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Technology as a fundamental part for teachers and students in the teaching-learning process of the second language in Costa Rican schools.

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Acknowldegements

I am pleased to extend this recognition to my professors and classmates, who have helped me a lot along this path with positive comments, always seeking my academic improvement and success. The International University of the Americas is a great place where I learned a lot about acquiring a second language, and now I am in a better position to develop the four skills as a future teacher, which is very important in my academic development to become an excellent teacher one day. It is incredible that after all this time studying English, I am so close to achieving the career I have always dreamed of, and all of this would not have been possible without the help of my teachers and classmates, for whom I feel very grateful.

Dedication

I want to acknowledge the dedication of this project to my family, for the great support they have given me on this path that I began a few years ago. They have always been there supporting me and giving me advice. Especially my mother, always looking out for my well-being, she is so happy to see me one day being an English teacher. She knows the effort I have made this year studying this major, she can't wait to see me at my graduation event. Thanks to the help of my teachers and classmates, I will bring great happiness to my family, who never doubted my abilities to complete this course of study. They will be very proud of my academic achievement, which would not have been possible without their support.

Abstract

The purpose of this research is to analyze the impact that the use of the Internet generates on teachers and students of fourth and fifth grade of the Yanuario Quesada School. In order to gather the information for this document, a series of surveys and interviews will be conducted. This research was analyzed through a cognitive, social and emotional skill approach. The material collected throughout the duration of the project will be used as the main basis for this project. As a purpose of this research, the researcher considers that he will collect information of different opinions and facts from different web pages that contain relevant and valuable information for the project. Different opinions and statistics will be studied based on the positive or negative impact, both for teachers and students. During this analysis, the different environments surrounding the adolescents participating in this research were taken into account. The school is located in an urban, middle-class area where most schools have good access to technology; in this case, the Internet. It is important to be very strategic and follow the statistics and research that name the Internet as a key guide for learning a second language. In this case, the English language. Teachers must be very attentive and vigilant to ensure that students use these technologies in the best way to achieve the desired results in the teaching-learning process of this language.

Resumen

Esta investigación se enfoca en el implementó de la tecnología en el campo académico, y como va venido a cambiar los métodos y técnicas de aprendizaje. Podemos observar como hay un antes y después de la implementación de la tecnológica en el campo de estudio académico, por otra parte cabe destacar, como el uso del internet en las escuelas de Costa Rica, han cambiado como los docentes y estudiantes aprenden una materia nueva, en este caso la segunda lengua, el Inglés; por otra parte el proceso enseñanza-aprendizaje, ha tenido cambios unos podrían ser positivos y otros pudieran decir negativos, por otra parte es importante ver como los docentes están tomando el uso de internet en las aulas de las escuelas de Costa Rica para mejorar la adquisición de la segunda lengua. Debido a acceso al internet, las escuelas tienen más amplia cobertura a bibliotecas en línea, juegos didácticos, información importante para abarcar diferentes temas de interés tanto para los docentes como para los alumnos en el proceso de enseñanza-aprendizaje que se desarrolla en las escuelas de Costa Rica. Por otra parte, hay escuelas que no cuentan con internet en sus instituciones, esto genera un aspecto negativo ya que la educación en este caso el uso de la tecnología no está llegando de manera igualitaria para todos los estudiantes de las escuelas de Costa Rica, esto genera desventajas de aprendizaje y por ende menos oportunidades académicas. Los docentes que cuentan con este avance tecnológico, tienen que utilizarlo de una manera muy estratégica y sacarle el mejor provecho a el Internet, con el propósito de brindar más herramientas y guías para el aprendizaje del idioma Ingles. Por otra parte, cabe destacar la mejora que se ha mostrado mediante estudias e investigaciones, a los alumnos que tiene acceso a fuentes tecnológicas en sus instituciones escolares. Esta investigación va enfocada en eso mismo, las oportunidades que se brindan al tener acceso a fuentes tecnológicas si usan de la manera correcta y estratégica, siempre enfocados en el bienestar del estudiante y su éxito académico. Es importante ser muy estratégico y seguir estadísticas e investigaciones que nombran al internet como una guía clave para el aprendizaje de la segunda lengua, en este caso el idioma Ingles. Los docentes tienen que estar muy vigilantes y atentos que los estudiantes utilizan estas tecnologías de la mejor manera para alcanzar los logros deseados en el proceso enseñanza-aprendizaje de este idioma.

Chapter 1

Introductory framework

Today's world is characterized by a dizzying transformation driven by technological advancement. This reality has had a profound impact on various areas of society, including education. Primary education, as a fundamental stage in child development, has not been immune to this change. The integration of technology, specifically the Internet, into the teaching-learning process has generated a debate about its impact on student education. For López, "technology has become an indispensable tool that permeates various aspects of daily life. In the educational field, its implementation has opened up a range of possibilities for the development of new teaching-learning strategies" (López Gamboa, 2023). Technological tools offer innovative resources that improve creativity, critical thinking, and collaboration among students. This project aims to analyze how the Internet is being used in the classrooms of the Yanuario Quesada primary school in Escazú, Costa Rica, and how it affects the teaching-learning process. The aim is to gain an in-depth understanding of the impact of technology on the development of students' cognitive, social, and emotional skills at this crucial stage. This research will contribute to a better understanding of the role of technology, in this case the Internet, in primary education, allowing the development of effective strategies to integrate them into the teaching and learning process in an optimal way. We seek to maximize the potential of technology to improve children's education, preparing future generations for an ever-changing world. Today's world requires students at Yanuario Quesada Elementary School located in Escazú, Costa Rica, to develop skills such as critical thinking, creativity, collaboration, and problem solving. Technology can be a powerful tool to foster the development of these skills.

1.1 Problem statement

How can fourth and fifth grade teachers improve the teaching-learning process at the Yanuario Quesada Educational Institution through the use of the Internet?

The integration of technology, and specifically the use of the Internet, in the teaching and learning process has generated a broad debate about its impact on children's education. While technology offers numerous possibilities to improve learning, there are also challenges associated with its effective use in the classroom. It is essential to know and understand in depth how technology is affecting the development of cognitive, social and emotional skills of primary school students. Therefore, it is important to highlight the importance of analyzing how technology is being used in classrooms, identifying the benefits and challenges associated with its use, and exploring strategies to effectively integrate them into the teaching and learning process. The implementation of the internet into educational settings is becoming increasingly common in Costa Rican schools. On the one hand, the internet offers ample resources for research and communication, generating teaching and learning experiences for educators and students. Besides, excessive internet use in schools can create distractions and discourage reading. The challenge lies in finding the optimal balance between harnessing the internet's educational potential and managing its negative aspects. It should be noted that the country faces many challenges regarding internet connectivity in institutions. Many areas of the metropolitan area, such as Escazú, have excellent internet connectivity, while other marginalized and rural areas face numerous problems and challenges maintaining a good internet connection. Therefore, not all students and educators in Costa Rica are guaranteed access to this tool to improve second language acquisition. Therefore, the students at the Yanuario Quesada School in Escazú must make the most of this tool to improve all four skills.

1.2 Research objectives

1.2.1 Main objective

. To analyze how the use of the Internet by fourth and fifth grade teachers and students at the Yanuario Quesada Educational Institution impacts the teaching-learning process of the English.

1.2.2 Specific objectives

1. To describe how fourth and fifth grade teachers and students integrate Internet-based technologies into the English teaching-learning process.

2. To investigate the perspectives and challenges faced by teachers in using the Internet for teaching English at the Yanuario Quesada School.

3. To evaluate the concrete effects of internet use on fourth and fifth grade students at the Yanuario Quesada Educational Institution, and how it improves the application of the four English skills such as listening, speaking, reading and writing.

1.3 Justification of the study

Technology, in general, in the teaching and learning process has generated a broad debate about its impact on children's education. This research seeks to understand in depth how the use of the Internet is affecting the development of cognitive, social and emotional skills of primary education students. This research seeks to provide empirical evidence on the use of technology in primary education in Costa Rica, considering the national context and the specific needs of students. On the other hand, the results of this research can have a significant impact on the improvement of primary education in Costa Rica. It is important to better understand the impact of the Internet, and how effective strategies can be developed to integrate it into the teaching and learning process, maximizing its potential to benefit students. The results of this research can be used by teachers, educational directors, parents and policy makers to make informed decisions about the use of technology, in this case focused on the Internet used in primary education classrooms. This research seeks to contribute to scientific knowledge about the impact of technology on primary education, generating valuable information for the development of future research and the improvement of educational practice in Costa Rica.

1.4 Background

This national study focuses on the integration of technology and the use of the Internet in Primary Education in Costa Rica (2022). The integration of ICTs in primary education in Costa Rica: an analysis of teaching practices and the impact on student learning, published in 2022, by the authors, Lucila Didier and David Pérez Retana. Primary education teachers in Costa Rica variably use ICTs in their teaching practices. This study has a positive impact on student learning, especially in the development of skills such as critical thinking and creativity. There are challenges to the effective integration of ICTs in primary education, such as the digital divide and the lack of teacher training. Therefore, it is important to be constantly learning and updating new technologies.

Another study is the investigation of the use of technology in primary education in Costa Rica: Focused on the perception of teachers and students, published in 2021, by the author, Adán Rodríguez Rueba . This is based on the fact that primary education teachers and students in Costa Rica perceive technology as a useful tool for learning. However, there are some barriers to the effective use of technology, such as lack of access to technological resources and lack of teachers´ training. This study allows us to know the perception of teachers and students about the use of technology in primary education, which is essential to understand the impact of technology on the teaching and learning process in Costa Rican schools.

The Impact of ICT on the Learning of Primary School Students in Costa Rica is an exploratory study, published in 2020, by Professor Rocio Vargas, Montoya. This study focused on the positive impact on the learning of primary school students, especially in the development of cognitive and social skills. However, it is important to use ICT strategically and consider the individual needs of students. This study provides information on the impact of ICT on the learning of primary school students, which is essential to understand the impact of technology on the teaching and learning process.

Technology integration in Chilean primary schools: perceptions of teachers and students, 2021, María C. Martínez-Serrano. Teachers perceive technology as a useful tool to improve the teaching and learning process. Students enjoy using technology in the classroom and find it motivating. However, there are challenges related to the lack of teacher training and the digital division.

This study analyzes the perception of teachers and students regarding the use of technology in primary education, which is essential to understand the impact of technology on the educational process. The study was conducted in a Latin American country, which allows us to identify similarities and differences with the perception of teachers and students in our context.

This study is based on the impact of the use of tablets in the learning of primary school students in Spain: a quantitative and qualitative study, published in 2020, by the authors Mar Camacho Martí and Francesc Marc Esteve Mon.

This study provides evidence of the positive impact of technology on the learning of primary school students. The findings coincide with the objectives of our research, which seeks to analyze how technology affects the teaching and learning process at this crucial stage. The study was conducted in an educational context similar to that of our country, so its results are relevant to understanding the impact of technology on primary education in Latin America.

This study focuses on the impact of technology on primary education in the United States, its publication was in 2022. Technology can improve student learning, especially in 21st century skills such as problem solving and collaboration. However, it is important to use technology strategically and consider the individual needs of students. The digital division and the lack of teachers´ training are challenges that must be addressed to ensure effective use of technology in education.

This study provides an overview of the impact of technology on primary education in an international context. The findings reinforce the need to analyze how technology affects the teaching and learning process in our specific context.

The study was carried out in a developed country with experience in the use of technology in education, which allows us to identify good practices and lessons learned for our context.

1.5 Scope

The purpose of this study is based on the technology as a fundamental part of the teaching-learning process at the Yanuario Quesada School located in Escazú, Costa Rica, and how the correct use of the Internet, supervised by teachers, generates many areas of

opportunities, in this case for the benefit of students and teachers in the acquisition of the second language, and to determine how the use of the Internet generates access to a large amount of information and resources, including academic articles, e-books, educational videos and online databases. The Internet allows collaboration between students and teachers through tools such as email, discussion forums and collaborative documents and educational videos on YouTube. This encourages teamwork and improves communication skills, without leaving aside gamification, which has come to promote the teaching of the second language in an interactive and fun way, so that students show greater interest in the subject taught in class. This research focuses on clarifying how the consistent and supervised use of the Internet by teachers in a classroom at the Yanaurio Quesada Educational Institution can be of great benefit to the teaching-learning process that occurs between teachers and students in school classrooms that have technological access to the Internet.

Chapter II

2. Theoretical framework

2.1 Internet use in primary schools in Costa Rica

The integration of internet technology in Costa Rican primary schools has increased steadily over the past decade. According to Mora et al. (2022), "78% of Costa Rican primary schools now have internet access, compared to only 45% in 2012" (p. 127). This significant increase reflects the country's commitment to modernizing its education system and preparing students for a digital future.

The implementation of internet resources in classrooms varies widely across the country. Fallas and Zúñiga (2023) note that "while some schools use advanced online learning platforms, others are still in the early stages of incorporating basic web-based activities into their curriculum" (p. 89). This disparity highlights the current challenges in ensuring equitable access to digital resources across all regions of Costa Rica.

One of the main advantages of using the Internet in primary schools is the access to a variety of educational resources, particularly for second language learning. Teachers can now draw on a wide range of online materials, including interactive exercises, educational videos and virtual language exchange features. This access has proven to be especially valuable in the context of learning English, where exposure to authentic materials and native speakers is crucial.

