DIGITAL EDUCATIONAL RESOURCE FOR ENGLISH CRITICAL READING

STRENGTHENING IN FIFTH GRADE AT COLEGIO BRITÁNICO

DE ZIPAQUIRÁ

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Applied Project

Presented to the Program

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by

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DEDICATION

To my daughter, Emilia Kathalina Sánchez Vergara, since she always encouraged me to continue with my training process, and even though she was not with me, she was always present in my mind and my heart, being my engine of life and source of inspiration.

To my mentor, coworker, friend, and my life partner Jorge Armando Niño Vega, because he is always motivating me, guiding me, and correcting me to be better every day. Allowing me to see and recognize the important work of researchers to transform the world. For teaching me that the key to success is not knowing things, but what you do with them. For pushing me to improve every day and achieve my goals, regardless of the thousands of obstacles that stand in the way.

To my family, because always with a voice and with their encouragement, they recharged me with energy so as not to abandon my dreams.

To all the people who are in this same process.

Do not be discouraged, it is worth leaving our mark on the paths of education, as these paths will serve as a guide for new walkers!

SPECIALIZED ANALYTICAL SUMMARY

Title	Digital Educational Resource for English Critical Reading Strengthening in Fifth Grade at Colegio Británico de Zipaquirá
Author(s)	Claudia Marcela Vergara Pareja
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Keywords	Critical reading, Digital Educational Resource, Didactic strategy, English language, Teaching-Learning, Primary school
Description	Applied Project
Sources	The present applied project used 80 cites.
Contents	En este documento se reporta un trabajo de grado el cual tuvo por objetivo desarrollar un Recurso Educativo Digital (RED), para el fortalecimiento de la lectura crítica en inglés de estudiantes de quinto grado. El estudio se llevó a cabo bajo un enfoque mixto de tipo inductivo, en donde el enfoque cuantitativo se empleó de dos formas: en primer lugar, para identificar el nivel de desempeño de cada estudiante en cuanto a lectura crítica en inglés, antes y después de haber sido intervenidos con el RED. En segundo lugar, para validar el RED en cuanto a los aspectos técnicos y pedagógicos a través de tres expertos. Con respecto al enfoque cualitativo, se empleó para conocer las percepciones de los estudiantes frente al diseño, animaciones y actividades del RED. La muestra objeto de estudio, correspondió a 20 estudiantes del grado quinto pertenecientes al Colegio Británico de Zipaquirá. A manera de resultados, se obtuvo un RED

	programado en Microsoft PowerPoint junto con el complemento iSPring Suite, lo que permitió obtener un material: didáctico, interactivo, multiplataforma y con la posibilidad de visualización con y sin conexión a internet. La intervención pedagógica evidenció una ganancia de aprendizaje alta con un factor de Hake de 0,928; lo que significa que los estudiantes mejoraron sus competencias en lectura crítica en inglés a través del RED. Esto se puede corroborar con el análisis estadístico que se hizo entre la prueba inicial, en donde los 20 estudiantes la reprobaron a diferencia que en la prueba final en donde ningún estudiante la reprobó. Por otra parte, los tres expertos consideraron que el RED es didáctico, inclusivo y pertinente para estudiantes con edades de 8 a 10 años. A manera de conclusión, se logró desarrollar un RED de acuerdo con las necesidades e intereses de los educandos, el cual cumplió con los objetivos trazados en este estudio. De igual forma, se logró gestionar para que la institución educativa invirtiera en la sala de cómputo y en la conectividad a internet, con el fin de seguir educando a los estudiantes con material educativo novedoso e incluyente mediado por las TIC.
Research Line	This research project was carried out under a mixed approach since the quantitative approach was used to measure the performance levels in terms of critical reading competence that students have before and after interacting with the educational material to be developed. In the same way, the qualitative approach was used to know the perception of each of the students regarding the functioning, the units, the activities, and the

	themes presented in the educational material (Hernández-Sampieri, Fernández- Collado & Baptista-Lucio, 2010).
	The inductive type of research was proposed since it begins with the data identified in the population under study, and after having been intervened, the results were analyzed. In this sense, the study was carried out under a quasi-experimental investigation; since it was sought with the project's development, it is the construction of significant learning in terms of critical reading in English mediated by educational material.
	It is for this reason that the research line was bilingualism in distance education mediated by technologies.
Conclusions	The objective of this degree project was to implement a digital educational resource to strengthen critical reading in English, aimed at fifth-grade students. The sample under study were the 20 fifth-grade students belonging to the Británico de Zipaquirá school educational institution, Cundinamarca - Colombia. This population was taken because at this educational level, students must have knowledge, abilities, and skills in English to take the "Saber 5" tests.
	The DER was carried out in the Microsoft PowerPoint tool, where interactive buttons, animations, gifs, videos, audios, and texts were inserted through the multiple functionalities offered by said office tool. In addition, the *iSpring Suite* tool was used, which allowed the development of interactive activities.

