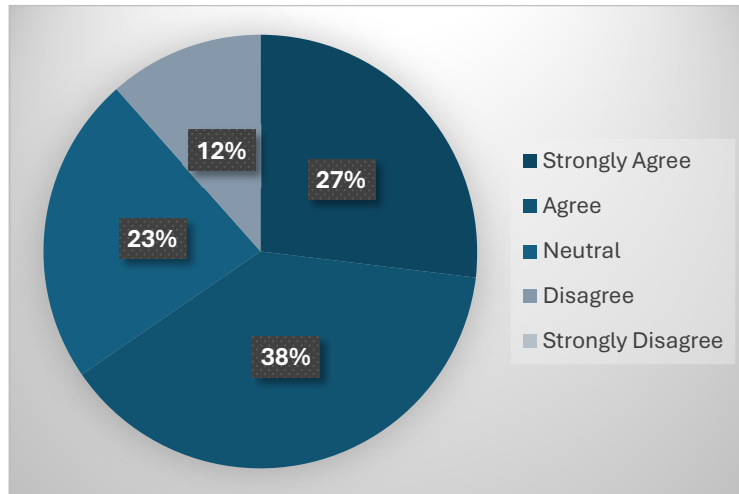


Note. Data collected by Solórzano, 2025.

The results of this statement show generally positive perceptions of the strategy as 35% of the students agree and 35 agree, which adds up to 73% of acceptance among students. In addition, a low percentage of students strongly disagree with 4% and 23% of the students remained neutral.

Figure 35

Microsoft Read Aloud helped me identify the main idea if a short passage



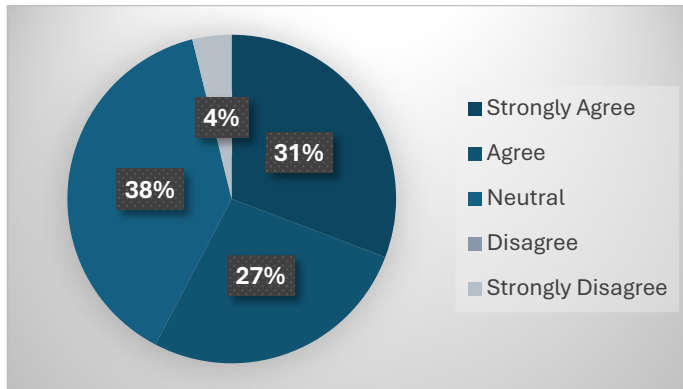
Note. Data collected by Solórzano, 2025.

When asked of the tool aid them to find main ideas of short passages a combined percentage of 65% if students agree with the statement. However, 12% of students disagree and 22% remained neutral.

The third statement Microsoft Read Aloud helped me identify specific details also had positive responses.

Figure 36

I would like to continue using Microsoft Read Aloud in future lessons.

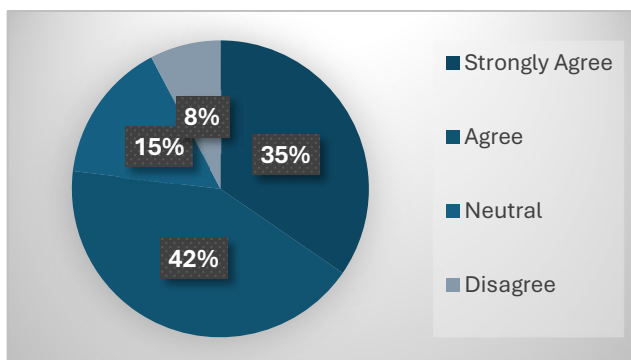


Note. Data collected by Solórzano, 2025.

When focusing on detail recognition, results were slightly less favorable but still leaned positively. Over half of the students agreed that Microsoft Read Aloud helped them identify specific details, while 38% remained neutral, and only one student 4% disagreed. The fourth statement was if I was more engaged in the reading activity than usual.

Figure 37

I was more engaged in the reading activity than usual



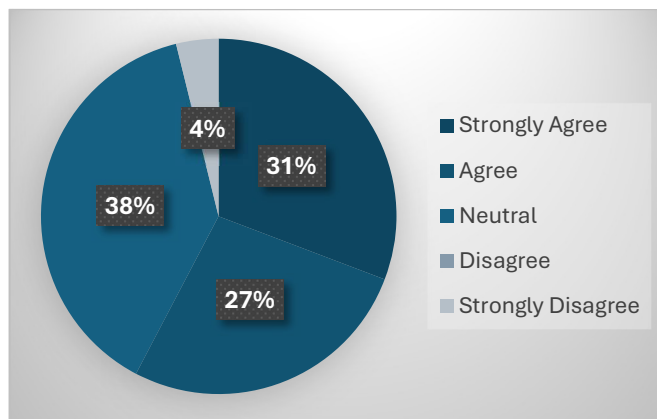
Note. Data collected by Solórzano (2025)

The collected gather showed very positive results as a 77% percent of the participants agreed, 15% remained neutral and 8% disagreed.

The fifth and last statement was I would like to continue using Microsoft Read Aloud in future lessons.

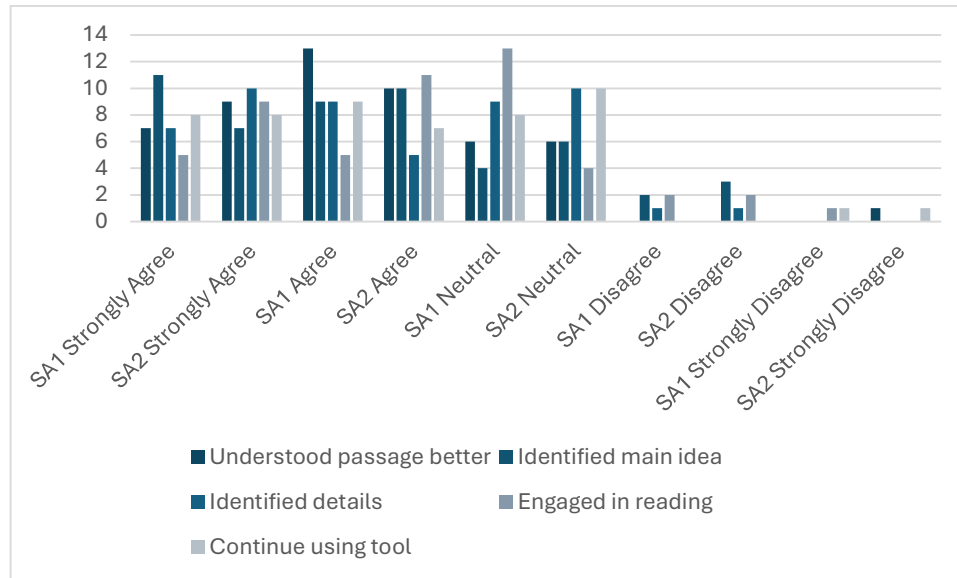
Figure 38

I would like to continue using Microsoft Read Aloud in future lessons.



Note. Data collected by Solórzano, 2025.

Finally, students' openness to future use of the tool reflects generally favorable attitudes. More than half of the respondents 58% expressed interest in continuing to use Microsoft Read Aloud in subsequent lessons, 38% remained neutral, and only 4% disagreed. This finding suggests overall acceptance of the tool, though not all learners may see it as indispensable.