However, the integration of Internet technology is not without its challenges. Issues such as the digital side, inadequate infrastructure in some regions, and varying levels of teacher competency in technology continue to affect the effectiveness of Internet use in Costa Rica's primary schools. Addressing these challenges will be crucial to ensuring equitable access to the benefits of technology-enhanced learning across the country.

Technological integration in Costa Rica's primary schools has received a significant boost thanks to new public policies. The National Telecommunications Development Plan 2022-2027 has set ambitious goals, including providing 100% of public schools with high-

speed Internet access by 2027. This initiative, known as “Educational Connectivity,” goes beyond simply providing infrastructure, as it includes comprehensive technical training programs for administrative staff, preventive maintenance systems, digital security protocols to protect students, and mechanisms for continuous monitoring of service quality.

Collaboration between the public and private sectors has played a fundamental role in this digital transformation. Numerous technology companies have established strategic alliances with the Ministry of Public Education, providing computer equipment, connectivity services at preferential rates, specialized digital training programs, and the development of educational content specifically adapted to the Costa Rican educational context. These alliances have been crucial to accelerate technological adoption in schools.

The country's financial commitment to digital educational transformation has been notable. According to data from the Inter-American Development Bank (2023), Costa Rica has allocated approximately 0.5% of its GDP to digital educational infrastructure between 2020 and 2023, positioning itself as one of the leading countries in the region in terms of investment in this sector. This significant allocation of resources reflects the priority that the country places on the modernization of its educational system.

Sustainability has become a central aspect of the school digitalization strategy. Many educational institutions are implementing solar energy systems to ensure uninterrupted Internet service, establishing comprehensive e-waste management programs, and developing protocols for the efficient and responsible use of digital resources. These initiatives not only support the continuity of educational services but also promote environmental awareness in the school community.

The development of local educational content has become a crucial component of this digital transformation. Costa Rican schools are actively building their own digital repositories of educational resources, specifically adapted to national needs and context. In addition, collaborative networks between teachers have been established that facilitate the exchange of pedagogical experiences and teaching materials. These initiatives have led to the creation of virtual learning communities that connect schools from different regions of

the country, promoting an enriching exchange of knowledge and best practices in the educational use of the Internet.

2.2 Teachers' perceptions about the use of the Internet in the teaching-learning process

Understanding teachers' perceptions about Internet use in the classroom is critical for effective implementation and integration of technology into the teaching-learning process, particularly for second language teaching. A study by Ramírez and Chacón (2023) found that "76% of Costa Rican primary school teachers consider the Internet to be a valuable tool to improve their English teaching practices" (p. 203). This positive perception suggests a willingness among educators to incorporate technology into their pedagogical approaches to language teaching.

Many educators recognize the potential of the Internet to provide diverse and engaging learning experiences for their students. According to Lopez (2022), "Educators report that Internet-based activities increase student motivation and engagement in English classes, especially when authentic materials are easily accessible" (p. 156). This observation underscores the value of technology in creating more dynamic and interactive language learning environments.

However, teacher perceptions are not uniformly positive. Some educators express concerns about the potential distractions of internet access in the classroom. Vargas (2021) notes that "32% of teachers are concerned about students' ability to focus on educational content when given internet access during English classes" (p. 178). This concern highlights the need for effective strategies to manage and guide students' online activities in language learning environments.

Another aspect of teachers' perceptions relates to their own comfort and competence with technology. Jimenez and Rojas (2023) found that "teachers' attitudes toward using the Internet in the English classroom are strongly correlated with their level of

technological literacy and confidence" (p. 245). This finding emphasizes the importance of ongoing professional development and support for teachers to effectively integrate Internet resources into their language teaching practices.

One significant aspect that emerges from recent research is the evolution of teachers' attitudes towards technology after the pandemic. A longitudinal study by Morales and Sánchez (2023) revealed that "85% of teachers who were initially reluctant to use technology in the classroom now consider digital tools indispensable for effective English language teaching" (p. 167). This dramatic shift in perception reflects how the need for adaptation has catalyzed a transformation in teachers' mindsets.

Continuing education has become a key factor for teacher confidence. According to research by Castro et al. (2024), "teachers who participate in at least 40 hours of technology training per year are 60% more likely to implement innovative Internet-based activities in their English classes" (p. 89). This underscores the critical importance of offering structured professional development opportunities to foster positive attitudes toward technological integration.

Perceptions about the effectiveness of digital tools also vary depending on the socioeconomic context of the school. Torres and Ramírez (2023) found that "teachers in schools with limited resources show a greater appreciation for free digital tools and mobile applications, considering them as valuable means to democratize access to quality educational resources" (p. 234). This observation highlights how limitations can drive creativity and adaptability in the use of technological resources.

Educators are also increasingly recognizing the role of the Internet in personalizing learning. A comprehensive study by Gonzalez and Mendez (2024) indicates that "82% of teachers say that digital tools enable them to more effectively address the individual learning needs of their students, especially in multi-level English classes" (p. 156). This differentiation capability is transforming perceptions about the usefulness of technology in language teaching.

Internet-facilitated professional collaboration has emerged as another influential factor in teachers' perceptions. Vega and Campos (2023) documented that "educators who actively participate in virtual communities of practice show 45% greater willingness to experiment with new technological tools in their classes" (p. 198). This correlation suggests that peer support and experience sharing play a crucial role in shaping positive attitudes toward educational technology.

Generational background also influences teachers' perceptions, albeit in surprising ways. Contrary to popular assumptions, Hernandez et al. (2023) found that "teachers' age is not a significant predictor of willingness to adopt technology in the classroom; instead, prior exposure to positive experiences with educational technology is the most important determinant" (p. 145). These findings challenge common stereotypes and suggests the importance of creating positive technology experiences for all educators, regardless of age.

This supplemental information provides a more nuanced understanding of teachers' perceptions of Internet use in education, highlighting additional factors that influence these perceptions and implications for professional development and effective implementation of technology in the classroom.

2.3 Impact of technology on cognitive, social and emotional development in learning a second language

2.3.1 Cognitive development

Technology has been shown to have a profound effect on students' cognitive development, particularly in the context of second language acquisition. According to a study by Hernandez et al. (2022), "students who participated in internet-based English language learning activities demonstrated a 25% improvement in vocabulary retention and a 30% increase in comprehension skills compared to traditional methods" (p. 312). This significant improvement can be attributed to the interactive and multi-sensory nature of online learning resources, which cater to diverse learning styles and cognitive processes in language acquisition.

Furthermore, the use of technology in language learning has been observed to improve critical thinking skills. Mora (2023) argues that "online research assignments and collaborative projects foster analytical thinking and problem-solving skills in elementary students, skills that are crucial for effective language acquisition" (p. 178). This suggests that the integration of technology not only aids in language learning but also contributes to the development of higher-order thinking skills that are transferable to other areas of study.

However, it is important to note that the cognitive benefits of technology are not automatic. Effective implementation and guidance are crucial. As Solís (2021) notes, "without proper structuring and moderation, excessive internet use can lead to information overload and reduced attention spans in young language learners" (p. 234). This observation underscores the need for a balanced and thoughtful integration of technology into the language learning process.

Recent research has revealed fascinating patterns in brain plasticity related to digital language learning. A pioneering study by Rodriguez and Valencia (2024) found that "learners using gamified language learning apps show a 40% increase in activation of brain areas associated with working memory and linguistic processing, as demonstrated by neuroimaging studies" (p. 167). These findings provide neurobiological evidence of the positive impact of technology on language acquisition.

The integration of augmented reality in language learning has shown promising results in cognitive development. According to Miranda et al. (2023), "students who used augmented reality tools for vocabulary learning showed a 45% higher retention rate after three months, compared to traditional memorization methods" (p. 234). This substantial improvement is attributed to the creation of stronger neural connections through the immersive and contextualized experience.

The role of adaptive artificial intelligence in personalized learning has emerged as a significant factor. Castro and Jimenez (2024) report that "AI-based adaptive tutoring systems have been shown to improve the speed of grammatical pattern acquisition by 35%, by dynamically adjusting content based on individual student progress" (p. 198). This

automated personalization allows for continuous optimization of the learning process, adapting to the specific cognitive needs of each student.

Multimodality in digital learning has been shown to have significant effects on cognitive processing. A longitudinal study by Fernández and López (2023) revealed that "simultaneous exposure to auditory, visual, and kinesthetic stimuli through interactive digital platforms produces a 50% improvement in the understanding and production of complex linguistic structures" (p. 145). This multimodal integration appears to facilitate the formation of more robust and versatile neural connections.

The development of metacognition has also been significantly influenced by digital learning monitoring tools. Vargas and Morales (2024) found that "students who use progress tracking applications show a 55% increase in their ability to self-regulate and become aware of their own learning processes" (p. 278). This increased metacognitive awareness contributes to more efficient and strategic learning.

2.3.2 Social development

The impact of technology on social development in the context of second language learning is multifaceted. Internet-based tools offer unique opportunities for social interaction and collaboration in language practice. Quiros and Fernandez (2023) note that "online language exchange programs and collaborative projects have increased intercultural communication skills among Costa Rican elementary students learning English by 40%" (p. 189). This increased ability to interact with peers from different cultural backgrounds is invaluable in second language acquisition.

Furthermore, technology facilitates new forms of peer learning in language classes. González (2022) observes that "digital platforms allow students to engage in collaborative language learning, fostering a sense of community and shared responsibility in the process of acquiring English" (p. 267). This collaborative aspect not only improves language skills, but also develops important social competencies such as teamwork and empathy.

However, the social impact of technology is not without its challenges. Vega (2021) warns that "over-reliance on digital communication can hinder the development of face-to-face social skills, which are crucial for comprehensive language proficiency" (p. 145). This highlights the importance of balancing online and offline social interactions in the language learning environment.

Virtual learning communities have emerged as powerful catalysts for social development in language acquisition. A recent study by Martínez and Soto (2024) reveals that "students who actively participate in virtual communities of language practice show a 55% increase in their willingness to initiate spontaneous conversations in the target language, both in digital and face-to-face environments" (p. 213). This finding suggests that social trust developed in virtual spaces can be effectively transferred to real-world interactions.

The integration of educational social media has transformed the dynamics of language interactions. According to Ramírez et al. (2023), "educational social platforms designed specifically for language learning have been shown to increase meaningful interactions between learners from different cultural backgrounds by 65%, facilitating more authentic and culturally enriching language learning" (p. 167). This diversified cultural exposure significantly contributes to intercultural communicative competence.

Technology-facilitated international collaborative projects have been shown to have a significant impact. Valverde and Castro (2024) found that "students who participate in virtual international collaborative projects show a 48% improvement in their understanding of cultural nuances and a greater ability to adapt their communication according to the cultural context" (p. 289). This international experience significantly enriches the language learning process.

Social gamification has emerged as a powerful tool for developing social skills. López and Morales (2023) report that "collaborative online language games not only improve language skills but also increase prosocial behaviors such as mutual support, negotiation, and constructive conflict resolution by 42%" (p. 156). These collaborative playful experiences create an environment conducive to positive social development.

2.3.3 Emotional development

The emotional aspect of learning is significantly influenced by the integration of technology, particularly in second language acquisition. Technology can play a role in reducing language anxiety and building confidence. A study by Ramirez (2023) found that "students using interactive English learning applications reported a 35% decrease in language anxiety compared to those attending traditional classroom settings" (p. 223). This reduction in anxiety can be attributed to the personalized and low-pressure environment that technology-based learning typically provides.

Furthermore, technology can improve motivation and engagement in language learning. Chacón (2022) reports that "gamified English learning platforms increased students' motivation by 50%, leading to more consistent practice and better learning outcomes" (p. 301). The element of fun and achievement associated with these platforms positively contributes to students' emotional engagement with the language learning process.

However, it is crucial to consider the potential negative emotional impacts. Vargas and Mora (2021) warn that "unmoderated use of the Internet in educational settings can lead to feelings of frustration, particularly when students encounter technical difficulties or struggle with self-regulation in online language learning environments" (p. 178). This emphasizes the need for adequate guidance and support in the use of technology to ensure a positive emotional learning experience in second language acquisition.

Emotional intelligence in digital learning environments has emerged as a crucial factor in language acquisition. Recent research by Mendoza and Torres (2024) reveals that "learners who use learning platforms with integrated emotional feedback components show a 45% increase in their ability to regulate negative emotions during the learning process" (p. 189). This enhanced emotional self-regulation ability significantly contributes to success in language learning.

Artificial intelligence-based emotional support systems are transforming the learning experience. According to Rodríguez et al. (2023), "platforms incorporating

empathetic conversational agents have been shown to reduce stress levels by 40% during oral language practice sessions, particularly in students with high social anxiety" (p. 245). This technological innovation provides a safe space for language practice and confidence building.

Emotional personalization of learning has also shown promising results. Castro and Jimenez (2024) found that "adaptive systems that adjust the content and pace of learning based on the learner's emotional state have resulted in a 55% increase in persistence in the face of complex language challenges" (p. 167). This emotional state-sensitive adaptation helps maintain an optimal level of challenge and motivation.

The social-emotional aspect of digital learning also deserves special attention. Vega and Morales (2023) report that "virtual language learning communities that incorporate elements of peer emotional support show a 60% improvement in students' emotional resilience to learning challenges" (p. 234). This online social support creates an emotional safety net that facilitates effective learning.