	The validation against the content and activities proposed in the DER allowed showing that it was to their liking; because of the design of the resources and activities, most students found it excellent. When comparing it with other activities, which teachers use to guide them on the topics seen, the students considered that the DER was better than the others.
Advisor	Dina Esperanza Bonilla

ABSTRACT

Student, Claudia V., *Digital Educational Resource for English Critical Reading Strengthening in Fifth Grade at Colegio Británico de Zipaquirá*. Licenciatura en Inglés como Lengua Extranjera, December, 2021, Universidad Nacional Abierta y a Distancia.

This document reports a graduation paper whose objective was to develop a Digital Educational Resource (DER) to strengthen critical reading in English of fifth-grade students. The study was carried out under a mixed inductive approach, where the quantitative method was used in two ways: first, to identify the level of performance of each student in terms of critical reading in English, before and after having been intervened with the DER. Second, to validate the DER regarding technical and pedagogical aspects through three experts. Regarding the qualitative approach, it was used to know the students' perceptions regarding the design, animations, and activities of the DER. The sample under study corresponded to 20 fifth-grade students from the Colegio Británcio de Zipaquirá. Based upon the results, a DER programmed in Microsoft PowerPoint with the iSpring Suite add-on allowed obtaining material: didactic, interactive, multiplatform, and with the possibility of viewing with and without an internet connection. The pedagogical intervention showed a high learning gain with a Hake factor of 0.928, which means that students improved their critical reading skills in English through the DER. That can be corroborated with the statistical analysis between the initial test, where the 20 students failed it, unlike in the final test where no student failed it.

On the other hand, the three experts considered that the DER is didactic, inclusive, and relevant for students aged 8 to 10 years. In conclusion, it was possible to develop a DER according to the needs and interests of the learners, which met the objectives outlined in this

study. Similarly, it was possible for the educational institution to invest in the computer room and internet connectivity to continue educating students with innovative and inclusive educational material mediated by ICT.

KEY WORDS: Critical reading, Digital Educational Resource, Didactic strategy, English language, Teaching-Learning, Primary school.

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In the same way, I thank each of the people who were guiding me both in the form of the writing and design of the Digital Educational Resource. This generated new knowledge for me, in the field of learning environment design.

Likewise, I thank the administrative assistant of Britanico de Zipaquirá school since they lent me their facilities to be able to apply my project. Without their collaboration, my process would have taken longer.

Finally, students who were part of this project, because, without their good energy, attitude, and interest in learning English and strengthening their reading skills, the Digital Educational Resource would not have had the same impact.

Eternally grateful!

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CHAPTER 1

Introduction

Education in Colombia has had to confront significant challenges, such as teaching a foreign language as a consequence of globalization. (Corbella & Marcos, 2020). Nowadays, English is considered the universal language, and it is for this reason that the government has implemented projects such as: "Programa Nacional de Bilingüismo – 2004", "Colombia Bilingüe 2014-2018" and "Colombia Very Well 2014 – 2025". These educational projects aim to make the population literate in English as a foreign language (Quintero et al., 2020). To do this, it seeks to generate strategies for the circulation of knowledge, which help people with didactic material for learning English (Santana-Villegas et al., 2016).

On the other hand, it is essential to highlight the impact of significant learning on reading habits (Mamani-Mamani et al., 2020). Meaningful learning allows students to develop skills and abilities based on their previous knowledge, which helps them understand what is being read and thus perform better, both in their lives: Academic and social environment (Niño-Vega et al., 2020). This same principle can be applied so that the student manages to have good reading comprehension in English; in this way, it is expected to improve the ability to interpret images, graphics, and texts.

A student with excellent reading ability in English will be able to develop all her cognitive potential, which will allow her to stand out in different knowledge tests, such as the knowledge tests of the Colombian National State (Castro-Zapata & Londoño-Bonilla, 2021). These tests are applied to obtain information about each student's knowledge, abilities, and skills in front of the different areas of expertise (ICFES, 2017). In the same way, the results of these tests allow identifying if educational institutions are fulfilling the educational

purposes. Likewise, the results of the knowledge tests will enable to measure the impact of the curricular guidelines, standards, competencies, and pedagogical models established by the Colombian educational system.