Figure 39*Student Self-Assessment on Reading Comprehension Using Microsoft Read Aloud**Tool*

Note. Data collected by Solórzano, 2025.

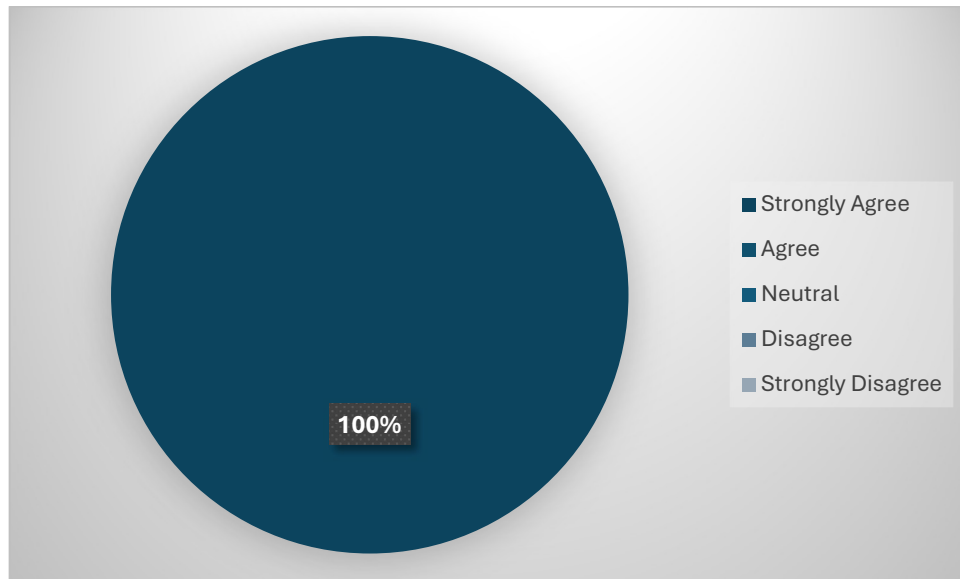
According to the graph above, responses between the first and second self-assessment remained steady. Positive results stayed high (around 60%), neutrals remained significant (29%), and negatives increased only slightly (from 5% to 8%). The biggest shift occurred in engagement, where students moved from mostly neutral in the first self-assessment to largely positive in the second one, suggesting the tool becomes more motivating with repeated use. However, for comprehension-related items such as understanding of the passage, main idea and specific details identification showed a minor decline in positive responses and a small increase in disagreement.

To continue analyzing the third objective a teacher survey was presented to the teacher in charge of the group. The objective of the survey was to know the teacher's

opinion to validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages.

Figure 40

Microsoft Read Aloud is easy to implement in reading lessons

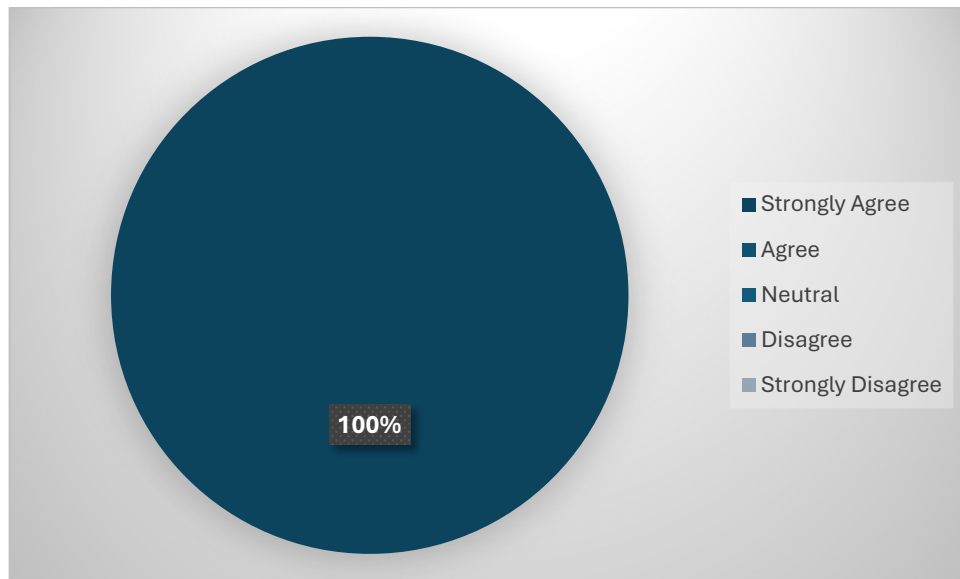


Note. Data collected by Solórzano, 2025.

The data collected from the teacher displays that she finds the tool easy to implement in reading lessons.

Figure 41

The tool helps students improve their reading comprehension

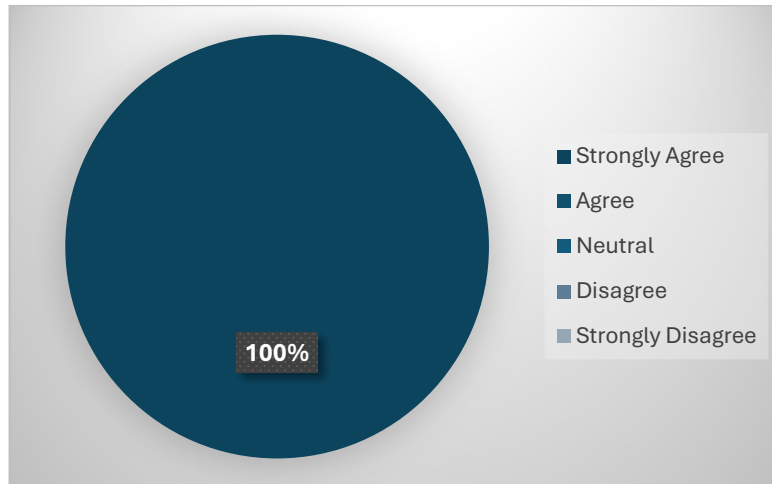


Note. Data collected by Solórzano, 2025.

The results gathered showed that the teacher agrees with the statement that the tool helps students improve their reading comprehension

Figure 42

Students are more engaged when using the Microsoft Read Aloud tool.

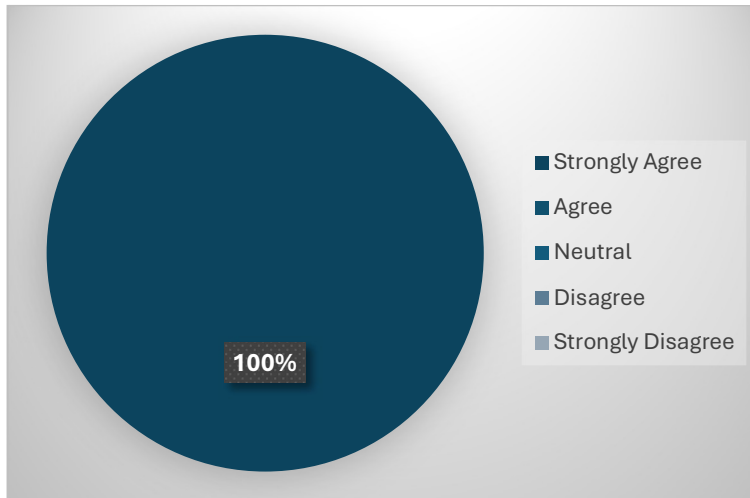


Note. Data collected by Solórzano, 2025.