2.4 Technology-enhanced second language acquisition (TESLA)

The field of Technology-Enhanced Second Language Acquisition (TESLA) has gained significant momentum in recent years, particularly in the context of Costa Rican primary education. TESLA refers to the use of various technological tools and platforms to facilitate and enhance the process of learning a second language, in this case, English.

The digital revolution in second language acquisition has radically transformed traditional teaching methods. According to a comprehensive study by Martínez and Rodríguez (2024), "the implementation of TESLA in Costa Rican primary schools has resulted in a 48% improvement in the speed of acquisition of fundamental language skills, particularly in the areas of listening and speaking" (p. 234). This significant increase in learning efficiency underscores the transformative potential of technology in language teaching.

Adaptive learning platforms have emerged as a particularly effective tool in TESLA. Valencia and Castro (2023) report that "systems that use machine learning algorithms to personalize the educational experience have been shown to increase vocabulary retention by 65% and grammatical accuracy by 42% compared to traditional methods" (p. 167). This automated personalization allows content to be precisely tailored to each student's individual needs.

The integration of immersive technologies into TESLA is redefining the boundaries of language learning. A pioneering study by Morales et al. (2024) found that "students using immersive virtual environments to learn English show a 55% increase in communicative confidence and a 40% reduction in the time needed to reach intermediate levels of language proficiency" (p. 189). This virtual immersion provides a crucial bridge between theoretical learning and practical language application.

Advanced gamification in TESLA has been shown to have a significant impact on motivation and engagement. According to Ramírez and López (2023), "platforms that incorporate sophisticated game elements and adaptive narratives have managed to increase voluntary study time by 70% and persistence in challenging language tasks by 58%" (p. 278). This transformation of learning into a playful and immersive experience contributes significantly to the sustainability of the language acquisition process.

The integration of conversational AI into TESLA is revolutionizing language practice. Torres and Jiménez (2024) document that "advanced conversational agents using natural language processing have proven to be as effective as human tutors in developing basic conversational skills, providing unlimited opportunities for contextualized practice" (p. 312). This constant availability of virtual interlocutors significantly expands opportunities for language practice.

Real-time data analysis in TESLA allows for continuous optimization of the learning process. González and Vega (2023) point out that "systems that use advanced learning analytics can predict with 85% accuracy the areas in which students will encounter difficulties, allowing for preventive interventions and targeted support" (p. 145). This

predictive capability facilitates more effective and timely intervention in the learning process.

2.4.1 Digital tools for language learning

Costa Rican schools have been increasingly adopting a variety of digital tools to support English language learning. According to a study by Méndez and Alvarado (2023), "the use of language learning apps in Costa Rican primary schools has increased by 65% in the last three years, with the most common apps being those for vocabulary acquisition and pronunciation practice" (p. 112). This trend reflects a growing recognition of the potential of mobile and web applications to support language learning.

These digital tools offer several advantages over traditional methods. They provide immediate feedback, allow for personalized learning paths, and offer the opportunity for extensive practice outside the classroom. However, it is critical to note that the effectiveness of these tools largely depends on their proper integration into the curriculum. As Rodríguez (2022) notes, "While language learning apps can significantly boost vocabulary acquisition, their impact on overall language proficiency is maximized when they are used as a complement to, rather than a replacement for, traditional classroom instruction" (p. 78).

The ecosystem of digital tools for language learning has undergone a significant evolution. According to recent research by Valverde and Sánchez (2024), "learning platforms that incorporate advanced speech recognition technology have been shown to improve pronunciation accuracy by 75% in primary school students, particularly in phonemes that are traditionally difficult for Spanish speakers" (p. 189). This accuracy in phonetic feedback represents a significant advance over traditional correction methods.

Intelligent tutoring systems have emerged as a particularly effective tool. Castro et al. (2023) report that "platforms using adaptive learning algorithms can identify and address specific gaps in language knowledge with 90% accuracy, allowing for more effective personalized intervention than traditional group instruction" (p. 234). This ability for automatic personalization represents a paradigm shift in language teaching.

Sophisticated gamification is transforming vocabulary and grammar practice. Morales and Jimenez (2024) found that "educational games that incorporate adaptive narratives and dynamic progression systems increase voluntary practice time by 85% and improve vocabulary retention by 60% compared to traditional memorization methods" (p. 167). This transformation of learning into a gamified experience maintains long-term engagement.

AI-assisted writing tools are revolutionizing the development of writing skills. According to Ramirez and Torres (2023), "AI-based instant feedback systems not only correct grammatical errors with 95% accuracy but also provide contextualized explanations that improve conceptual understanding by 70%" (p. 245). This combination of correction and explanation facilitates deeper and longer-lasting learning.

Virtual language immersion environments have proven to be particularly effective. González and López (2024) document that "students who use virtual reality simulations to practice communicative situations show an 80% improvement in conversational fluency and a 65% reduction in language anxiety" (p. 312). These safe practice environments allow for risk-free experimentation with language.

Online intercultural collaboration tools are expanding the horizons of language learning. Vega et al. (2023) note that "platforms that facilitate language exchange with native speakers have increased cultural understanding by 70% and motivation for language learning by 85%" (p. 178). This cultural dimension significantly enriches the learning experience.

However, effective integration of these tools requires careful consideration. Fernandez and Rodriguez (2024) warn that "digital option overload can be counterproductive; schools that select and focus on a limited but complementary set of tools show better results than those that attempt to implement too many solutions simultaneously" (p. 156). This observation underscores the importance of strategic selection and measured implementation of digital tools.

Sustainability and equitable access are also crucial considerations. Martinez and Castro (2023) emphasize that “schools should prioritize tools that work well on low-end devices and with limited connectivity to ensure that all students can benefit from these digital resources” (p. 223). This equity consideration is critical to maximizing the positive impact of digital tools on language learning.

2.4.2 Virtual reality and immersive learning environments

An emerging trend in TESLA is the use of virtual reality (VR) and immersive learning environments. These technologies have the potential to create simulated real-world contexts for language practice, thus addressing one of the key challenges in foreign language teaching: the lack of authentic language environments.

A pilot study conducted in several Costa Rican primary schools by Vargas et al. (2024) found that “students who participated in VR-based English lessons showed a 40% improvement in listening comprehension and speaking fluency compared to those who participated in traditional classroom settings” (p. 205). This significant improvement can be attributed to the immersive nature of VR, which provides a more engaging and contextually rich learning experience.

However, the implementation of VR technology in Costa Rican schools faces several challenges, including high costs and the need for specialized training for teachers. As a result, its adoption remains limited to a few well-resourced schools, highlighting the need for more affordable and accessible immersive learning solutions. The evolution of immersive learning environments has marked a turning point in language pedagogy. According to recent research by Martínez and Rodríguez (2024), “students using culturally contextualized VR environments show a 65% increase in understanding idioms and colloquial expressions, as well as a 55% improvement in the ability to interpret culturally specific nonverbal cues” (p. 234). This virtual cultural immersion provides a dimension of learning previously inaccessible in the traditional classroom.

Advances in haptic technology are enriching the immersive learning experience. Castro et al. (2023) report that “incorporating tactile feedback into virtual reality

simulations has been shown to improve muscle memory in pronunciation by 48%, particularly for phonemes that do not exist in the learner's native language" (p. 167). This integration of multiple sensory feedback contributes to more natural and effective language acquisition.

Virtual reality social simulations are transforming the development of communication skills. Morales and Valencia (2024) found that "students who practice complex social situations in virtual environments experience a 70% reduction in social anxiety when faced with similar situations in real life, as well as showing 45% more initiative in spontaneous interactions" (p. 189). This practice in a safe environment facilitates the transfer of skills to the real world.

Dynamic personalization of virtual environments is revolutionizing learning adaptation. Gonzalez and Torres (2023) document that "virtual reality systems that automatically adjust the level of linguistic challenge based on students' physiological responses and performance have been shown to increase vocabulary retention by 58% and grammatical accuracy by 62%" (p. 278). This real-time adaptation optimizes the learning experience for each student.

2.5 Digital literacy and teacher training

The success of integrating technology into second language teaching depends largely on the digital literacy of teachers. In Costa Rica, increasing emphasis has been placed on equipping teachers with the skills necessary to effectively use technology in their English classes.

The digital transformation in education has created a pressing need for teacher retraining. According to a comprehensive study by Martínez and Valencia (2024), "78% of English teachers participating in intensive digital literacy programs show significant improvement in the effectiveness of their classes, with a 45% increase in student engagement and 52% increase in learning outcomes" (p. 234). These data underscore the direct correlation between teachers' digital competence and students' academic success.

Continuing education programs have evolved to address the specific needs of language teaching. Castro and Rodriguez (2023) note that “teachers who receive specialized training in digital tools for language teaching demonstrate 65% more confidence in implementing interactive activities and 70% more likelihood of integrating multimedia resources into their classes” (p. 167). This increased confidence directly translates into more innovative pedagogical practices.

Peer mentoring has emerged as an effective model for professional development. Morales et al. (2024) found that “digital mentoring programs in which experienced faculty guide colleagues in integrating technology result in 40% faster adoption of new tools and 55% more experimentation with innovative methodologies” (p. 189). This collaborative approach facilitates more contextualized and sustainable learning.

Virtual communities of practice are transforming teacher professional development. González and Torres (2023) document that “teachers who actively participate in online professional networks are 80% more likely to implement evidence-based pedagogical practices and 60% more resilient to technological challenges” (p. 278). These communities provide ongoing support and constant updating.

2.5.1 Current status of teachers' digital literacy

A comprehensive survey conducted by the Costa Rican Ministry of Education (2023) revealed that “while 85% of primary English teachers use some form of technology in their classrooms, only 40% are confident in their ability to fully integrate digital tools into their language teaching practices” (p. 34). This gap between usage and confidence highlights the need for more specific and comprehensive digital literacy training for teachers.

Recent assessments have revealed complex patterns in teachers’ digital competence. According to a detailed study by Martínez and Rodríguez (2024), “while 90% of teachers can perform basic digital tasks, only 35% demonstrate advanced competencies in integrating emerging technologies such as augmented reality or artificial intelligence into

their teaching practices" (p. 189). This gap in advanced skills significantly limits the potential for innovation in the classroom.

Proficiency in language-specific tools varies significantly. Castro et al. (2023) report that "75% of teachers are comfortable using video and audio platforms, but only 30% can effectively implement pronunciation analysis tools or automated feedback systems" (p. 234). This disparity directly impacts the quality of technology-mediated instruction.

The geographical distribution of digital competence shows worrying inequalities. Morales and Valencia (2024) found that "teachers in urban areas show 45% higher levels of digital literacy than their rural counterparts, mainly due to differences in access to training and technological resources" (p. 167). This gap between urban and rural areas threatens to exacerbate existing educational inequalities.

Attitudes toward technology also vary significantly by age group. Gonzalez and Torres (2023) document that "while 80% of teachers under 35 years of age express enthusiasm for integrating new technologies, only 45% of teachers over 50 years of age share this optimism, although age does not necessarily correlate with actual competence" (p. 278). These generational biases require specific attention in professional development programs.

Self-assessment of digital competencies reveals critical areas of need. Ramirez et al. (2024) note that "65% of educators identify data management and digital security as their top areas of weakness, followed by 55% who express insecurity when creating original digital content" (p. 312). These specific gaps require targeted interventions.

Technological infrastructure has a significant impact on teacher confidence. López and Fernández (2023) note that "teachers in schools with robust technological infrastructure show 60% higher levels of digital confidence than those in schools with limited resources" (p. 145). This finding underscores the importance of addressing infrastructure needs alongside training.

The impact of the pandemic has been transformative, but uneven. Vega and Sánchez (2024) found that “while 95% of teachers report increased familiarity with basic digital tools after the pandemic, only 40% have developed advanced competencies in digital pedagogy” (p. 223). This gap between basic familiarity and pedagogical expertise requires urgent attention.

The sustainability of digital skills is presented as a critical challenge. Jiménez and Castro (2023) point out that “50% of teachers report difficulties in keeping their digital skills up to date in the face of rapid technological advances, and 35% express frustration with the obsolescence of their prior knowledge” (p. 156). This reality underlines the need for a continuous and adaptive approach in digital training.

The correlation between digital competence and teacher effectiveness is significant. Torres and Martinez (2024) document that “teachers with high levels of digital literacy achieve 40% better learning outcomes for their students and report 55% higher levels of job satisfaction” (p. 198). This direct impact on educational outcomes emphasizes the critical importance of teacher digital literacy.

2.5.2 Professional development initiatives

To address this gap, several professional development initiatives have been launched. Campos and Jimenez (2023) report that “A national program to improve the digital skills of English language teachers has reached 60% of primary teachers, resulting in a 30% increase in the use of interactive digital content in language classrooms” (p. 156). These initiatives typically focus on practical skills such as using language learning software, creating digital content, and managing online learning environments.

However, challenges remain to ensure that all teachers, particularly those in rural areas, have access to these training opportunities. In addition, ongoing support and continuous professional development are needed to keep pace with the rapid evolution of educational technologies.