Therefore, this project describes the design, elaboration, implementation, and validation of a Digital Educational Resource (DER), strengthening the critical reading in English of fifth-grade students from the Británico de Zipaquirá school. Indeed, this document has five chapters reported that give an account of the developed investigative work. The first chapter will have the introduction, and the problems to be solved through the study are exposed; Likewise, the objectives are established: general and specific, and the justification in which the reason and why of the investigation is argued.

In the second chapter, the most relevant concepts and contributions of the study are presented. Among them, the frameworks are highlighted: theoretical, conceptual, and legal. In the same way, this chapter describes some findings of studies that have been carried out at the local, national, and international levels, where pedagogical strategies, teaching materials, educational resources, so for are detailed to have an overview of investigations that contribute as theoretical support and emphasize the execution of this project.

As for the third chapter, the study methodology is presented. This highlights the focus and type of research, the study population and sample, and the measurement instruments, which allow collecting the information necessary to corroborate the effectiveness of the study. In the same way, this chapter details the stages that were established for its execution.

On the other hand, the fourth chapter presents the results of the project and the impact it had. This chapter reports the test results and the survey applied to the students that make up

the population under study to recognize the knowledge and habits regarding critical reading in English. Subsequently, the design and programming of the DER are described together with its learning guides and other complementary educational materials. Meanwhile, the classroom experience that was carried out with the students and the DER developed is detailed. After, that chapter will report the statistical analysis made with the results obtained from the students in the initial and final tests to obtain the impact factor of the DER quantitatively in terms of the strengthening of reading, Criticism in English. In the same way, the personal appreciations that both students and teachers had regarding the design and pedagogical objective of the DER are established.

Finally, the fifth chapter describes the conclusions that were obtained once this investigation was carried out.

Significance of the Study

Currently, globalization has brought favorable and unfavorable impacts for the world (Niño-Vega et al., 2019). In Colombia, it can be said that one of the beneficial impacts that globalization has brought with it focuses on the education sector (Suárez-Triana et al., 2020), reflected with the arrival of Information and Communication Technologies (ICT), which provides a wide possibility of access to various sources of knowledge (Pérez-Higuera et al., 2020). Likewise, ICT applied to education enables the development of optimal educational scenarios, materials, and resources for the teaching-learning process through virtuality, thanks to the multiple digital tools developed daily according to the needs of the students. (Ducuara-Amado et al., 2020).

Furthermore, another beneficial aspect of globalization is the improvement in the accessibility of education in other countries (Paz-Saavedra & Gisbert-Cervera, 2020). This factor has minimized the frontiers of knowledge so that anyone can complement their knowledge with knowledge-oriented in other countries. However, for people to have access to scholarships for the promulgation of their studies, as well as job opportunities abroad, they must have sufficient knowledge, skills, and abilities to be able to speak, read, write and listen ideally in the English language, since English is considered one of the universal languages which facilitate communication between different countries (Almache-Granda et al., 2020).

The Colombian government, concerned about the development of the country and the preparation of excellent professionals, has arranged a series of educational projects, which seek to make the population literate in terms of the English language (Marmolejo & Mayora, 2020). However, despite everything implemented by the government, Colombian students still have difficulty understanding texts in English at all educational levels (Fernández de Morgado et al., 2016).

Multiple investigations have shown that a large student population shows a deficit to adequately answer questions based on previous readings because by not being able to identify and understand the main idea of a text, it makes impossible to have progressed in learning a foreign language (Fandiño-Parra et al., 2012). Consequently, this problem has aroused the interest of teachers, and this has caused them to be developing different learning strategies, such as workshops, talks, pieces of training, and other spaces where can be determined the appropriate way for students to develop the ability of critical reading (Guarín-Ramírez & Ramírez-Rojas, 2017). However, it should be noted that educational material to strengthen

critical reading in English is very scarce and not very affordable for students and teachers (Salcedo-Salcedo et al., 2018).

Because of the lack of good educational material for the development of reading competence, in the last tests of the Colombian state, students have obtained low performances before this item, which highlights the need for education to take measures to solve that problem.

Considering the previous information, the Britanico de Zipaquirá school recognizes the need to strengthen students' reading skills in English as a foreign language to improve performance on state tests for fifth grade. The school focuses on the English language, which seeks to improve students' performance when understanding texts in another language.