The graph above shows that the participant feels students are engaged when using Microsoft Read Aloud.

Figure 43

I feel more engaged in my reading lessons when using Microsoft Read Aloud.

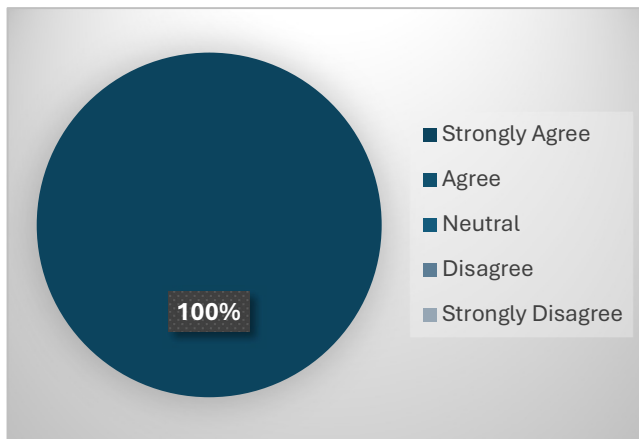


Note. Data collected by Solórzano, 2025.

The results show that the teacher strongly feels more engaged in her reading lessons when using Microsoft Read Aloud.

Figure 44

I feel confident using the Microsoft Read Aloud tool

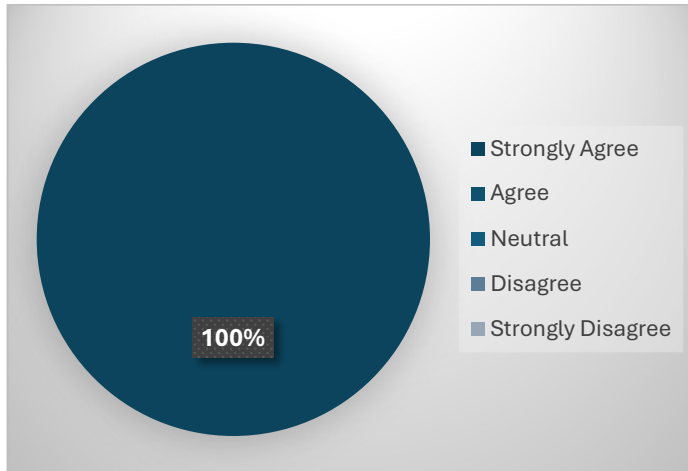


Note. Data collected by Solórzano, 2025.

The above graph reveals that the teacher feels confident using the Microsoft Read Aloud tool

Figure 45

I would like to continue using Microsoft Read Aloud in future lessons



Note. Data collected by Solórzano, 2025.

Finally, the collected response shows that the teacher would like to continue using Microsoft Read Aloud in future lessons

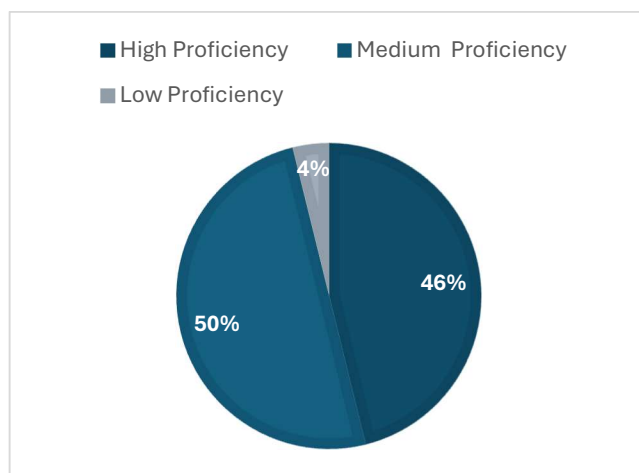
4.1.3 Description of data of the third specific objective

To establish students' proficiency in reading comprehension skills using short passages that focus on understanding main ideas and details a further analysis to the pre and posttest had to be done. The results obtained were analyzed and classified accordingly to find whether students show improvement. In addition, the student's proficiency was established High (>70%), Medium (50–75%), Low (<50%)

Data collected reveal that half of the class showed medium proficiency while 46% achieved high proficiency. Only 4% of the students were assessed at low proficiency. This shows that even though almost half of the participants have strong reading comprehension skills, the largest portion was in the medium range, showing room for improvement.

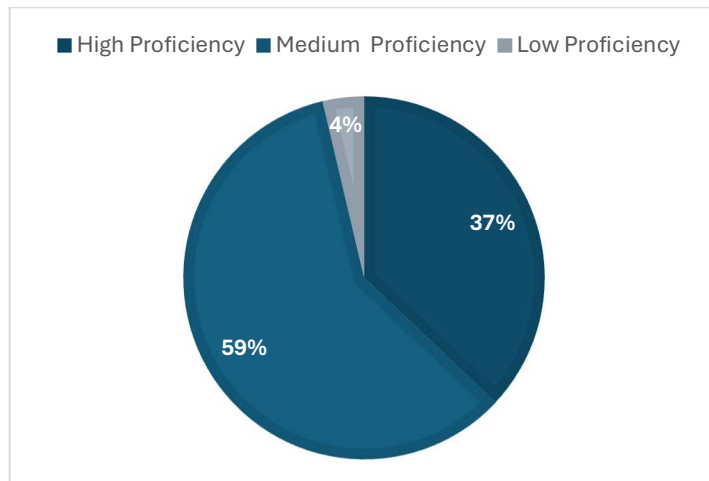
Figure 46

Pre-Test

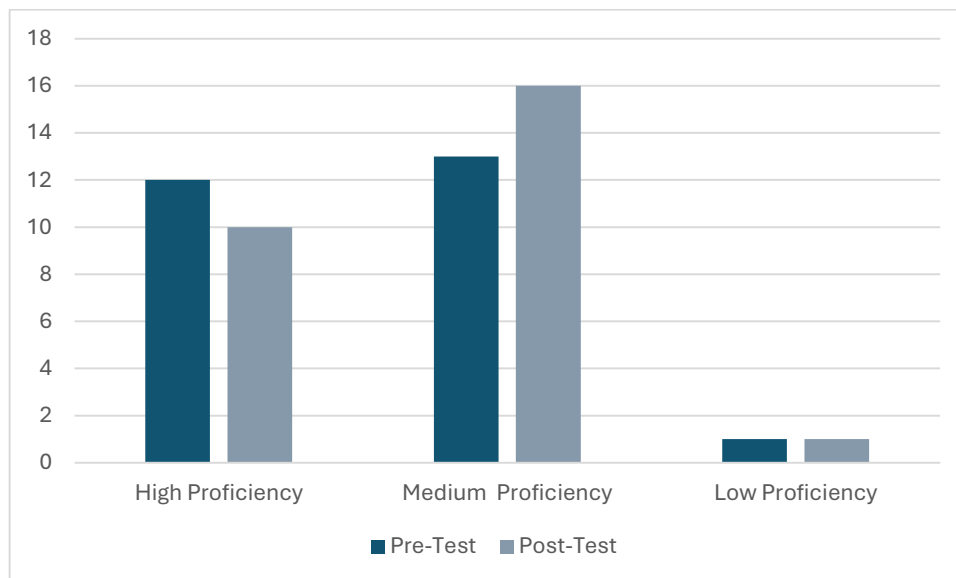


Note. Data collected by Solórzano, 2025.