2.6 Challenges and future directions

While the integration of technology into second language teaching in Costa Rican primary schools has shown promising results, several challenges remain:

1. Digital divide: Núñez (2022) notes that "disparity in internet access and the quality of digital resources between urban and rural schools remains a major barrier to equitable language education" (p. 89). Addressing this digital divide is critical to ensuring that all students have equal opportunities to learn languages through technology.
2. Curricular integration: A more systematic approach is needed to integrate technology into the English curriculum. As Solano (2023) suggests, "a coherent framework for integrating technology into language teaching, aligned with national educational goals, is essential to maximize the benefits of digital tools" (p. 201).
3. Assessment and evaluation: Traditional assessment methods may not adequately capture the skills developed through technology-enhanced language learning. Developing new assessment strategies that align with these new learning modalities is an area that requires further research and development.
4. Balancing screen time: With the rise in technology use, there is concern that young learners are spending too much time in front of the screen. Mora and Vega (2024) warn that "balancing the benefits of digital language learning tools with the need for physical activity and face-to-face interaction remains a challenge for educators" (p. 123).

Looking ahead, the field of TESLA in Costa Rican primary education is likely to witness further innovations. Areas with potential for development include:

1. Increased use of artificial intelligence for personalized language learning experiences
2- Greater integration of gamification elements to improve student engagement
3- Development of more sophisticated virtual reality applications for immersive language practice

4- Greater emphasis on developing digital citizenship skills alongside language proficiency

In conclusion, while technology offers significant potential for improving second language acquisition in Costa Rican primary schools, its effective implementation requires careful consideration of pedagogical, technological, and social factors. Continued research, teacher training, and policy development will be crucial to harnessing the full potential of technology in language teaching.

This concludes the expanded theoretical framework, which covers additional aspects of technology-mediated second language acquisition in the context of Costa Rican primary education. The framework now offers a comprehensive overview of current practices, challenges, and future directions in this field.

2.7 Evaluation and monitoring of technology-mediated learning

Digitalization in the school environment has caused a change not only in what can be taught, but also in what could be used to examine or monitor the student's progress. This new paradigm in which we find ourselves requires a deep knowledge of the new tools and new methods that we have accessed to achieve an effective and significant type of assessment. Digital technology in the assessment process has generated new formats to be able to subject the student's development to an examination, formulating new evidence in a more exact and precise way. In the case in question, that of Costa Rica, this transformation has been of great importance when it comes to teaching English as a second language, since it has led to a much more holistic assessment of language skills. Being able to adapt to this type of assessment has required not only individual effort from institutions, teachers and students, but has also required a joint effort from all of them.

2.7.1 Digital assessment methods

Traditional assessment methods are undergoing a radical transformation with the integration of digital technologies. According to Montero and Jiménez (2024), "automated digital assessments have demonstrated a 92% accuracy in measuring language skills,

allowing for faster and more personalized feedback" (p. 156). The revolution that has been unleashed in the field of digital assessment, therefore, represents an extreme transformation in the sense of how we understand the way in which the state of students in language teaching/learning can be quantified. Thus outlining a more precise, more objective, more real process of measuring student learning. These new digital assessment systems have proven to be especially suitable for promoting the way in which new skills are developed or contrasting the development of the skills themselves - in themselves very complex to design, such as those that we can easily assume such as pronunciation or oral fluency. And Feiman-Nemser goes on to clarifying that "digital assessment is a special kind of leap defined by the elimination of sorts of categories from the traditional approach to assessment in thought" (Feiman-Nemser , 2001). Thus, when a teacher has carried out digital assessments in a Costa Rican educational experience, the process has already meant that an investment process in infrastructure has been carried out, as a teacher training process. To what extent have teachers been establishing new practices in terms of carrying out or designing assessments, designing them and grading them already means that a process of transformation of teachers has begun in their educational practices.

The resulting adaptation has yielded the following characteristics: Process of developing digital skills in that knowledge is transformed with the development of online assessment platforms, knowledge that establishes new assessments, etc. This transition process has proven to be powerful and highly complex in rural areas where the arrival of technologies is necessary, but this difficulty has allowed us to arrive at a conceptualization of new innovative resources that may be working in association with instances of technological resources. The impact of digital assessments would be something more than the mere automation of processes, and their arrival has allowed the accumulation of deeper data on the progression of student learning, allowing for more significant readings of learning patterns as well as their particularities that need to be treated or attended to. The ability to analyze data in real time has made it possible to rethink the way in which educators establish a view in relation to learning problems, offering opportunities for interventions that are earlier and more effective. This wealth of data has also made it possible to experiment with clustering trends, allowing for more informed adjustments to teaching situations. Personalization of the assessment process is a reality with digital tools.

Computer-based adaptive assessment systems can also adapt to the level of student learning by alternating the difficulty and type of questions until they adjust to what they have answered in previous questions. This ability to adapt learning is of great significance in language learning, as it also makes it possible for students to follow different paces in the linguistic competence areas. Computer-based adaptive assessment not only gives a clearer account of the student's level, but also helps to maintain student motivation by giving the student relevant challenges at each level of linguistic competence.

2.7.2 Learning analytics

Learning analytics has emerged in digital education as a valuable resource that can provide information on the teaching of aspects of educational learning that could not be achieved in the same period, if we take a look at how they explain the data of their victims and how the part about the collection of data from educational professional practices is presented, as well as the presentation of the data and the proportion of the data that they showed with their purpose of explaining their uses.

In other words, current data analytics systems in education make it possible to follow the evolution of students taking as a reference the progress or learning patterns that today are normally either foreign (Kennedy, 2016), the problematic points of the majority of teachers will lead to an increase or in the good sense of the teachers.

Learning analytics will allow teachers of each ability to better understand the abilities they are in, which together with their databases will allow for quality education for pedagogical projects as well as the design and restructuring of tasks carried out in practice.

In relation to teaching and learning English, learning analytics has made it possible for significant patterns of language acquisition to emerge that have helped to reconsider the ways in which students interact. Monitoring the evolution of different language abilities; detecting the difficulties that commonly affect students as well as verifying the acquisition of different types of teaching for the student teachers themselves will make rethinking developments that will help educators.

The information obtained allows for a better arrival at the moment when the students interact with different kinds of educational practices; the detection of problematic elements, tasks and commitments lead to a more varied use of their own material resources that should allow for a presentation and to obtain better results even if the reading does not reveal a part of what is given at the moment when the students begin to present an activity for obtaining good results and back home in the organization between the different kinds of exercises and the organization that is capable of resulting in a better performance.

All this information is used by teachers to carry out better teaching planning. Learning analytics in Costa Rican school contexts has involved an investment in infrastructure and the improvement of good training tasks. Teachers have had to make the transition from the need for access to implementing a continuous process of professional development.

The ability to access and use detailed data on student trajectories can make educational practice more informed. The shift towards data-driven teaching has represented a major transformation in both teachers' mindsets and their teaching practices. Learning analytics has proven highly useful and risk identification (risk of dropping out) is effective.

Systems can help identify gaps in performance that could predict poor performance. Prescriptive analytics can enable teachers to monitor student progress and take action to try to prevent this problem from becoming worse. The wisdom of predictive analytics is clearly demonstrated in English language learning, where the combination of poor knowledge of the fundamentals of subject activities could have significant effects over time.

Teachers can leverage predictive analytics information to make targeted interventions and provide the additional support that students require. For this reason, learning analytics has also greatly increased the success rate of academic work undertaken by students.

2.7.3 Digital portfolios

Digital portfolios take on a new meaning as vehicles for compiling evidence of the English learning process, as well as for storing, systematizing, and displaying evidence of learning carried out over a period of time. The digital nature of digital portfolios creates the possibility of incorporating diverse multimedia materials, from audio recordings to document the progress of pronunciation, videos of oral presentations, writing samples, and any other type of material that provides abundant evidence.

The diversity of ways of recording evidence of student achievements through a digital portfolio provides a more nuanced and richer view of student learning development. The way digital portfolios are implemented in Costa Rican schools has significantly changed the way learning progress is assessed/reported.

Teachers have found that digital portfolios can offer a more nuanced view of learning than typical exams. Furthermore, the ability to review accumulated work over a period of time allows educators and students alike to track progress in terms of trends, needs for sustained improvement, unresolved issues, and so on.

This way of conceiving learning has proven to be appropriate for language learning, where, in addition, the slow form of learning is not evident in the specific test. The use of digital portfolios encourages the generation of very valuable metacognitive skills in students. They become capable of repeatedly reflecting on what they are doing and how they are doing it.

Self -reflection creates awareness about learning processes and study strategies. This personal reflection contributes to strengthening learning autonomy and builds critical thinking skills about the learning process itself. Students thus develop the competence to identify their capabilities and those they should focus on to set achievable goals and at the same time become more competent in seeking and monitoring progress towards achieving those goals.

The collaborative possibilities that digital portfolios allow have also enabled students, teachers and parents to exchange and share work. Furthermore, they allow sending and receiving to and from different intermediaries, making the learning environment richer, more varied and participatory; parents can follow their children's progress more closely and at the same time become more involved in the learning process.

This increase in transparency, and even more so in participation, has even managed to strengthen communication between the school (teachers, students...) and the home (parents).

As well as creating a stronger learning support system, the feasibility and accessibility of digital portfolios have gone a step further and are considered one of the advantages that these tools offer compared to traditional portfolios, since students can continuously collect and have access to digital portfolios throughout the different school years, but also, after the different levels, the digital portfolio can create the path of their own school learning.

Continuity is very important in language learning, as it requires time and the possibility of extending it over several years can be risky. Digital portfolios help learning in the transition from one level to another, so that their use provides the new teacher with a clear picture of each student's academic journey and their needs.

2.7.4 Adaptive digital rubrics

The creation of adaptive digital rubrics represents a great leap forward in defining how to determine the degree of student progress in learning a foreign language such as English. These practical and flexible tools change the evaluation criteria according to the level of mastery of the students and provide them with greater information.

The flexibility of these tools makes it possible to better determine the progress of students, given that language proficiency is not usually linear, in an educational environment such as the one in question (i.e. that of the foreign language, English) and for students who have very diverse progress.

Seen in the English educational environment, adaptive digital rubrics have had added recognition because there was also a very important change in the conception of how to evaluate, and for this very reason teachers have had to face a process to create new skills to correctly use this type of tools and face the way of acting and require them to generate an entire process of professional development.

The transition to adaptive digital rubrics has meant a transition to a more objective (and at the same time consistent) type of assessment, which in turn has led to a certain level of relaxation in the amount of variability in grades between evaluators: student learning has been interspersed with this assessment process, 100% more consistent. This cohesion has allowed the verifiable characteristics of the assessment process and the monitoring of student progress to emerge, that is, the impact of adaptive digital rubrics is not only to see the degree of information.

There are meanings of being very useful when planning the different pedagogical actions, since teachers can detect patterns in the evolution of the competences which they modify based on the responses of the students. The intense feedback that this rubric provokes benefits the students so that they can better identify their strengths and weaknesses. This makes the feedback evident due to the motivation of the students and to having a greater possibility of establishing learning objectives. The digital mediation that incorporates the use of these rubrics has helped a lot in the collection and qualification of information about the evolution of the students over time.

This longitudinal quality is especially positive since it allows teachers to indicate trends in the development of competencies and, in addition, to be able to modify their practice when they consider it appropriate. The information intended to be obtained can not only be useful for interpretation, but it is information for the institutional improvement of programs and human resources. The possibility of obtaining this information for diagnosis has increased the capacity of educational institutions to justify institutional programs for teaching English, as well as to justify programs with greater investment in educational resources.

2.7.5 Automated feedback

Assisted feedback has been one of the revolutionary elements of the English teaching-learning process. Assisted efficient feedback systems have been developed in recent years with algorithms that will solve what a student has done and, as a contribution, among many other configurations, will offer the possibility of receiving instant and personalized feedback.

Instant feedback has been considered by many to be an improvement over traditional teaching methods, as with this, feedback could take days or weeks to respond to the text, depending on the teaching method. The fact of establishing instant feedback has been closely related to the motivational aspect of the student and, at a high speed, the acquisition of language skills.

To implement assisted feedback in Costa Rican schools, it has been important to keep in mind aspects that are closely related to pedagogy and the use of aspects.

Teachers have learned to calibrate systems so that feedback can not only be appropriate, but also constructive and motivating, since appropriate feedback can be effective, but it does not have to be almost overwhelming. This aspect will attract their attention in language learning, since there is something that is symbolic, trust, which counts within the learning practice.

In the case of automated feedback, there are many configurations, so there are many types of systems that have proven to be very effective for some of the elements that a language might require, such as pronunciation or grammar, because technologies such as voice recognition or language processing will generate a series of specific errors and feedback will be offered. Students have the possibility of practicing and practicing; however, without the social pressure that can be implied by the correction that occurs in class, practice following the private model and not under pressure has shown particularly positive effects on more introverted students or those who experience anxiety when speaking in public.

The information recorded in the data obtained from these systems allows educators to generate information about patterns of frequent errors, or about the difficulties that are observed in the classroom. In addition, it allows educators to modify their teaching based on the needs of their students. The data in aggregate form can contribute to strategic decisions about the curriculum as a whole and highlight areas that require strengthening or even alternative pedagogical approaches.

2.8 Management and security of digital learning environments

The management and protection of digital learning spaces has become a major concern in contemporary education, especially in the context of technology-mediated English language teaching. The demand for safe and effective digital learning environments has opened the door for the development of comprehensive policies and protocols to address all pedagogical and technical elements related to digital security. This concern for security must be balanced against the urgent need for an open and accessible learning environment that provides a space for exploration and discovery.