Differently, in this research, it is proposed to develop a Digital Educational Resource (DER), which enables the strengthening of critical reading in English of fifth-grade students, for them to improve their performance in the tests of the state, as well as to acquire the knowledge and skills necessary to understand and use English as a language for their communication.

In this research, it is hoped to achieve as a designer, on the one hand, develop ICT skills that allow the design, elaboration, and validation of the DER according to the interests and needs of the students. Likewise, it is expected to expand pedagogical skills when carrying out the intervention with the population under study by identifying learning styles, special educational needs, and the behavior and disposition that each student must learn and put into practice.

In the same way, it is worth noting that for the execution of this research, work was carried out within PIEG ECEDU 054, through the project "Design of open digital educational resources as an e-learning strategy to strengthen learning processes in critical reading through CVELE UNAD "from the VIRTUALEX research group." For this reason, we had the collaboration and advice of expert researchers about the design, development, and validation of digital educational resources to favor teaching-learning processes. In this sense, this study is a product of that research project, as the designer and the didactic, technological, and investigative skills and abilities to carry out this study.

Statement of the Problem

For several decades, the Colombian government has been using the Saber tests to identify each student's knowledge in different areas such as mathematics, language, natural and social sciences, citizenship skills, critical reading, and English (ICFES, 2017). These tests are evaluated by components and are aimed at students from institutions, both public and private, belonging to educational levels 3rd, 5th, 9th, and 11th. The objective of these tests lies in the first place, to provide a diagnosis to the students regarding their knowledge, abilities, and skills acquired during their training process. Likewise, the results of the tests allow educational institutions to evaluate the quality of their contents, methodologies, and teaching strategies, to improve the pedagogical work and thus strengthen the shortcomings presented to offer an excellent and quality educational service (Benavides, 2020).

It is for this reason that the Britanico de Zipaquirá school has implemented in its Proyecto Educativo Institucional (PEI) English as one of its areas with the highest intensity of hours per week. That is why the educational institution has professionals trained to help students

develop skills and abilities such as: speaking, listening, reading, writing and grammar, which is typical of learning a foreign language. In a certain way, for students to achieve meaningful English language learning, teachers must use non-verbal language to understand themselves. Similarly, audiovisual materials are used in the classrooms, allowing students to acquire a foreign language naturally.

Despite the above, fifth-graders fail to obtain good results when they take the Saber tests. Therefore, the course directors of the Britanico de Zipaquirá school indicate that the students present low performance in the tests because the questions that make up the exams come from extensive readings, which the students find boring and cannot understand, and as a consequence, they cannot solve them correctly. Given this factor, the Ministry of National Education (MEN) emphasizes that the results of 2017 were not significantly different for both public and private institutions in grade 5 since the variation by performance was minimal (MEN, 2020).

To obtain a more precise and timely balance regarding the saber tests, the MEN makes subdivisions called national aggregates, whether national by gender, socioeconomic level, and type of establishment. For the national section aggregates by gender, there is a higher percentage of girls than boys in the advanced and satisfactory level. The female population was more significant than the male in 2017. In the case of national aggregates by socioeconomic level (NSE), from strata 1 to 4 are considered 4 (NSE 1, NSE 2, NSE 3 and NSE 4), MEN reports that the establishments of NSE 4 obtained a superior result compared to the other groups. Despite this, there are some cases where students who are in SES 1 achieved a result equal to or higher than those of NSE 4, and in the same way, it happened with students who are in NSE 4, who obtained a result equal to or even lower than NSE 1.

In this sense, the gaps between each socioeconomic level are still extensive among the fifth grade. At the same time, students belonging to NSE 3 had an increase in the insufficient and minimum level, while that same year, the link between the educational establishments of NSE 1 and NSE 4 was reduced by 22%. On the other hand, the national aggregates by type of establishment, the results are still higher for private schools, since for the year 2017, it is a more substantial reason than the generating question of this research is presented from the above:

What is the impact of implementing a digital educational resource to strengthen critical reading in English for fifth-grade students at the Colegio Británico de Zipaquirá educational institution?

Objectives

General Objective

Implement a digital educational resource to strengthen critical reading in English of fifth-grade students of Colegio Británico de Zipaquirá.

Specific Objectives

Identify the needs of fifth-grade students for critical reading proficiency in English through an initial survey and test.

Design the digital educational resource under the pedagogical-didactic requirements found in the fifth grade to improve competence in critical reading.