In the graph below we can see that the data gathered that medium proficiency grew by 9%, by a total of 9%. On the other hand, high proficiency decreased by 9% and low proficiency stayed at 4%. In conclusion, there is a decrease into the high range, with a increase in the number of medium proficiencies.

Figure 47*Post-Test*

Note. Data collected by Solórzano, 2025.

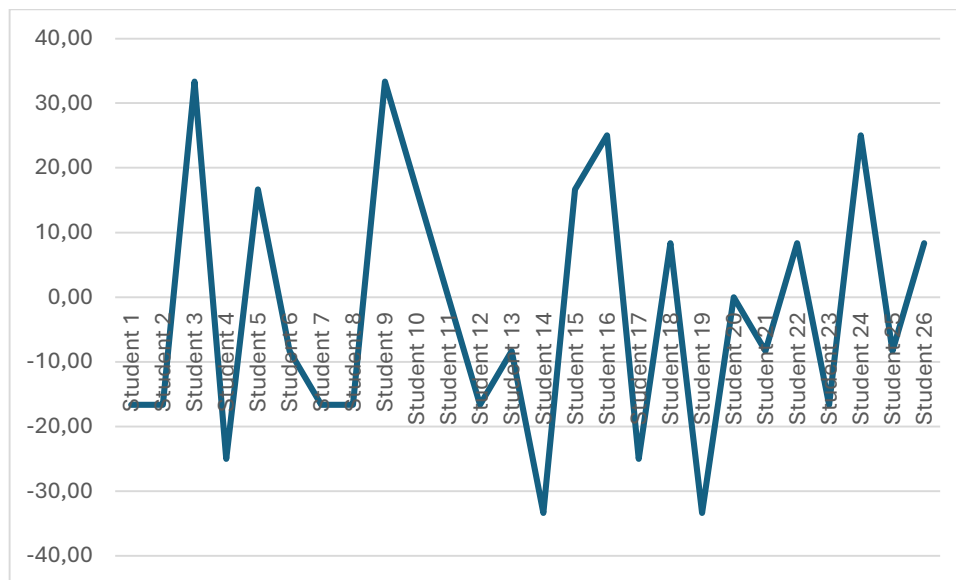
Figure 48*Students Proficiency*

Note. Data collected by Solórzano, 2025.

The graph above shows that after the 4 sessions using the Microsoft read aloud tool there was not a significant overall improvement in the participants reading comprehension skills in main ideas and specific details.

Figure 49

Difference in score per student



Note. Data collected by Solórzano, 2025.

Regarding individual scores, the graph below shows that although several participants benefited from the intervention, the average grades of the class did not increase meaningfully.

**CHAPTER V: CONCLUSIONS AND
RECOMMENDATIONS**

5.1.1 Introduction

This chapter presents the discoveries of this investigation, as well as important factors to its implementation. The conclusions are organized according to the three specific objectives established in Chapter One and are supported by the data collected and analyzed in Chapter Four. These conclusions deliver relevant information on the effectiveness of implementing the Microsoft Read Aloud Tool in English classes. In addition, the chapter includes a set of recommendations for teachers, educational institutions, and future researchers. These recommendations are directly linked to the conclusions drawn and are intended to inform of the best practices for integrating text-to-speech software into reading comprehension education.

5.1.2 Conclusions for the first specific objective

The first objective was to compare the changes in reading comprehension levels after and before the instruments were applied. In order to measure these changes, the investigator administered a pretest to measure the student's comprehension level, and afterwards a posttest which aimed to measure any changes in the student's reading comprehension after the strategy was applied. This analysis delivered key insights into the effectiveness of Microsoft Read Aloud in enhancing reading comprehension among tenth-grade students at Ciudad de Niños high school . The data revealed a mixed pattern of result. Students were categorized into three ranges based on their scores: High (70% and above), Medium (50% to 69%), and Low (below 50%). On the pre-test, 17 students fell into the High category, 6 into the Medium, and 3 into the Low. After the strategy was applied, 14 students reached the High Band, 8 were in the Medium, and 4 in the Low range. While some of the participants showed improvement, other students remained stable or

experienced a decline in their grades. As a group, the number of students classified as high proficiency decreased from 46% in the pre-test to 37% in the post-test. In comparison, the medium proficiency group grew from 50% to 59%, and the low proficiency group increased remained the same.

These results suggest that although Microsoft Read Aloud can be effective for some learners, it does not guarantee consistent improvement across an entire class. The redistribution of students between categories points to differences in how individuals interact with and benefit from the tool.

The results also suggest that short-term interventions using Microsoft Read Aloud may not be enough to produce substantial improvement. Although the tool was helpful for some learners, it did not affect effectively to the majority of the participants. In conclusion, Microsoft Read Aloud demonstrates potential as an instructional tool but requires complementary strategies to maximize its effectiveness across a diverse group of learners.

5.1.3 Conclusions for the second specific objective

The second objective aimed to gather feedback from both the students and teacher to validate the tool's usability. This was conducted through the use of two instruments: student self-assessments and a teacher interview. These instruments shed light on how the tool was perceived in terms of usefulness, engagement and overall implementation during English classes. The data collected using the teacher interview resulted in a positive perception of the Microsoft Read Aloud tool as the teacher strongly agreed with the 6 statements presented in the instrument. Following the data we can establish that the tool was considered easy to implement in reading lessons and was effective when supporting

students reading comprehension tasks. In addition, an increase in students' engagement was perceived by the teacher as well as an overall recommendation on using the tool in future reading classes.

Besides the teacher interview, two self-assessments were provided for students after sessions 2 and 3. This instrument was applied with the purpose of measuring the student's perception of the tool. Both self-assessments had the same indicators allowing a direct comparison between both. The self-assessment focused on the tool's impact on students' comprehension of short passages, willingness to continue using the tool in English classes, engagement using the tool and the ability to identify both main ideas and specific details.

According to the data collected there was a 38.4% increase in student engagement as 10 students out of 26 found the tool engaging, but that increased to 20 in the second assessment. This finding points that the Microsoft Read aloud tool is a useful tool to capture students' attention and overall engagement when doing reading tasks. In addition, more than half of the students chose in both assessments that they would like to continue using the tool.

In conclusion, the data gathered showed that Microsoft Read Aloud is a viable and potentially useful resource for reading comprehension learning. Both the teacher and students believed that the tool increased engagement by making texts more dynamic and would like to use the tool in the future

5.1.4 Conclusions for the third specific objective

The third objective aimed to assess the reading comprehension proficiency based on their ability to understand main ideas and specific objectives in short passages. The aim

was not only to determine whether comprehension improved after exposure to this technology-enhanced learning (TEL) tool, but also to classify students within internationally recognized benchmarks, specifically the Common European Framework of Reference for Languages (CEFR). Through the application of the same 12-question test at both the pre- and post-intervention stages, students' performance was assessed, allowing for a deeper analysis of their level of understanding regarding main ideas and specific supporting details. These instruments revealed important insights into the overall reading comprehension abilities of the class. To categorize proficiency, levels were defined using three score ranges: High proficiency (70% and above), Medium proficiency (50% to 69%), and Low proficiency (below 50%). To establish their CEFR level, students' performance was categorized based on percentage ranges. Students scoring below 50% were placed in the A1–A2 (basic user) range. Scores between 50% and 75% aligned with B1 and scores above 75% were considered B1+ .