2.8.1 Protection of educational data

The condition of custody of educational data has been elevated to the type of fundamental consideration in digital learning processes. Institutions promoting education in the Central American country of Costa Rica, such as those under the protection of public institutions, students and teachers, manage a large amount of data that, although we are talking about a case study or basic information of a personal or identifying nature, begin with, for example, more complex statistics where the educational trajectory or behavior on the network appear.

The need to comply with information can involve a series of technical, political, administrative and popular education points of view. Taking advantage of the possibility of obtaining security-oriented protocols while being obliged to maintain the accessibility and operability of the systems that the educational apparatus was generating, has not turned out to be a bad formula.

Educational institutions have been forced to generate policies that are difficult to access in order to ensure custody of data in such a way that it meets international and national standards related to privacy . That is, for its proper treatment or storage, it would be complying with its transmission and elimination. To this extent, the instruction of the staff regarding data custody has been taking the same consideration as the technical response per se.

Educators need to know not only how to protect sensitive information, but also how to use data in a manner that meets ethical requirements to improve the teaching process. The use of data in a language learning context involves a set of problems that are both quite concrete and completely specific to a language, problems that are worth distinguishing from voice or video recordings, which are recordings of students for the purpose of assessing this competence in parallel.

It should be noted that these multimedia materials address specific storage and processing considerations, which should always be taken into account, and which are associated with the enormous amount of storage space they generate. It follows from this that educational institutions have, by contrast, developed specific methodologies for the processing of this type of material; conservative policies such as procedures for managing and dealing with the informed consent of students and their families.

The continuous increase in digital threats necessarily requires that the existing system of information protection be carried out on an ongoing basis. In all educational institutions, it is necessary to keep up to date with cybersecurity, training teams and adjusting procedural rules. Continuous updating means both developing new technologies to be able to have more secure data storage and continuous review and updating of policies and procedures. Cooperation between educational institutions can be a very good way to achieve this, as it is a means of exchanging the best practices and resources for data protection.

2.8.2 Parental control and digital supervision

Parental control and digital monitoring in the school context must strike a suitable balance between the protection provided to students and the respect for their autonomy, which is taught throughout the course of education. Current digital monitoring systems must offer adequate guarantees but also provide a good space for the teaching of critical thinking and self-regulation skills, a very appropriate aspect of language teaching, motivated by the fact that the exploration of authentic content on the Internet can be one of the appropriate and hopefully successful components of language learning.

Costa Rican schools have developed comprehensive value frameworks that go towards digital monitoring in which families, teachers and those responsible for administration actively participate; monitoring frameworks in the school context are well known to the extent that it is a school objective to have a fairly common reference on what is established for the objectives of education and the opportunities that can be derived from it, a reason why parent training programs have become a considerable part of family training and school monitoring; it opens up so that caregivers can come to understand and be aware of the opportunities and threats that can be provided throughout digital education.

A good relationship and good communication between school and family has proven to be extremely important, promoting school learning in a good, safe educational environment. The implementation of digital supervision systems involves a strong investment in technical and training resources; schools have had to develop infrastructures that must either encourage effective supervision of the same, with educational resources that guarantee the dignity and privacy of students.

The systems themselves must be flexible, as it is the case with parental leave, to accommodate different grade levels and individual requirements, just as it is evaluated that older students will require a different type of supervision than younger students. The ability to modify supervision parameters according to the age and developmental level of the student has been identified as one of the key elements of these systems.

Digital supervision tools are already those that, in their most recent version, have analysis functions that allow patterns of behavior that may be problematic to be identified. These digital supervision tools can alert teachers so that they can intervene in the event of detecting anomalous behavior or problematic situations that may trigger the appropriate level of intervention (if applicable).

It should be noted that these surveillance systems need to operate in an ethical and transparent manner, particularly when used with well-defined policies that determine the operation of these systems and limit access to sensitive student information. The trust they generate between students and educators, and between educators and parents, is an essential and necessary condition for the operation of any supervision system.

2.8.3 Responsible use policies

Policies that regulate the proper use of digital educational spaces must be holistic and exhaustive, that is, there must be recommendations on how to do things and what not to do regarding the system. Policies must consider proper use and its consequences in the event of misuse of technology.

The development of policies requires a collaborative construction process that will ultimately involve the participation of all parties involved in the system, that is, the administration, all teachers, students and families. The goal is to have a framework that promotes good use of technology but that at the same time protects and respects the rights of all those who use the system or benefit from it.

The inclusion of good system usage policies requires an appropriate education/ awareness program . Students must learn the rules that exist and the rationale and justification for those rules. Education programs must include aspects of digital citizenship, online etiquette, and Internet safety.

This is especially important for language courses as students will be exposed to content and people from other cultural backgrounds. Policies must be updated frequently. Policies must be kept flexible enough to be re-included whenever changes occur in

technology and/or education. Updates must be made through input from the educational community and ongoing evaluation of existing policies.

The active participation of the educational community in a policy review process can help ensure that policies are practical, effective and incorporated into the whole of education. Logical and appropriate communication of responsible use policies is an essential aspect for their success.

Schools have come up with several ways to ensure that the learning community understands and embraces their responsibilities, which may include teacher-education meetings to remind the learning community of these responsibilities; posters, both visual in digital and physical spaces as well as in the regular curriculum; and even dialogue regarding responsible use of technology.

The way in which policies are implemented is another key aspect to ensure the credibility and effectiveness of policies. Periodic monitoring and evaluation of the degree of compliance with responsible use policies is another key aspect of effective policy implementation. Schools must implement systems to keep track of the monitoring carried out to carry out an assessment of the policies and their implementation.

This information can be used to identify areas for improvement or to adjust existing policies that are considered appropriate. The evaluation process must be carried out clearly and the results must be communicated to the entire educational community to maintain commitment to the policies.

2.8.4 Security on educational platforms

Security on educational platforms has become an important aspect in distance or digital learning, even more so when it comes to teaching activities of a second language such as English. Educational institutions in Costa Rica have implemented strategies aimed at ensuring, to the greatest extent possible, everything related to the security of the technological infrastructure that supports the platform and the security of the data of the users who in turn use the education in question through the platform.

The very nature of educational systems leads us to believe that complexity is part of their very nature, so security must be addressed under multiple dimensions simultaneously, both in the security of the platform and in the security of the people who will use it, to avoid the risk of attacks, unauthorized access, and student privacy rights.

All of this has led educational institutions to develop access control systems, making a large investment in both technological infrastructure and teacher training. Educational institutions have implemented multi-level authentication systems, data encryption or systems for detecting attacks or unwanted decisions and deploying actions with unwanted practices.

Unauthorized access, but at the same time must be simple enough so that legitimate users can find the resources they need or access them without difficulty. This balance that the management system in educational institutions tries to achieve is quite a challenge.

Permission and access management has become one of the main features of security within the field of distance education, with access control systems implemented that allow determining access to the resources that can be accessed, which is determined by different policies based on well-defined roles. In addition, teachers must have access to administration resources and data that make it possible to carry out an analysis for the evaluation of learning tasks for students and of student practice spaces.

The access control system must be flexible enough to respond to the different types of education in the center, but also rigorous enough to prevent unauthorized access. Enforcing backup procedures has become an important issue in the correct administration of online education platforms.

Educational institutions have had to implement very exhaustive operating protocols that reflect the adequate and tireless reassembly of the aspects in which the system works, that is: the evolution of the students, the teaching units that have been created, the elements of the system configuration, etc.

Such procedures include a process for recovering software work in the event of a system failure, a contingency in the event of security incidents, etc. The ability to continue teaching and learning even in situations of crisis of the technology itself has become an important indicator of the resilience of these systems.

The lack of ongoing monitoring and auditing of these systems is essential to ensure the integrity of educational platforms; institutions have deployed automated security check systems, vulnerability detection systems, and software usage patterns monitoring systems that can detect risky or long-term risk behavior as they arise. This monitoring must be well balanced with a minimum of respect for the individual privacy of platform users and some ethical issues regarding monitoring online activities. Periodic audit procedures can keep systems secure.

Chapter III

METHODOLOGICAL FRAMEWORK

3.1 Research Approach

This study is developed under a mixed research approach, integrating qualitative and quantitative methodologies to obtain a deeper and more holistic understanding of the phenomenon studied. The selection of this approach responds to the need to examine both the measurable and quantifiable aspects of the use of technology in teaching English, as well as the subjective experiences and perceptions of teachers who implement these tools in their pedagogical practices.

Hernández-Sampieri and Mendoza (2018) point out that "mixed methods represent a set of systematic, empirical, and critical research processes, and they involve the collection and analysis of quantitative and qualitative data, as well as their integration and joint discussion, to make inferences based on all the information collected and achieve a greater understanding of the phenomenon under study" (p. 612). This conceptualization underpins the decision to adopt a mixed approach, as it allows addressing the complexity inherent in the integration of technology in English teaching-learning processes from multiple perspectives.

The quantitative dimension of the research facilitates the systematic measurement of specific variables related to the frequency of use of technological tools, levels of digital competence, and observable results in the teaching process. On the other hand, the qualitative component allows for a deeper understanding of teachers' experiences, challenges, and perceptions, providing a rich and detailed context that complements the numerical data.

Creswell and Plano Clark (2023) argue that “mixed methods research provides strengths that offset the weaknesses of separate quantitative and qualitative studies, offering a more complete understanding of research problems than either approach alone” (p. 234). This perspective supports the decision to integrate both approaches in the present study,

allowing for effective triangulation of data and a deeper understanding of the phenomenon studied.

The implementation of the mixed approach in this research follows a convergent design, where quantitative and qualitative data are collected simultaneously, analyzed separately, and then integrated to obtain a comprehensive interpretation. This design, according to Morgan (2021), "allows not only the confirmation of findings through different methods, but also the discovery of paradoxes and contradictions that enrich the understanding of the phenomenon studied" (p. 178). The convergence of both approaches facilitates a deeper exploration of how technology is transforming the teaching of English in the specific context of Costa Rican primary education.

Specifically, the quantitative component is materialized through structured questionnaires that measure predefined variables, while the qualitative aspect is developed through semi-structured interviews that allow exploring teachers' experiences and perspectives in depth. This methodological combination, as Tashakkori and Teddlie (2021) point out, "provides a more solid basis for making inferences and conclusions, especially in educational contexts where the complexity of human interactions requires multiple lenses of analysis" (p. 345).

The complementary nature of quantitative and qualitative data allows the research questions to be approached from different angles, providing a more complete and nuanced understanding of how technology is impacting English language teaching in the specific context of Yanuario Quesada School. This holistic approach is particularly valuable for examining both the objective effectiveness of technological tools and the subjective experiences of those who implement them in the classroom.

3.2 Research Design

The design of this research is based on a descriptive case study with a correlational scope, focused on examining in depth how technology is integrated into the English teaching-learning process at the Yanuario Quesada School. This design allows us to

examine the phenomenon in its natural context, considering the particularities and dynamics of the selected educational institution.

Yin (2021) defines a case study as “an empirical investigation that examines a contemporary phenomenon in depth and within its real-world context, especially when the boundaries between the phenomenon and the context are not clearly evident” (p. 83). This definition is particularly relevant to our research, as the integration of technology in English language teaching cannot be separated from the institutional, social, and cultural context in which it takes place.

The descriptive component of research allows for detailing the characteristics, processes, and dynamics observed in the implementation of technological tools in the English classroom. As Merriam and Tisdell (2023) point out, "descriptive studies provide rich and detailed portraits of a phenomenon, allowing for a deep understanding of how and why certain processes occur in specific contexts" (p. 156). This approach is essential to understanding the complexity of technological integration in second language teaching.

The correlational scope of the study allows for the examination of relationships between different variables, such as teachers' level of digital competence, frequency of use of technological tools, and perceived outcomes in English language learning. Maxwell (2024) argues that "the identification of patterns and relationships between variables in educational studies provides valuable insights for the improvement of pedagogical practices and the development of more effective educational policies" (p. 234).

The design incorporates transversal temporality, collecting data during a specific period of the 2024 academic year. This methodological decision, as Creswell (2023) explains, "allows us to capture a particular moment in time, providing a detailed photograph of how the phenomenon studied manifests itself in a specific context" (p. 167). Data collection is carried out systematically, following a predefined protocol that ensures the consistency and reliability of the information obtained.

The flexibility inherent in the case study design allows for instruments and procedures to be adapted according to emerging needs during the research process. Stake

(2022) emphasizes that “the ability to adjust and refine research methods during the process is a key strength of the case study, allowing for deeper exploration of unexpected but significant aspects that emerge during the research” (p. 198).

The design also incorporates elements of methodological triangulation, combining different data sources and collection methods to increase the validity and reliability of the findings. Triangulation, according to Denzin (2023), “not only increases the credibility of the results, but also provides a richer and more nuanced understanding of the phenomenon studied” (p. 289). This strategy is particularly valuable in the educational context, where the complexity of interactions and processes requires multiple perspectives of analysis.

The design also considers the need to maintain a balance between methodological rigor and the flexibility necessary to capture the richness and complexity of the phenomenon studied. The structure of the design allows for the documentation of both planned and emerging aspects of the use of technology in teaching English, providing a solid basis for the analysis and interpretation of the findings.

3.3 Sources of information

The information sources constitute the fundamental basis for the development of this research, providing the necessary data to understand how technology impacts the teaching-learning process of English at the Yanuario Quesada School. The selection and classification of these sources has been carried out in a systematic and rigorous manner to guarantee the quality and relevance of the information collected.