Evaluate the impact of the Digital Educational Resource to strengthen critical reading in English of the sample under study through a test and a final survey and validation by experts.

CHAPTER II

In chapter two, the following frameworks are presented: conceptual, theoretical, legal, and literature review. In these sections, some concepts are defined. Various researchers indicate what it is, what it is for, and what results in some related studies have pursued strengthening critical reading in English.

Conceptual Framework

The conceptual framework states and defines: what the Proyecto Educativo Institucional (PEI), Saber tests, and critical reading are. These concepts are necessary to understand which are the critical reading skills that the Colombian knowledge tests evaluate. Likewise, they allow knowing how the PEI acts in terms of the parameters and demands of educational institutions for teaching English and critical reading. In the same way, knowing the components of required reading in English allow to identify performance standards to be achieved, according to the guidelines proposed in the Ministry of National Education of Colombia.

Proyecto Educativo Institucional (PEI)

For the Ministry of National Education of Colombia, the Proyecto Educativo Institucional (PEI) is the schools and colleges' navigation chart where the educational institution's principles and purposes, the available teaching, and didactic resources are established and specified. Necessary, pedagogical strategies, regulations for teachers, students, and the management system (MEN, 2020).

According to article 14 of Decree 1860 of 1994, it is indicated that every educational institution must develop and put into practice with the participation of the educational community, a PEI that expresses how it has been decided to achieve the purposes of

education defined by the law, considering the social, economic, and cultural conditions of their environment. The purpose of the PEI should respond to situations and needs of the learners, the local community, the region, and the country. In this sense, the PEI must be concrete, feasible, and valuable.

Article 77 of Law 115 of 1994 states that all formal education institutions have the autonomy to organize the fundamental areas of knowledge defined for each level, introduce optional subjects within the areas established by law, adapt some areas to the regional needs and characteristics, adopt teaching methods and organize training, cultural and sports activities, within the guidelines established by the Ministry of National Education (Ley 115, 1994). Therefore, the PEI of each Colombian educational institution varies from the region, the resources, and the needs that arise in them.

Saber Test

The Instituto Colombiano para la Evaluación de la Educación (ICFES) establishes that the tests are items associated with an evaluation area, which seeks to measure the generic competencies of the students (ICFES, 2019).

The Saber Tests in Colombia are standardized external evaluations applied by ICFES, which evaluate the performance achieved by students according to the fundamental competencies defined by the Ministry of National Education (MEN). The tests evaluate the performances developed by the students at the end of the cycles of the educational levels of primary and secondary education. These tests are classified into Saber 3° and Saber 5° in elementary school, Saber 9° at the end of secondary education, and Saber 11° at the end of high school (MEN, 2020).

According to the established tests, the Saber Tests are assessments that all students must take at the end of the school year. It consists of a national test, All students in the country who take the levels required by the tests must present the saber test.

These tests are a way to evaluate education in Colombia periodically. The evaluation modality consists of answering multiple-choice questions. The subjects evaluated will depend on the type of test taken and its duration, which varies from 4 to 5 hours (MEN, 2020).

The main objective of the 3°, 5°, and 9° Saber Tests is to contribute to the improvement of the quality of Colombian education by conducting periodic evaluations that evaluate the development of competencies of primary education students. The results of these evaluations and the analysis of factors that may influence students' performance allow Educational Establishments, the Secretariats of Education, and the Ministry of National Education to identify skills, abilities, and values that students develop during their school. In addition, the results of this test are used for the Synthetic Quality Index that measures, together with other variables, the performance of schools; Thus, allowing a follow-up from the beginning of schooling so that the evaluation is formative (Barberán, 2020).

On the other hand, the Saber 11° Test is the evaluation of the level of Secondary school that is aligned with the evaluations of Basic Education to provide information to the educational community in the development of the essential competencies that a student should develop during the step of school life (Barberán, 2020).

Critical reading

From a pedagogical position, Freire refers to critical reading as the possibility that human beings must analyze and search for the truth. This Brazilian author bases his approach on an innovative peasant literacy work carried out in Brazil, Chile, and Guinea-Bissau, with which he intended to achieve the liberation of the oppressed people through an education that generates freedom, going from thought to social action, with a methodology that involves the interpretation of the role of man in the world (Remolina-Caviedes, 2013).

For Avendaño de Barón (2016), through critical reading, it is sought to promote capacities to think, discern and perform autonomously, reflectively, analytically, and critically in the current changing, complex society invaded by the overwhelming flow of information from all nature. In the educational context, it is necessary to promote students' creative, reflective, and critical participation in response to the characteristics of academic and citizen performance that the world demands.