During the pre-test, 14 students demonstrated B1+ level comprehension, meaning they were able to consistently identify the central message of a text and differentiate between key information and supporting details. Nine students were classified at the B1 level, indicating that while they could grasp the general meaning, they occasionally lack understanding of specific details in the texts. Three students were classified at A2 as they scored below 50%. These students displayed difficulties understanding basic main ideas and specific details in short passages.

Analysis of the post-test results revealed a relatively stable proficiency distribution. This indicates that most learners demonstrated an intermediate ability to identify main ideas and details in short passages.

Although there was a decrease in the percentage of students in the high-proficiency category, the results suggest that Microsoft Read Aloud provided a stabilizing effect for medium- and low-level learners, preventing further regression. Students who entered at the medium level generally maintained or slightly improved their performance, which highlights the tool's potential in sustaining comprehension. However, the fact that fewer students achieved high proficiency in the post-test raises questions about the tool's capacity to extend advanced learners' skills.

The results of this study confirm that most students consistently demonstrated B1 or B1+ reading proficiency, reflecting a solid command of identifying main ideas and details in short passages. Microsoft Read Aloud proved effective in supporting students and prevent regression.

5.3 RECOMMENDATIONS

According to the conclusions described above, the investigator will give recommendations aligned on teaching English as a second language (ESL) based on the implementation of the Microsoft Read Aloud Tool within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños during the second quarter of 2025.

5.3.1 Recommendations for the First Specific Objective

As not all learners improved after using Microsoft Read Aloud, it is strongly recommended to increase the frequency and duration of its use. For example, this investigation used the tool for one hour in a frequency of every 2 weeks. More consistent

use of the tool will allow learners to gradually adapt to the tool and strengthen their comprehension skills. To further help this adaptation is recommended to use only one voice setting as changing voices will make students adaptation slower and might interfere with their understanding.

To strengthen the effectiveness of Microsoft Read Aloud, teachers can implement motivational strategies and complementary reading strategies. Motivational strategies such as providing prizes, conducting games and ice breaker activities related to reading topics. The use of reading strategies such as summarizing, activating prior knowledge and graphic organizing will promote a deeper understanding of the text.

Finally, having students being able to use the tool individually will ensure students are able to select the speed that is more convenient for the understanding of the reading.

5.3.2 Recommendations for the Second Specific Objective

As the Microsoft Read aloud tool was seen with positivity by both the teacher and students a further training on the tool is recommended. For example, workshops and practical sessions can aid teachers to feel more confident and therefore to increase the use of the tool in classes.

Training should also emphasize the different uses of the tool and the exposure of different materials and accents. This will benefit both teachers and students as they dive into the different possibilities of the tool.

5.3.3 Recommendations for the Third Specific Objective

Additional investigations are recommended to expand and include different and broader student population and obtain more data. Further exploration of the Microsoft Read

aloud Toll benefits could enrich students' experiences and provide comparative insights into their effectiveness. Some other benefits that could be looked upon include pronunciation support activities to help students acquire and retain key vocabulary, reinforcing both comprehension and oral skills. And using the tool to work on listening skills such as listening for gist, listening for details and predicting content.

Another recommendation is that when using the tool teacher should continue to use performance tracking tools such as checklists and reflection logs to monitor the students' progress and engagement in the tool. This will provide insight of the effectiveness on the tool and to adapt the use along the way.

CHAPTER VI: THE PROPOSAL

6.1 Name of the Proposal

This proposal's title is *The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach to Enhance Reading Comprehension of Short Passages among 10th grade students at colegio Ciudad de Niños during the second quarter of 2025.*

6.2 Description

The current investigation is directed at the population of high school students at Agua Caliente, Cartago. The main objective of this project is to determine the effectiveness of using Microsoft Read Aloud Text-To-Speech software within a Technology-Enhanced Learning (TEL) Approach to enhance reading comprehension of short passages among 10th grade students at Colegio Ciudad de Niños. This project will extend for four nonconsecutive weeks. During the investigation, students will begin developing reading strategies for general understanding by participating in different activities such as warm-up activities where they observe and discuss images of national parks, predicting what the passage will be about. Sharing their ideas and listening to a short passage using Microsoft Read Aloud to support comprehension. students they all complete comprehension questions aimed at identifying main idea and specific details. Finally, learners will create predictions and brief reflection activities, sharing their thoughts about how the Read Aloud tool supported their listening and reading experience.

6.3 Place to be Developed

This research is developed in Ciudad de Niños, Aguacaliente Cartago.

6.4 Population Involved

This research was taken as a sample of 25 tenth grade students This group consists of 26 males, aged between 16 and 18 years old.

6.5 OBJECTIVES OF THE PROPOSAL

6.5.1 General Objective

To determine the effectiveness of using Microsoft Read Aloud Text-To-Speech software within a Technology-Enhanced Learning (TEL) Approach to enhance reading comprehension of short passages among 10th grade students at Colegio Ciudad de Niños.

6.5.2 Specific Objectives

Comparing the changes in reading comprehension levels by comparing pre-test and post-test results to determine the effectiveness of the Microsoft Read Aloud tool.

To validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages.

To establish students' proficiency in reading comprehension skills using short passages that focus on understanding main ideas and details.

6.6 CHRONOGRAM OF ACTIVITIES

Table 9

Session	Activity	Description
1	Diagnostic: Pre-test	In this session students will
	identifying baseline	understand the purpose of
	comprehension (general and	using Microsoft Read Aloud

	specific	Students will demonstrate initial reading strategies and express opinions about new learning tools
2	Students will develop reading strategies for general understanding and complete the self-assessment.	<p>In this session, students will listen to a short passage using Microsoft Read Aloud. Complete comprehension questions focused on main idea and purpose.</p> <p>Compare predictions with actual content.</p> <p>Reflect on listening and reading experience.</p>
3	Students will identify specific details in short passages and complete the self-assessment.	<p>In this session, Students listen to a short passage using Microsoft Read Aloud about the importance of soft skills.</p> <p>They complete comprehension questions focused on identifying details, such as examples of soft skills mentioned, their benefits, and how they differ from technical skills.</p>

4	To evaluate improvement in reading comprehension and gather teacher feedback on tool usage	Students complete the post-test independently Complete a reflection form about the Read Aloud experience Teacher leads a closing discussion on their learning process. The teacher will complete the teacher interview.
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ANNEXES