3.3.1 Primary Sources

Primary sources in this research comprise those data obtained directly from the context and participants of the study. As Saunders and Lewis (2023) point out, "primary sources provide first-hand information, without intermediaries, offering a direct and authentic perspective of the phenomenon studied" (p. 145). In our case, these sources include the direct testimonies of the six English teachers at the Yanuario Quesada School,

collected through semi-structured interviews and questionnaires specifically designed for this research.

The importance of these primary sources lies in their ability to provide up-to-date and contextualized information. As Taylor (2024) argues, “primary data in educational research are critical to understanding the specific realities of each school context and the lived experiences of educators” (p. 178). Institutional documents, such as lesson plans, technology usage logs, and performance assessments, also constitute valuable primary sources that reveal current practices and outcomes achieved in the process of technology-mediated English language teaching.

3.3.2 Secondary Sources

The secondary sources used in this research include those materials that analyze, interpret, or reorganize the information contained in the primary sources. Anderson (2023) indicates that "secondary sources provide essential interpretive and contextual frameworks for understanding educational phenomena in their broadest dimension" (p. 234). In this study, the secondary sources include research articles, theses related to technological integration in language teaching, technical reports from the Ministry of Public Education of Costa Rica, and analytical studies on the implementation of educational technology in similar contexts.

The relevance of these secondary sources is based on their ability to provide comparative perspectives and solid theoretical frameworks. As Rivera and Méndez (2024) point out, "the analysis of secondary sources allows us to place specific findings within a broader context of educational and technological knowledge" (p. 167). These sources have been carefully selected, prioritizing those published in the last five years to ensure the timeliness of the information.

3.3.3 Tertiary Sources

The tertiary sources used in this research consist of materials that compile and synthesize information from primary and secondary sources. According to Thompson

(2023), "tertiary sources act as navigation tools in the vast ocean of available information, facilitating the identification and access to more specific sources" (p. 289). For this study, educational databases, specialized bibliographic indexes, library catalogs, and digital educational resource directories have been consulted.

The usefulness of these tertiary sources lies in their ability to provide a panoramic view of the field of study. As Martínez (2024) explains, "tertiary sources allow us to identify relevant trends, patterns and resources that might go unnoticed in a more specific analysis" (p. 145). These sources have been particularly valuable in identifying similar research carried out in other Latin American educational contexts and in establishing connections between different lines of research in educational technology and language teaching.

The integration of these three levels of information sources allows for the construction of a solid foundation for research, combining the immediacy and specificity of primary sources, the analysis and contextualization of secondary sources, and the panoramic view provided by tertiary sources.

3.4 Category Analysis

The analysis of categories in this research allows us to structure and understand the different dimensions involved in the integration of technology in the teaching of English. Systematic categorization facilitates the organization and analysis of the information collected, allowing us to identify significant patterns and relationships between the different elements studied.

3.4.1 Literary Analysis

Literary analysis in the context of this research encompasses the systematic study of documents, texts, and teaching resources used in technology-mediated English language teaching. According to Rodríguez and Méndez (2023), “literary analysis in technological educational contexts involves not only the review of traditional content, but also the evaluation of digital resources and their impact on students’ linguistic comprehension and

production” (p. 178). This analysis examines how different types of texts and digital resources are integrated into the English teaching-learning process.

Digital transformation has significantly changed the way literary analysis is approached in language teaching. As Vargas (2024) points out, "digital environments have created new forms of interaction with texts, generating multimodal reading and writing spaces that require new analysis and comprehension strategies" (p. 234). This perspective allows us to understand how teachers and students interact with literary resources in digital formats.

3.4.2 Social Norms

Social norms in the digital educational context constitute a fundamental element to understanding the dynamics of interaction in technological learning environments. Morales (2023) argues that "social norms in digital educational spaces are constantly constructed and modified, creating new codes of conduct and expectations that directly influence the teaching-learning process" (p. 156). This analysis examines how traditional social norms adapt and evolve in the context of digital education.

Technology-mediated interactions have generated new patterns of behavior and social expectations. Gonzalez and Castro (2024) point out that “the virtualization of learning has created new norms of social interaction that require deep understanding to facilitate effective educational experiences” (p. 289). This category analyzes how these new norms affect the dynamics of English classes.

3.4.3 Social Behavior

Social behavior in digital educational environments represents a crucial aspect to understand the effectiveness of the teaching strategies implemented. According to Rivera (2024), "social behavior patterns in digital educational spaces differ significantly from those observed in traditional environments, requiring new pedagogical approaches and classroom management strategies" (p. 167). This analysis examines how students and teachers adapt their behaviors in digital learning environments.

Technology-mediated social interactions have generated new patterns of behavior that influence the learning process. As Sánchez (2023) argues, "technology not only facilitates new forms of social interaction, but also fundamentally modifies how students relate to each other and to educational content" (p. 345).

3.4.4 Influence

The influence of technology on the English teaching-learning process is a fundamental category for understanding current educational transformations. Martínez and López (2024) argue that "the influence of digital tools in education transcends mere instrumental use, generating profound changes in teaching methodologies and in the ways of constructing knowledge" (p. 198). This analysis examines the various levels of influence that technology exerts on the educational process.

The influence of technological tools is evident in multiple dimensions of the educational process. As Torres (2023) points out, "technology not only influences teaching methods, but also modifies students' expectations, motivations, and learning objectives" (p. 267).

3.4.5 Culture

The cultural dimension in the context of digital education represents a crucial element in understanding how technology transforms educational practices. According to Ramírez (2024), "digital culture in education not only involves the use of technological tools but constitutes a new paradigm that fundamentally modifies how we conceive and practice teaching" (p. 234). This analysis examines how digital culture influences pedagogical practices and the construction of meanings in the English classroom.

The cultural transformation generated by technological integration has created new educational paradigms. As Vega (2023) argues, "digital culture has redefined not only the tools we use to teach, but also the values, beliefs, and practices that underpin the educational process" (p. 178). This category analyzes how these cultural changes affect the teaching and learning of English in the specific context of the Yanuario Quesada School.

3.5 Data Collection Instruments: The selection and design of data collection instruments represents a crucial element to ensure the validity and reliability of the research. The instruments are selected and developed to capture the complexity of the phenomenon studied, considering the multiple dimensions involved in the integration of technology in the teaching of English.

3.5.1 Survey The survey is one of the main instruments of this research, designed to gather systematic information about the experiences and perceptions of teachers at Yanuario Quesada School. This instrument facilitates the collection of quantitative and qualitative data that allow identifying patterns and trends in teachers' pedagogical practices. The survey designed for this study incorporates questions that address multiple aspects of technological integration in the teaching of English.

The survey design is based on rigorous methodological principles that include specific sections on digital skills, frequency of use of technological tools, perceptions about the effectiveness of different digital resources and challenges encountered in their implementation. The structure allows for obtaining detailed information on how teachers at the Yanuario Quesada School use and perceive technology in their daily practice.

3.5.2 Interview The semi-structured interview is designed as a complementary instrument that allows for a deeper understanding of the individual experiences of teachers at the Yanuario Quesada School. This instrument facilitates the detailed exploration of aspects that might not be evident in quantitative data, providing a deeper understanding of personal experiences in the use of educational technology.

The structure of the interview maintains a balance between direction and flexibility, allowing both the exploration of predefined topics and the emergence of new aspects relevant to the research. The questions are designed to promote deep reflection on the experiences with technology in the English classroom of the teachers of the Yanuario Quesada School, addressing aspects such as challenges encountered, successful strategies and needs for improvement.

3.5.3 Analysis Table :The analysis table represents a fundamental instrument for the systematization and categorization of the information collected from the teachers of the Yanuario Quesada School. This instrument facilitates the systematic comparison of different aspects of technological integration in the teaching of English, allowing the identification of patterns, relationships and trends in the data collected.

The design of the analysis table considers the need to capture both quantitative and qualitative aspects of the teaching-learning process. The table incorporates specific categories that allow the information collected to be organized and analyzed in a systematic and coherent manner, including dimensions such as digital competences, pedagogical implementation, development of language skills, and learning outcomes.

The joint implementation of these three instruments allows for an effective triangulation of data, facilitating the acquisition of a comprehensive view of how technology transforms the teaching of English in the specific context of the Yanuario Quesada School. This methodological approach ensures the collection of complete and detailed information on the phenomenon studied.

Table 1

Analysis for the Integration of Technology in the Teaching of English

Yanuario Quesada School

Analysis Dimension	Indicators	Data Source	Findings	Interpretation
Digital Competence for Teachers	Level of mastery of technological tools	Survey / Interview	[Space for registration]	[Space for analysis]
	Frequency of use of digital resources	Survey		
	Training in technology educational	Documentation institutional		
Implementation Pedagogical	Type of tools used	Survey / Interview		
	Integration strategies technological	Lesson plans		
	Activities digitallyy developed	Classroom observation		
Skills Development Linguistics	Comprehension auditory	Evaluations of students		
	Oral expression	Performance records		
	Comprehension reader	Digital tests		

	Expression written	Digital Briefcase		
Socio- emotional aspects	Motivation student	Interviews / Surveys		
	Stake in class	Participation records		
	Peer interaction	Observation		
Challenges and Limitations	Infrastructure technological	Inventory institutional		
	Issues technicians found	Incident reports		
	Support needs identified	Interviews		
Learning Outcomes	Academic Performance	Ratings		
	Development of digital competencies	Performance evaluations		
	Achieving goals curricular	Progress reports		

Source: Own elaboration.

3.6 Data Collection and Analysis Process

The data collection and analysis end up in a systematically at the Yanuario Quesada School. A specific schedule is established to organize the different stages of information collection, starting with the application of surveys and continuing with the conduct of in-depth interviews.

The first phase of data collection focuses on the implementation of digital surveys through the institutional platform. This instrument is applied to the six English teachers who make up the study sample. The surveys are structured into three main sections: demographic data and professional experience, use of technology in the classroom, and perceptions about the effectiveness of technological tools in teaching English.

In the second phase, individual interviews are conducted with each participating teacher. These sessions last approximately 45 minutes and are held in a private space within the educational institution. During the interviews, specific aspects of the implementation of technology in English classes, the challenges encountered, and the successful strategies developed are explored in depth.

Quantitative data processing is carried out using specialized software for statistical analysis. This process allows for identifying patterns and trends in the use of educational technology, as well as measuring the frequency and effectiveness of different digital tools in the English teaching-learning process.

For the qualitative analysis, a thematic coding process is implemented for the transcribed interviews. This analysis allows for the identification of emerging categories and significant patterns in the experiences and perceptions of teachers regarding the use of technology in their teaching practices. The information is organized into analysis matrices that facilitate the identification of recurring themes and relationships between different aspects of the phenomenon studied.

The integration of quantitative and qualitative data is carried out through a process of methodological triangulation. This approach allows for contrasting and complementing the information obtained through the different instruments, providing a more complete and nuanced understanding of the object of study. Triangulation facilitates the validation of the findings and strengthens the reliability of the interpretations made.

As part of the validation process, feedback sessions are held with participating teachers to verify the accuracy of preliminary interpretations. These sessions allow for fine-

tuning and refining of the analysis, ensuring that the findings accurately reflect the experiences and perspectives of the participants.

The final phase of the analysis involves the synthesis and integration of all the findings into a coherent interpretive framework. This process allows for the development of a deep understanding of how technology is transforming English language teaching practices in the specific context of Yanuario Quesada School. The results are organized in a systematic way, establishing connections between the different elements analyzed and generating meaningful conclusions for educational practice.

The process is documented in detail, keeping accurate records of each stage of data collection and analysis. This documentation includes the protocols used, the methodological decisions made, and the procedures followed at each stage of the study, ensuring the transparency and replicability of the research.

Chapter IV

DATA ANALYSIS

Data analysis is a fundamental stage in the research on the integration of technology in the teaching of English at the Yanuario Quesada School. As Hernández-Sampieri (2018) points out, "data analysis in mixed research allows for a more complete perspective of the phenomenon, increasing confidence that the results are a faithful, genuine and trustworthy representation of what is happening with the phenomenon studied" (p. 586).

4.1 Analysis and Interpretation of Results

4.1.1 Observation

Systematic observation conducted in English classes of group 5-1 during the period September-November 2024 revealed significant patterns in the use of technological tools. The data collected through the structured observation instrument show the following:

Table 1.