Appendix A: Pre-Test

Universidad Hispanoamericana	
Teacher: Nathalie Solorzano	Date:
Tutor: María José Herrera	
Student's Name:	
<p>Objective #1 : To establish students' proficiency in reading comprehension skills using short passages that focus on understanding main ideas and details</p>	
<p>Indicators of Measurement:</p> <p>Ability to identify main ideas in short texts</p> <p>Ability to locate specific details within a passage</p>	
<p>Instructions: This test consists of several short passages followed by multiple-choice questions. For each question, select the answer that best reflects the information in the passage.</p>	
<p>Passage 1: Costa Rica and Biodiversity</p> <p>Costa Rica is known for its incredible biodiversity. Despite its small size, it contains approximately 6% of the world's species. Its geographic location and tropical climate contribute to its ecological richness, attracting scientists and nature lovers from all over the globe.</p> <p style="text-align: center;">What percentage of the world's species is found in Costa Rica?</p>	

a) 10%

b) 6%

c) 0.6%

d) 20%

Why does Costa Rica have such high biodiversity?

a) Industrial development

b) Tropical climate and geographic location

c) Urban tourism

d) Agricultural exports

What type of people are mainly attracted to Costa Rica because of its biodiversity?

a) Scientists and nature lovers

b) Industrialists and miners

c) Commuters and urban planners

d) Politicians and educators

Passage 2: Tourism and the Economy

Tourism is one of the most significant contributors to Costa Rica's economy. Eco-tourism, focusing on conserving natural areas, has attracted millions of visitors. This

practice also ensures employment for local communities and supports environmental protection.

Questions:

What type of tourism is Costa Rica most famous for?

- a) Historical tourism
- b) Eco-tourism
- c) Urban tourism
- d) Luxury tourism

How does eco-tourism help the environment?

- a) By encouraging visitors to stay indoors
- b) By conserving natural areas
- c) By promoting urban development
- d) By discouraging community employment

What benefit does eco-tourism offer local communities?

- a) Fewer tourists
- b) Environmental neglect
- c) Employment opportunities

d) Decline in trade

Passage 3: Technology in Education

Costa Rica has made strides in integrating technology into education. Programs like “Hogar Conectado” ensure students, especially those in rural areas, have access to the internet and digital resources to enhance their learning experience.

What does the program “Hogar Conectado” aim to do?

- a) Build more schools
- b) Offer scholarships for higher education
- c) Provide internet access to families
- d) Promote sports development

Who benefits most from programs like “Hogar Conectado”?

- a) Urban students
- b) Rural students
- c) International students
- d) Business professionals

Why is access to the internet important for education?

- a) It reduces student interaction
- b) It provides tools for digital literacy

c) It encourages reliance on computer.

d) It eliminates the need for books.

Passage 4: Soft Skills in Education

Employers worldwide value soft skills such as teamwork, adaptability, and communication. In Costa Rica, education programs have increasingly prioritized teaching these skills to better prepare students for dynamic workplaces.

What is an example of a soft skill?

a) Teamwork

b) Coding

c) Data entry

d) Typing

Why are soft skills important?

a) They improve software knowledge

b) They reduce the need for education

c) They help individuals work effectively with others

d) They promote technical certification

What have Costa Rican education programs focused on in recent years?

a) Teaching foreign languages exclusively

b) Prioritizing technical skills over all else

- c) Developing students' soft skills
- d) Expanding agricultural programs

Appendix B: Post-Test

Universidad Hispanoamericana	
Teacher: Nathalie Solorzano	Date:
Tutor: María José Herrera	
Student's Name:	
Objective #3 : To compare the changes in reading comprehension levels by comparing pre-test and post-test results to determine the effectiveness of the Microsoft Read Aloud tool	
Indicators: Ability to identify main ideas in short texts Ability to locate specific details within a passage	
Instructions: This test consists of several short passages followed by multiple-choice questions. For each question, select the answer that best reflects the information in the passage	
Objective: To evaluate the reading comprehension improvement after using Microsoft Read Aloud	
Passage 1: The Value of Soft Skills	

Employers worldwide value soft skills such as teamwork, adaptability, and communication. In Costa Rica, education programs have increasingly prioritized teaching these skills to better prepare students for dynamic workplaces.

Questions:

What is an example of a soft skill?

- a) Teamwork
- b) Coding
- c) Data entry
- d) Typing

Why are soft skills important?

- a) They improve software knowledge
- b) They reduce the need for education
- c) They help individuals work effectively with others
- d) They promote technical certification

What have Costa Rican education programs focused on in recent years?

- a) Teaching foreign languages exclusively
- b) Prioritizing technical skills over all else
- c) Developing students' soft skills

- d) Expanding agricultural programs

Passage 2: Sustainable Tourism in Costa Rica

Costa Rica's eco-tourism initiatives promote sustainable practices such as limiting waste, using renewable energy, and preserving natural resources. These efforts have helped Costa Rica maintain its global reputation as an environmental leader.

Questions:

What sustainable practice is emphasized in eco-tourism?

- a) Building large hotels
- b) Using renewable energy
- c) Deforestation
- d) Mass transportation

What does eco-tourism in Costa Rica aim to preserve?

- a) Tourist zones
- b) Urban areas
- c) Natural resources
- d) Farming practices

What has eco-tourism done for Costa Rica globally?

- a) Reduced the number of tourists visiting

- b) Maintained its reputation as an environmental leader
- c) Increased industrial waste
- d) Discouraged wildlife protection

Passage 3: Technology in Agriculture

In Costa Rica, farmers are using technology like sensors and drones to monitor crop health, optimize water use, and increase sustainability. These innovations have made farming more efficient while minimizing environmental damage.

Questions:

What technology is commonly used in Costa Rican agriculture?

- a) Solar panels for homes
- b) Drones and sensors
- c) Tablets for teaching
- d) Large-scale mining equipment

What is one benefit of using technology in farming?

- a) Higher water usage
- b) Improved crop health
- c) Reduced agricultural knowledge
- d) Increased deforestation

How does technology support sustainability in agriculture?

- a) By improving soil management
- b) By limiting plant growth
- c) By relying on non-renewable resources
- d) By eliminating traditional farming

Passage 4: Online Learning Platforms

The rise of online learning platforms has transformed education worldwide. In Costa Rica, many students now use tools like Microsoft Read Aloud to improve comprehension and access materials independently, especially in public institutions with limited resources.

What is one benefit of online learning platforms?

- a) More expensive books
- b) Reduced access to materials
- c) Independent learning
- d) Increased classroom attendance

Why is Microsoft Read Aloud helpful to students?

- a) It distracts them from reading
- b) It reads texts out loud to improve comprehension
- c) It limits access to printed materials
- d) It blocks online resources

What challenge do many public institutions face?

- a) Too many online platforms
- b) Excessive teacher training

<p>c) Limited resources</p> <p>d) Too many printed books</p>
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Appendix C: Teacher Interview

Universidad Hispanoamericana					
Teacher: Nathalie Solorzano			Date:		
Tutor: María José Herrera					
Student's Name:					
Objective#2: To validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages					
Indicators: Usability of the Microsoft Read Aloud tool					
Instructions: Please indicate the degree to which you agree with the following statements using the scale below: 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree					
Indicators	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Microsoft Read Aloud was easy to implement in reading lessons.					
Microsoft Read Aloud was easy to implement in reading lessons.					