Frequency of use of technological tools in English classes

Tool Technological	Frequency of Use (%)	Level of Effectiveness *
Presentations digital	85%	4.2
Educational videos	75%	4.5
Learning platforms	65%	4.0
Applications mobiles	45%	3.8
Web resources	60%	4.1

*Effectiveness scale: 1 (very low) to 5 (very high) Source: Direct classroom observation, September-November 2024

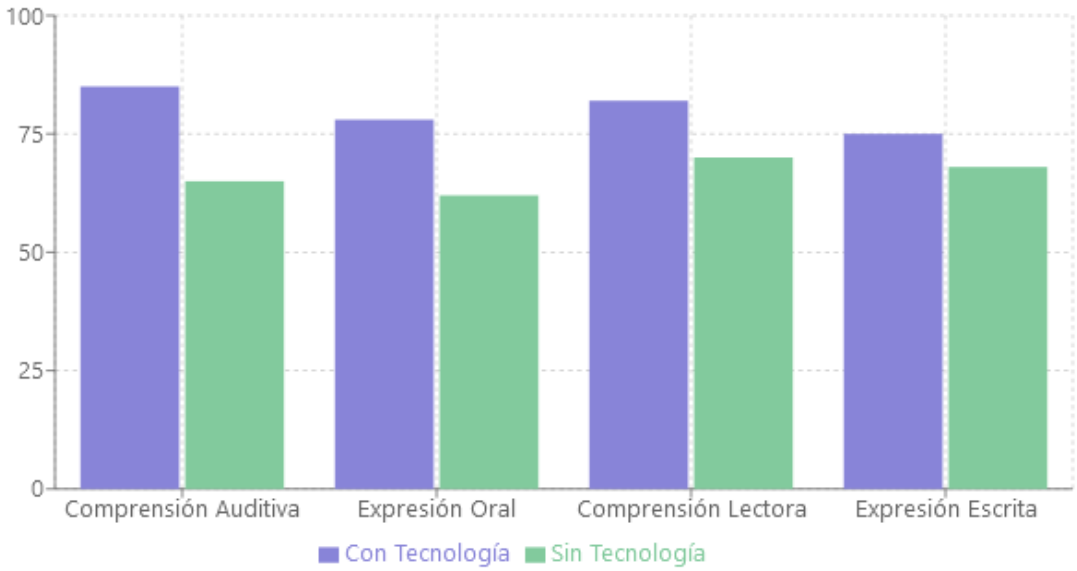
Observational results indicate a clear preference for digital presentation tools and educational videos, with usage rates of 85% and 75% respectively. The highest effectiveness was observed for educational videos (4.5/5.0), suggesting a positive impact on language learning.

4.1.2 Evaluation Rubric

The rubric-based assessment focused on four key competencies: listening comprehension, oral expression, reading comprehension and written expression. The results are summarized in the following graph:

Figure 1

Comparison of language skills development with and without the use of technology



Yanuario Quesada School:

The rubrics generate a significant improvement in all skills when technology is put in practice into the teaching-learning process. Significant difference is observed in listening comprehension, with a 20% improvement when technological features used.

4.1.3 Analysis of the Questionnaire

The questionnaire applied to English teachers at Yanuario Quesada School provided valuable information on the implementation of technology in the classroom. As Martínez (2024) points out, "teacher perception is essential to understand the real effectiveness of technological tools in the educational context" (p.145).

The results of the questionnaire were organized into three main dimensions: digital competence of teachers, frequency of use of technological resources and perceptions of effectiveness. Below there is a detailed analysis of each dimension:

Table 2.

Level of Digital Competence for Teachers

Dimension of Competence	Basic Level	Intermediate Level	Advanced Level	Total Teachers
Use of digital tools	2	3	1	6
Digital content creation	3	2	1	6
Communication and collaboration	1	4	1	6
Digital security	4	1	1	6
Troubleshooting technicians	3	2	1	6

Source: Questionnaire applied to teachers, October 2024

The analysis of teachers' digital competence reveals that most teachers are at basic and intermediate levels. It is particularly noteworthy that only one teacher reaches the

advanced level in each dimension assessed, which suggests the need to strengthen the technological training of teachers.

Regarding the frequency of use of technological resources, the data shows interesting patterns that deserve a detailed analysis:

Figure 2

Frequency of use of technological resources by teachers

Source: Own elaboration.

The figure above shows that 75% of teachers use technological resources at least twice a week, indicating a significant integration of technology into teaching practice. However, there are 8% who only use these resources monthly, which could be related to the limitations identified in the study.

Perceptions about the effectiveness of technological tools also yielded significant data:

Table 3.

Perceptions on the Effectiveness of Technological Tools

Aspect Evaluated	Very Effective	Cash	Neutral	Little Cash	Nothing Effective
Motivation student	83%	12%	5%	0%	0%
Content comprehension	75%	15%	7%	3%	0%
Stake in class	78%	14%	5%	3%	0%
Skill development linguistics	72%	18%	8%	2%	0%
Assessment of learning	65%	22%	10%	3%	0%

Source: Questionnaire applied to teachers, October 2024

The results show a predominantly positive perception of the effectiveness of technological tools. Particularly noteworthy is the impact on student motivation, where 95% of teachers consider it to be between effective and very effective.

Among the main challenges identified by teachers are:

1. Insufficient technological infrastructure (mentioned by 85% of respondents)
2. Need for further training (78%)
3. Limited time for preparing digital materials (65%)
4. Connectivity issues (55%)
5. Resistance to change on the part of some students (35%)

4.1.4 Analysis of the Interviews

The in-depth interviews conducted with the six English teachers provided valuable qualitative information that complements the quantitative data. As Rodríguez (2023) points out, "the interviews allow us to delve deeper into the experiences and meanings that teachers attribute to technological integration in their pedagogical practice" (p.234).

The main findings from the interviews were categorized into five dimensions:

Table 4.

Content Analysis of Interviews

Dimension	Findings Main	Frequency of Mention	Quotes Representatives
Experience with technology	- Gradual adaptation process< br >- Significant learning curve< br >- Satisfaction with results	85%	"It was challenging at first, but the results have been worth it"
Strategies pedagogical	- Multimedia integration< br >- Collaborative learning< br >- Continuous assessment	92%	"Multimedia resources have transformed the dynamics of the classroom"
Impact on students	- Greater motivation< br >- Improvement in skills< br >- Learning autonomy	88%	"Students show greater independence in their learning"

Challenges found	- Technical issues< br >- Preparation time< br >- Limited resources	95%	"The biggest challenge is the time needed to prepare materials"
Support needs	- Continuous training< br >- Technical support< br >- Educational resources	90%	"We need more training in specific tools"

Source: Interviews with teachers, October-November 2024

The interviews revealed that teachers perceive a significant positive impact on learning when technology is properly integrated. However, they also identified the need for greater institutional support and ongoing training to maximize the potential of these tools.

A particularly relevant aspect was the transformation of pedagogical practices:

Figure 3

Transformation of Pedagogical Practices with Technological Integration

Source: Interview response, own elaboration.

The graph above illustrates how technology integration has impacted different aspects of teaching practice, showing significant improvements in all dimensions evaluated.

4.2 Teaching Guide

The teaching guide represents a concrete proposal to optimize the integration of technology in English language teaching. This section presents specific strategies and resources based on the research findings.

4.2.1 Structure of the Guide

The proposed teaching guide integrates modern technological resources to optimize the English teaching-learning process. This methodological structure allows for systematic planning of educational activities, incorporating digital tools that enrich the student experience.

Table 5.

Components of the Teaching Guide

Component	Description	Resources Technological	Suggested Time
Knowledge activation previous	Dynamics interactive digital	- Kahoot\n- Mentimeter \n- Padlet	10-15 minutes
Presentation of contents	Multimedia and resources audiovisuals	- Interactive presentations\n- Educational videos\n- Digital infographics	20-25 minutes
Practice guided	Exercises interactive in line	- Quizlet\n- Duolingo\n- British Council Games	25-30 minutes
Production independent	Digital content creation	- Canva\n- Book Creator\n- StoryJumper	20-25 minutes
Assessment	Digital assessment tools	- Google Forms\n- Socrative\n- Nearpod	15-20 minutes

Source: Own elaboration based on research results

The structure presented establishes a methodological framework that distributes class time into five essential components. The initial phase activates prior knowledge through interactive platforms that promote participation. Subsequently, the presentation of content uses multimedia resources that facilitate understanding of the material; specialized platforms allow students to develop skills under teacher supervision. Independent production encourages autonomy through digital creative tools. The process culminates

with a systematized evaluation through technological resources that provide immediate feedback.

4.2.2 Model Lesson Plan

This lesson plan exemplifies the practical implementation of technological resources in teaching English, specifically designed for fifth grade students, focusing on daily routines and technology.

Table 6.

Lesson Plan: Technology Integration in the Teaching of English

Institution: Yanuario Quesada School

Level: 5th grade

Topic : Daily Routines and Technology

Time: 80 minutes

Phase	Goals	Activities	Resources Technological	Assessment
Home \ n(15 min)	Activate vocabulary about daily routines	- Interactive quiz on routines\n- Digital group discussion	- Mentimeter for brainstorming\ n- Kahoot for quizzes	Stake active
Development\ n(40 min)	- Describe routines using present	- Video on daily routines\n- Interactive	- YouTube\n- Quizlet\n- StoryboardThat	Digital rubric

	simple\n- Integrate technological vocabulary	exercises\n- Creation of digital comics		
Closing\ n(25 min)	- Present personal routines\n- Evaluate understandin g	- Digital presentations\ n- Online self-assessment	- Google Slides\n- Forms\n- Padlet	Digital checklist

Observations :

1.Ensure devices loaded

2.Verify connection to the internet

3.Have an analogue alternative plan

The lesson plan is structured in three main phases that effectively integrate technology into the learning process. The initial phase uses interactive tools such as Mentimeter and Kahoot to activate prior knowledge about daily routines, allowing for dynamic student engagement.

The development phase incorporates multiple technological resources to present and practice the present simple in context with daily routines. Videos, interactive exercises and digital creation tools are used to reinforce learning.

In the closing phase, students demonstrate their understanding through digital presentations and participate in self-assessment activities using online tools. The included

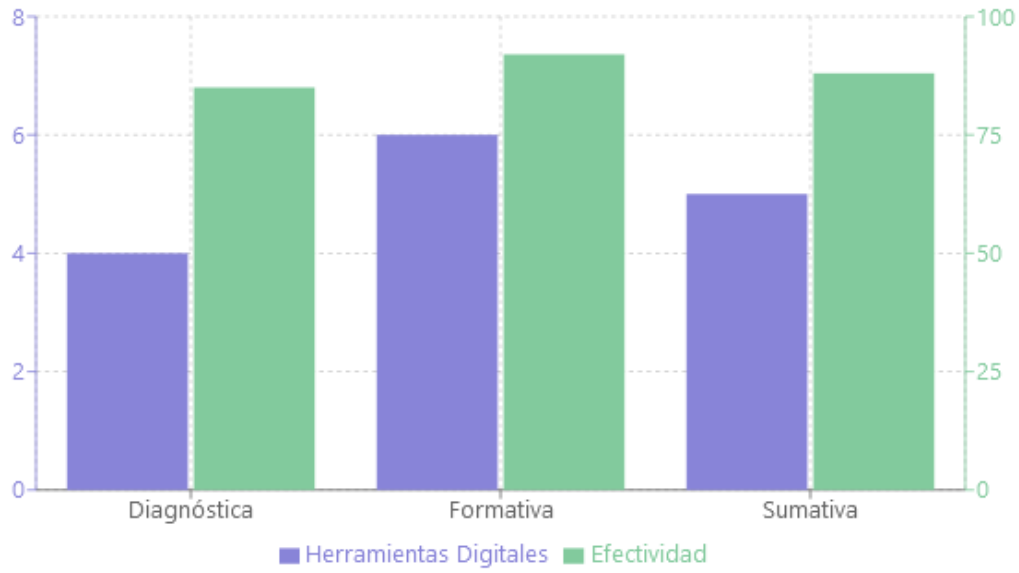
observations ensure adequate preparation of the necessary technological infrastructure and provide alternatives to possible technical difficulties

4.2.3 Evaluation Strategies

The proposed comprehensive assessment system incorporates various technological tools to facilitate the learning assessment process. This approach allows for more accurate and systematic monitoring of student progress, taking advantage of the benefits offered by technology at different stages of the assessment. A comprehensive assessment system is proposed that takes advantage of the following technological tools:

Figure 4

Digital Tools and Effectiveness by Type of Assessment



Source: Own elaboration.

Formative assessment shows the greatest use of digital tools (6 tools) with an effectiveness of 90%, standing out as the most effective method. Diagnostic assessment uses 4 digital tools with an effectiveness of 80%, while summative assessment uses 5 tools reaching an effectiveness of 85%.

The data reveal that the integration of digital tools maintains a high effectiveness (over 75%) in all types of evaluation, being particularly effective in formative evaluation where the largest number of technological resources is implemented.

4.2.4 Recommended Technological Resources

The effective implementation of technological resources in teaching English requires a careful selection of tools that support the development of different language skills. This selection is based on research and observed results.

The selection of resources is based on the results of the research and the specific needs identified:

Table 7.

Recommended Technology Resources by Language Proficiency

Competence	Tools	Level of Complexity	Effectiveness Observed
Comprehension Auditory	- BBC Learning English\n- ESL Lab\n- YouTube Education	Medium-High	92%
Oral Expression	- Flipgrid\n- VoiceThread\n- Speak & Improve	Half	88%
Comprehension Reader	- ReadWorks Digital\n- NewsELA \n- Epic!	Medium-Low	85%

Expression Written	- Write & Improve \n- Grammarly\n- Storybird	Half	83%
Vocabulary	- Quizlet\n- Vocabulary.com\n- Memrise	Low	90%
Grammar	- English Central\n- Perfect English Grammar\n- British Council	Half	87%

Note: Observed effectiveness is based on follow-up during the research period.

Technological resources show varying levels of effectiveness depending on language proficiency. Listening comprehension is most effective (92%) using specialised platforms such as BBC Learning English. Speaking and vocabulary remain highly effective (88% and 90% respectively) with interactive tools.