I observed that students were more engaged when using Microsoft Read Aloud.					
The tool effectively supported students' understanding of short passages.					
Using the tool made it easier to manage reading activities in class.					
I would recommend using Microsoft Read Aloud in future lessons.					

Appendix D: Self-Assessment

Universidad Hispanoamericana					
Teacher: Nathalie Solorzano			Date:		
Tutor: María José Herrera					
Student's Name:					
Objective #2: To validate the handling of Microsoft Read Aloud Tool during English lessons in terms of its usability in supporting reading comprehension of short passages					
Indicators:					
The usability of Microsoft Reading Tool during English lessons					
Instructions: Read each statement below and think about your experience using Microsoft Read Aloud. Then, mark the option that best reflects how often that statement was true for you					
Indicators	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I understood the short passage better thanks to Microsoft Read Aloud					
Microsoft Read Aloud helped me identify the main idea if a short passage					

Microsoft Read Aloud helped me identify specific details					
I was more engaged in the reading activity than usual					
I would like to continue using Microsoft Read Aloud in future lessons					

Appendix E: Lesson Plans

Institution: Ciudad de los Niños			
Session 1			
Level : 10 th grade		Teacher Nathalie Solorzano	
Assessment Strategies & indicators of learning	Goals	Didactic Sequence	Time
Diagnostic: Pre-test identifying baseline comprehension (general and specific	To Understand the purpose of using Microsoft Read Aloud To Demonstrate initial reading	- Warm-up: Students brainstorm what helps them understand texts in English. - Students complete	10min 20min

	strategies To express opinions about new learning tools	the pre-test independently. - Introduction to Microsoft Read Aloud with sample paragraph. - Wrap-up: Students share their impressions of the tool.	20min 10min
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Institution: Ciudad de los Niños			
Session 2			
Level : 10 th grade		Teacher Nathalie Solorzano	
Assessment Strategies & indicators of learning	Goals	Didactic Sequence	Time
Students will develop reading	To identify the main idea of a short	- Warm-up: Show Images of national	10min

Assessment Strategies & indicators of learning	Goals	Didactic Sequence	Time
Students will identify specific details in short passages	To identify specific details in a passage	<p>- Warm-up</p> <p>Teacher shows images that represent different soft skills (e.g., teamwork, communication, leadership, empathy). Ask students:</p> <p>What do you think these people are doing?</p> <p>Which skills do they need to do their job well?</p> <p>.</p>	10min

		<p>Students listen to a short passage using Microsoft Read Aloud about the importance of soft skills.</p> <p>They complete comprehension questions focused on identifying details, such as examples of soft skills mentioned, their benefits, and how they differ from technical skills.</p> <p>. Reflect on listening and reading experience.</p>	<p>10min</p> <p>20min</p> <p>20</p>
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Institution: Ciudad de los Niños			
Session 4			
Level : 10 th grade		Teacher Nathalie Solorzano	
Assessment Strategies & indicators of learning	Goals	Didactic Sequence	Time
Summative: Post-test comparing progress comprehension (general and specific	To evaluate improvement in reading comprehension and gather student feedback on tool usage	Warm-up: Brief review of strategies practiced - Students complete the post-test independently - Complete a reflection form about the Read Aloud experience - Teacher leads a	15min
			30min
			15min

		closing discussion on their learning process	
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Appendix F: Letters of Expert Validation

A Quien Corresponda

Por medio de la presente, yo, Ronald Lobo Vargas, portador de la cédula de identidad 109650160, profesor de grado en Licenciatura, con 27 años de experiencia en el ámbito educativo, hago constar que he revisado y analizado los instrumentos e insumos del proyecto de investigación titulado:

"The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach Enhancing Reading Comprehension of Short Passages among 10th Grade Students at Colegio Ciudad de Niños during the Second Quarter of 2025".

Tras evaluar la relación y consistencia entre ambos, concluyo que existe una adecuada correlación entre los insumos proporcionados y los instrumentos de recolección de datos, garantizando así su validez para alcanzar los objetivos propuestos en la presente investigación.

Algunas pequeñas observaciones pueden leerse a continuación

- Recordar que no debe poner punto al final de los objetivos ni de algunos indicadores ya que no son oraciones completas
- Sería buena idea hacer divisiones verticales en el primer cuadro para evitar confusiones de lectura.
- Algunas preguntas de la sección de Pre Test están en negrita y otras no. Unificar.
- El contenido está bien.

Se expide la presente para los fines que corresponda.

Atentamente,



Ronald Lobo Vargas
 Cédula: 109650160
 Profesor de la Enseñanza de Inglés
 27 años de experiencia

A quien corresponda:

Por medio de la presente, yo, Jeffrey Montero Nuñez, portador de la cédula de identidad N° [116160408], profesor de grado en Maestría , con 8 años de experiencia en el ámbito educativo, hago constar que he revisado y analizado los instrumentos e insumos del proyecto de investigación titulado:

"The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach Enhancing Reading Comprehension of Short Passages among 10th Grade Students at Colegio Ciudad de Niños during the Second Quarter of 2025".

Tras evaluar la relación y consistencia entre ambos, concluyo que existe una adecuada correlación entre los insumos proporcionados y los instrumentos de recolección de datos, garantizando así su validez para alcanzar los objetivos propuestos en la presente investigación.

Se expide la presente para los fines que corresponda.

Atentamente,

**Jeffrey
Montero
Nuñez**



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Nuñez
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Jeffrey Montero Nuñez
Cédula: 116160408
Profesor(a) de grado en Maestría
8 años de experiencia

A quien corresponda:

Por medio de la presente, yo, **Jimmy Alberto Hernández Arroyo**, portador de la cédula de identidad N° **105570374**, profesor de grado en Maestría, con 43 años de experiencia en el ámbito educativo, hago constar que he revisado y analizado los instrumentos e insumos del proyecto de investigación titulado:

"The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach Enhancing Reading Comprehension of Short Passages among 10th Grade Students at Colegio Ciudad de Niños during the Second Quarter of 2025".

Tras evaluar la relación y consistencia entre ambos, concluyo que existe una adecuada correlación entre los insumos proporcionados y los instrumentos de recolección de datos, garantizando así su validez para alcanzar los objetivos propuestos en la presente investigación.

Se expide la presente para los fines que corresponda.

Atentamente,

JIMMY ALBERTO
HERNANDEZ
ARROYO (FIRMA)
Jimmy Alberto Hernández Arroyo

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JIMMY ALBERTO HERNANDEZ
ARROYO (FIRMA)
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Cédula: 105570374

Profesor(a) de grado en Maestría en Educación

43 años de experiencia

A quien corresponda:

Por medio de la presente, yo, Luz Noelia Jara Vargas, portador de la cédula de identidad N° 1-1162-0153, profesor de grado Licenciatura, con 10 años de experiencia en el ámbito educativo, hago constar que he revisado y analizado los instrumentos e insumos del proyecto de investigación titulado:

"The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach Enhancing Reading Comprehension of Short Passages among 10th Grade Students at Colegio Ciudad de Niños during the Second Quarter of 2025".

Tras evaluar la relación y consistencia entre ambos, concluyo que existe una adecuada correlación entre los insumos proporcionados y los instrumentos de recolección de datos, garantizando así su validez para alcanzar los objetivos propuestos en la presente investigación.