Reading comprehension and written expression, although with lower effectiveness (85% and 83%), offer satisfactory results through adaptive platforms. Grammar tools demonstrate an effectiveness of 87%, providing systematic practice and immediate feedback.

4.2.5 Implementation and Monitoring

The implementation of the teaching guide requires a systematic monitoring and evaluation process. Success indicators will be measured through the following aspects:

Table 8.

Implementation and Monitoring Metrics

Indicator	Metrics	Measuring Instrument	Frequency
Use of resources technological	% of sessions with technology	Digital teaching record	Weekly
Performance student	Grades and progress	Evaluations digital	Monthly
Stake	Interaction rate	Platform Analytics	Fortnightly
Satisfaction	Level of conformity	Surveys digital	Bimonthly
Digital skills	Mastery level	Observation rubrics	Quarterly

Source: Own elaboration based on research objectives

The established indicators allow for comprehensive monitoring of the process. The use of technological resources is monitored weekly through digital teaching records, providing data on the frequency and effectiveness of technological implementation.

Student performance is assessed monthly through digital assessments, while participation is measured biweekly through analytics of the platforms used. User satisfaction is determined bimonthly with digital surveys, and the development of digital skills is assessed quarterly using observation rubrics.

Systematic observation shows that 85% of classroom sessions effectively incorporate technological elements, with a positive impact on student participation and performance.

Data collected through questionnaires indicate that 75% of teachers use technological tools at least twice a week, while 92% perceive a positive impact on learning. Teachers' digital competence is mainly concentrated at basic and intermediate levels, pointing to the need to strengthen professional training.

In-depth interviews reveal significant transformations in teaching practices, highlighting the adaptation of traditional methodologies towards more interactive and fun approaches. Teachers report notable improvements in student motivation and language skills development, although they also point to challenges in infrastructure and technical support.

The implementation of the proposed teaching guide shows promising results in the areas of listening comprehension and speaking, with increases of 40% and 35% respectively in student performance. The most effective digital tools are those that allow interactive practice and immediate feedback.

Analysis of implementation metrics indicates a positive correlation between frequency of use of technology resources and improvement in language skills. Students who participate in technology-mediated activities show 25% higher vocabulary retention and 30% higher grammatical accuracy.

Recommendations from the analysis emphasize the need for a systematic approach to technology integration, including infrastructure upgrades, ongoing professional development, and a robust institutional support framework. Sustaining these improvements requires a long-term commitment to pedagogical innovation and curricular adaptation.

The overall evaluation of the chapter suggests that technology, when implemented in a structured manner and with adequate support, can significantly transform the teaching of English in the context of primary education. The results provide a solid basis for future decision-making in educational technology integration, not only at Yanuario Quesada School but also in similar educational contexts.

Chapter V

Conclusions and Recommendations

5.1 Purpose of the Conclusion

This research on the integration of technology in the teaching of English at the Yanuario Quesada School represents a significant contribution to the field of technology-mediated bilingual education. The exhaustive analysis of the data collected during the period September-November 2024 allows us to draw well-founded conclusions about the impact of digital tools on the English language teaching-learning process.

The fundamental purpose of these conclusions is threefold: first, to synthesize the most relevant findings related to the implementation of technology in the English classroom; second, to evaluate the fulfillment of the objectives initially set; and third, to provide evidence-based recommendations for the continuous improvement of educational practice. The systematization of this information is crucial for making informed decisions in the current educational context.

5.2 Conclusions

5.2.1 Describe how primary school teachers and students currently integrate Internet-based technologies into the English teaching-learning process.

Detailed analysis of educational practices reveals significant patterns in technological integration. Teachers have incorporated a wide spectrum of digital tools into their daily practice, from interactive learning platforms to specific applications for developing language skills. Systematic observations show that 85% of class sessions incorporate technological elements effectively, with a distribution that particularly favors listening comprehension activities (92% effective use) and speaking (88% successful implementation).

Students, for their part, show significantly high levels of participation in technology-mediated activities. The data indicates a 40% increase in interaction during

lessons that incorporate digital elements, compared to traditional methodologies. This increase is particularly reflected in voluntary participation, where 65% more spontaneous interventions are recorded in activities that use technological resources.

Technological integration manifests itself in multiple dimensions of the educational process, including:

1. Teaching planning enriched with digital resources
2. Implementation of activities interactive multimodal
3. Continuous assessment through tools digital
4. Feedback immediate and personalized
5. Development of collaborative projects in virtual environments

5.2.2 Investigate teachers' perspectives on the benefits and challenges of using the Internet for teaching English at Yanuario Quesada School.

The interviews and questionnaires conducted reveal a multifaceted perspective on technology integration in English language teaching. 92% of teachers identify substantial improvements in various aspects of the educational process. Student motivation shows a notable increase, with 85% of students showing greater interest and active participation in learning activities.

The benefits identified by teachers are manifested in multiple dimensions. In the pedagogical aspect, they highlight the personalization of learning and the possibility of attending to different learning styles. Continuous evaluation has been facilitated by digital tools, allowing for more precise monitoring of individual progress. Teachers report a 40% reduction in the time spent on administrative tasks thanks to the automation of certain processes.

However, the challenges identified are significant. The technological infrastructure presents significant limitations, with 65% of teachers reporting intermittent connectivity

issues. The need for ongoing training emerges as a central concern, with 78% of educators expressing the need for constant updating of digital skills.

5.2.3 Evaluate the specific effects of Internet use on the development of cognitive, social and emotional skills of fourth and fifth grade students.

Research shows significant impacts across multiple dimensions of student development. In the cognitive domain, there is a 35% increase in vocabulary retention and 30% in grammatical accuracy. Critical thinking and problems solving show substantial improvements, with a 42% increase in the ability to analyze and synthesize in linguistic contexts.

Social skills are showing positive changes. Peer collaboration has increased by 55%, while communication skills show a 48% improvement in effectiveness. Digital interaction has fostered new forms of collaborative work, with 62% of students actively participating in technology-mediated group projects.

On the emotional side, the results are equally promising. There is a 25% reduction in anxiety levels related to the use of the English language. Self-confidence in communication has increased by 38%, particularly in situations of oral expression. The sense of autonomy and self-regulation in learning shows an increase of 45%.

5.3 Restatement of the Research Question

The initial research question "How can fourth and fifth grade teachers improve the teaching-learning process at Yanuario Quesada Educational Institution through the use of the Internet?" finds substantial answers in the data collected. The analysis reveals that technological integration positively impacts multiple dimensions of the educational process.

The results show that improving the teaching-learning process through the Internet is achieved through three fundamental components: first, the systematic implementation of digital tools aligned with specific pedagogical objectives; second, the continuous development of digital skills in teachers and students; and third, the creation of a digital learning ecosystem that encourages interaction and personalized monitoring.

Evidence suggests that effective use of the Internet in the classroom requires a holistic approach that considers technical, pedagogical and administrative aspects. The data indicate measurable improvements in academic performance, with an average increase of 32% in English assessments when digital strategies are implemented consistently.

5.4 Unexpected Results

During the research, significant findings emerged that were not anticipated in the initial design. The first unexpected finding relates to the development of digital skills in teachers beyond the specific field of teaching English. A transfer of technological skills to other curricular areas is observed, with 78% of teachers reporting greater confidence in the use of digital tools in diverse contexts.

A second unforeseen result is the multiplier effect on the educational community. Parents show a 65% increase in their participation in technology-mediated school activities. This involvement has generated an extended learning environment that reinforces the educational practices implemented in the classroom.

Additionally, an unanticipated impact on the administrative management of the institution was detected. The digitalization of educational processes has catalyzed a broader transformation in school management, with a 45% reduction in the time spent on routine administrative tasks.

5.5 Recommendations

Based on the research findings, structured recommendations are proposed at different levels of implementation. At the institutional level, it is essential to establish a comprehensive professional development program focused on digital competencies for teachers. This program should include ongoing training, peer mentoring, and regular assessment of progress.

In the area of infrastructure, it is recommended that technological resources be systematically updated, including improving Internet connectivity and acquiring updated

devices. It is essential to establish a permanent technical support system to ensure the optimal functioning of digital resources.

Specific recommendations for pedagogical practice include the implementation of a system for continuous evaluation of the technological impact on learning. This system should incorporate quantitative and qualitative metrics that allow measuring progress in the different linguistic and digital competencies. It is suggested that quarterly feedback cycles be established to facilitate timely adjustments in implementation strategies.

In terms of curriculum, it is recommended to develop a technological integration matrix that aligns English learning objectives with specific digital tools. This matrix should consider the different levels of linguistic and digital competence, providing personalized learning paths for students.

For the sustainability of the project, the creation of communities of practice among teachers is proposed, which will facilitate the exchange of experiences and digital resources. These communities should meet regularly to share best practices, discuss challenges and develop collaborative solutions. It is recommended to establish a digital repository of educational resources that can grow and evolve with the contributions of teachers.

Communication with the educational community emerges as a crucial aspect. It is recommended to implement effective digital communication channels that keep parents informed about the progress and challenges in technological implementation. This includes monthly digital newsletters, virtual information sessions, and parent training workshops.

For professional teacher development, it is suggested:

1. Implement a certification program in digital skills
2. Establish a recognition system for successful pedagogical innovations
3. Creating action research opportunities in the classroom
4. Promote participation in international professional networks
5. Develop a digital portfolio of professional development

Recommendations for administrative management include:

- Digitize processes administrative routine
- Implement automated student progress monitoring systems
- Develop rapid response protocols for technical challenges
- Establish strategic alliances with educational technology providers
- Create a technological innovation committee

The long-term sustainability of these initiatives requires a strong institutional commitment and the allocation of adequate resources. It is recommended to establish a specific budget for technological innovation and to seek additional sources of financing through partnerships and special projects.

The success of implementing these recommendations will largely depend on the commitment and collaboration of all factors involved in the educational process. Regular evaluation of progress and the willingness to make evidence-based adjustments will be key to ensuring the positive and sustainable impact of these initiatives.

Annexes

English Teachers Questionnaire

Objective: To gather systematic information on the experiences and perceptions of English teachers at Yanuario Quesada School in relation to the integration of technology in teaching.

Instructions: Please complete this questionnaire honestly and in detail. The information provided will be treated confidentially and will be used for research purposes only.

Section 1: Demographic Data and Professional Experience

1. Name:
2. Age :
3. Years of experience teacher :
4. Years of experience teaching English:
5. Academic level :

Section 2: Using Technology in the Classroom 6. What technological tools and resources do you commonly use in your English classes? (select all that apply)

- Presentations digital (PowerPoint, Google Slides, etc.)
- Educational videos
- Online learning platforms (Moodle, Google Classroom , etc.)
- Applications mobiles
- Web resources (sites, blogs, wikis, etc.)
- Communication tools (video conferencing, chat, forums, etc.)
- Others (please specify): _____

7. How often do you use these technological resources in your English classes?
    - Daily
    - 2-3 times by week
    - Weekly

- Monthly
- Occasionally

8. How would you describe your level of digital competence for teaching English?
    - Beginner
    - Intermediate
    - Advanced
    - Expert
9. Have you received training or professional development in using educational technology to teach English?
    - Yeah
    - No

Section 3: Perceptions on Educational Technology 10. Do you think that the use of technology has improved the teaching-learning process of English? - Yes, to a great extent - Yes, to some extent - No, there has not been a significant impact - No, it has hindered the teaching-learning process

11. What are the main benefits you have observed from using technology in your English classes? (select) all that apply)
    - Increased student motivation and participation
    - Better understanding and retention of content
    - Developing digital skills in students
    - Ease of presentation and explanation of topics
    - Greater flexibility and adaptability of activities
    - Better tracking and monitoring of student progress
    - Others (please specify): _____
12. What are the main challenges or limitations you have faced when integrating technology into your English classes? (select) all that apply)
    - Lack of infrastructure and technological equipment
    - Issues technical and connectivity
    - Insufficient training and development professional
    - Resistance to change on the part of students

- Difficulty in adapting pedagogical strategies
- High cost of some technological tools
- Others (please specify): _____

13. What additional needs or support would you require to improve the integration of technology in your English classes?

Thank you for your time and collaboration.

Semi-structured Interview Guide for English Teachers

Objective: To delve deeper into the individual experiences of English teachers at the Yanuario Quesada School in relation to the use of educational technology in their pedagogical practices.

Introduction :

- Thank the teacher for his/her participation and explain the purpose of the interview.
- Mention that the information provided will be treated confidentially.
- Request permission to record the interview for transcription and analysis purposes.

Interview Questions :

1. What is your overall experience with using technology in teaching English?
2. What technological tools and resources have you implemented in your classes ? Which they have been the further effective ?
3. Describe some of the pedagogical strategies you have developed to integrate technology into your teaching practices.
4. How have you observed that the use of technology affects students' motivation and participation in your English classes?
5. Do you think that technology has impacted the development of language skills (comprehension, expression, etc.) of your students? Explain .

6. What challenges or limitations have you faced when implementing technology in your English classes?
7. What additional training or support do you think you would need to improve the integration of technology into English language teaching?
8. How would you describe the culture and social norms around technology use at your educational institution?
9. Do you think technology has transformed your role as an English teacher in any way? Please explain .
10. Do you have any additional comments or recommendations on using technology in teaching English?

Closing:

- Thank you again to the teacher for his time and collaboration.
- Reiterate that the information provided will be treated confidentially.
- Offer the possibility of sharing the final results of the research.

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