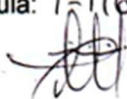
Se expide la presente para los fines que corresponda.

Atentamente,

Luz Noelia Jara Vargas

Nombre:

Cédula: 1-1162-0153



A quien corresponda:

Por medio de la presente, yo, Carmen Leonhardes Hernández, portador de la cédula de identidad número 105820864, profesora de grado en Maestría, con más de veinticinco años de experiencia en el ámbito educativo, hago constar que he revisado y analizado los instrumentos e insumos del proyecto de investigación titulado:

"The Effectiveness of Using Microsoft Read Aloud Text-To-Speech Software within a Technology-Enhanced Learning (TEL) Approach Enhancing Reading Comprehension of Short Passages among 10th Grade Students at Colegio Ciudad de Niños during the Second Quarter of 2025".

Tras evaluar la relación y consistencia entre ambos, concluyo que existe una adecuada correlación entre los insumos proporcionados y los instrumentos de recolección de datos, garantizando así su validez para alcanzar los objetivos propuestos en la presente investigación.

Se expide la presente para los fines que corresponda.

Atentamente,

CARMEN
LEONHARDES
HERNANDEZ (FIRMA)

Digitally signed by CARMEN
LEONHARDES HERNANDEZ
(FIRMA)
Date: 2025.07.08 13:25:38
-06'00'

Carmen Leonhardes Hernández
Cédula: 105820864
Profesora de grado en Maestría
Con más de veinticinco años de experiencia

Appendix G: Informed Consent

UNIVERSIDAD HISPANOAMERICANA DE COSTA RICA

Tel. (506) 2211-3000

CONSENTIMIENTO INFORMADO INSTITUCIONAL

Título del estudio:

La efectividad del uso del software de lectura en voz alta Microsoft Read Aloud dentro de un Enfoque de Aprendizaje Potenciado por Tecnología (TEL) para mejorar la comprensión lectora de pasajes cortos en estudiantes de décimo año del Colegio Ciudad de Niños, Cartago, durante el periodo de Julio a Agosto del 2025.

A. QUÉ BUSCA EL ESTUDIO

Este estudio se realiza por parte de la Universidad Hispanoamericana de Costa Rica, en la carrera de Enseñanza del Inglés, como parte de las actividades de investigación avaladas por la Coordinación de Investigación.

El objetivo es analizar la efectividad del uso del software Microsoft Read Aloud como herramienta de apoyo dentro de un enfoque de Aprendizaje Potenciado por Tecnología (TEL) para mejorar la comprensión lectora de pasajes cortos en inglés en estudiantes de décimo año del Colegio Ciudad de Niños.

B. EN QUÉ CONSISTE LA PARTICIPACIÓN

El estudio se llevará a cabo con estudiantes de décimo año.

Cada estudiante participará en:

- Pruebas de comprensión lectora antes y después de la intervención.
- Un breve cuestionario sobre la experiencia.

Todo se realizará presencialmente en el Colegio Ciudad de Niños, durante el horario regular de clases.

C. RIESGOS

La participación no representa riesgos significativos para la integridad física o psicológica. Podría experimentarse cansancio visual o frustración si la actividad resulta desafiante. En cualquier momento, la participación puede ser interrumpida sin consecuencias académicas ni legales.

D. PROTECCIÓN DE DATOS PERSONALES

De conformidad con la Ley N.º 8968 de Protección de la Persona frente al Tratamiento de sus Datos Personales, los datos de identificación de los estudiantes (nombre completo y

cédula) serán custodiados exclusivamente por la Dirección del Colegio Ciudad de Niños y no serán entregados al equipo investigador ni divulgados en ninguna publicación.

E. BENEFICIOS

No existen beneficios económicos. Sin embargo, los resultados permitirán fortalecer estrategias de enseñanza de la lectura en inglés, incorporando herramientas tecnológicas que podrían beneficiar a futuros estudiantes.

F. ACLARACIONES

Para cualquier duda o consulta, puede comunicarse con:

Nathalie Solórzano – Investigadora principal
Correo: nathalie.solorzano0601@uhispano.ac.cr

María José Herrera– Asesor(a) de investigación
Correo: maria.herreraa@uhispano.ac.cr

G. PARTICIPACIÓN VOLUNTARIA

La participación es voluntaria y puede suspenderse en cualquier momento. Los resultados podrán publicarse con fines académicos, siempre de forma anónima.

CONSENTIMIENTO

Yo, Hannia Cortés Morales, en calidad de Asistente de Dirección del Colegio Técnico Agustiniانو Ciudad de los Niños Ciudad de Niños, autorizó la participación de los estudiantes listados a continuación en el presente estudio, de acuerdo con las condiciones aquí expuestas.

Firma: 

Nombre: Hannia Cortés Morales

Cargo: Asistente de Dirección

Fecha: 21 / 07 / 2025



N°	Nombre completo del estudiante	Firma del estudiante
1	BARELA GAMEZ ISRAEL	<i>ff</i>
2	CANO ABARCA JADER BAYARDO	<i>Jader cano</i>
3	CHAVES BUSTOS JERVIN IVAN	<i>Jervin Chaves</i>
4	CHINCHILLA OBREGON LEINER JOSE	<i>Leiner Chinchilla</i>
5	CHINCHILLA OBREGON ROINER ALEXIS	<i>Roiner chinchilla obregon</i>
6	CASTILLO QUIROS JOSHUA FABIAN	<i>Joshua Castillo Quiros</i>
7	CERDAS OVIEDO CRISTIAN ARIEL	<i>Cristian C</i>
8	FLORES OBANDO JUSTYN ARNOLDO	<i>Justyn Flores</i>
9	ESTRADA ZELAYA DAMIAN KADIR	<i>Damian</i>
10	GONZÁLEZ BARBOZA ANTHONY JOSÉ	<i>Anthony</i>
11	MERCADO HERNANDEZ PABLO SEBASTIAN	<i>Pablo Mercado</i>
12	GUZMAN TENORIO LUIS ANGEL	<i>Luis A</i>
13	MONGE SOTO ADAM JOSUÉ	<i>Adam</i>
14	MONTIEL AMADOR JUNIOR ALBERTO	<i>Junior Montiel</i>
15	NARVÁEZ CASTILLO ESTEBAN	<i>Esteban Castillo</i>
16	RIVERA SANCHO CRISTOPHER FRANCISCO	<i>Cristopher</i>
17	RAMÍREZ ALEMÁN GIUVER JOSUÉ	<i>Giulit</i>
18	RIVERA ARANA HARLEN ELIAS	<i>Harlen Rivera Arana</i>
19	VILCHEZ MARTÍNEZ MADDOX LANIELS	<i>Laniels</i>
20	MARTINEZ PINEDA AARON AXALON	<i>Aaron</i>
21	VICTOR QUESADA JOHAN ALEJANDRO	<i>Johan victor</i>
22	VILLALTA ORDONEZ ALFREDO CARLOS	<i>Alfred villa lta.</i>
23	VILLEGAS RAMIREZ JOREL JESUS	<i>Jorel Villegas</i>
24	QUINTANA BONILLA KENNEDITH GERARDO	<i>Gerardo</i>
25	CHACÓN ACUÑA DIEGO JOEL	<i>Diego</i>