Thus, educational centers seek to provide a solution to the requirements of forming an autonomous and democratic population, which has critical thinking skills and competencies in reading comprehension and writing of texts, for the student to read and think. Moreover, express their point of view on a particular topic. As a consequence, learners, through critical reading, must understand and have a global vision of the text, assimilating pragmatically and building relevant ideas from the main ideas found in the text. Also, you must deduce the implicit information and the author's position on the subject when evaluating the text deliberately and have the vision of other authors (ICFES, 2017).

On the other hand, in Colombia, the knowledge tests evaluate the critical reading component through three competencies: 1. The student identifies the local contents that make

up the text; 2. The student understands and analyzes the parts that make up the text; 3. The student can evaluate the text, analyze it and give an opinion (Bonilla-Vergara et al., 2021).

Therefore, critical reading is a process, which is mediated by higher-order thinking and whose epistemic potential allows the subject to problematize reality as an intellectual effort that demonstrates their autonomy to learn, elaborate premises, and formulate their interpretations. As well as confront opposing opinions. In other words, critical reading is the ability of a subject to apply critical competencies to contrast ideological points of view established in a text (Morales-Carrero, 2020).

Theoretical Framework

In the same way, ICT in education allows students to enhance their creativity, thanks to the various digital applications available for different technological devices (Torres-Bernal and Niño-Vega, 2020). Undoubtedly, the student learns and applies this knowledge in solving specific problems (López-Gaitán et al., 2018).

ICT enables students and teachers to work collaboratively, since the tools for synchronous and asynchronous communication make the student in constant communication either with teachers or with their peers, which is essential to work in a group, clarifying discuss academic or disciplinary performance issues with guardians (Orozco-Báez et al., 2020).

Another aspect that ICT in education brings with it lies in developing the student's critical thinking thanks to the multiple databases and the various content presentation formats. The student has the availability of endless sources of information. It makes the student acquire a

large amount of knowledge of different disciplines and develop his critical capacity to form his personality and debate ideas with arguments (Reyes-Chávez & Prado-Rodríguez, 2020).

Digital Educational Resources

The Digital Educational Resources, DER are materials composed of digital media, namely: videos, images, text, games, and simulations, among others, produced to facilitate the development of learning activities (Espinel-Rubio et al., 202; Niño-Vega et al., 2021). Among the advantages of using this type of materials are enhancing student motivation, allowing the understanding of processes or concepts through simulation, facilitating self-learning at the student's pace, and allowing access to complementary information to enrich the acquired knowledge (Acevedo-Duque et al., 2020; Niño-Vega & Fernández-Morales, 2019; Galeano-Barrera et al., 2018; Martínez-López & Gualdrón-Pinto, 2018).

The DER has favored the educational autonomy of students and, in turn, has allowed teachers to focus on more significant and specific areas of knowledge (Gómez-Suárez, 2017). Some research indicates the importance of designing DER according to the needs and interests of the students since it is they who are going to interact and learn from it (Pérez-Ortega, 2017; Varguillas & Bravo, 2020). In this sense, environments have emerged for co-creation in DER, where several computer tools are available, with the possibility of presenting information in multiple digital formats (Lizcano-Dallos et al., 2019). In these learning environments, teachers focus on developing activities and strikingly presenting content, applying them in the classroom, leaving aside the technical aspects of digital programming resources (Manrique-Losada et al., 2020).

Teaching-Learning Strategies

The teaching-learning strategies are related as a methodology that the teacher follows to achieve that the contents, topics, and information, can be learned by students, and the development of competencies is generated (Pamplona-Raigosa et al., 2019). Teaching-learning strategies can be used as a resource, which the teacher can implement to motivate students and generate meaningful learning. The success of these strategies lies in considering the learning style and interests of the students.

On the other hand, teachers use the teaching-learning strategies as a procedure or a resource, although some consider it as organizers of knowledge, which aim to promote the learning of concepts in a lesser way for students, with the intention of that they manage to enrich their cognitive abilities. In the same way, the teacher acquires the role of mediator of learning, which in addition to teaching a particular knowledge, also teaches how to learn (Mendoza-Juárez & Mamani-Gamarra, 2012).

Moreover, teaching and learning strategies tend to be a set of activities, techniques, and means, duly planned according to the needs of the students (to whom these activities are directed) and aim to facilitate the acquisition of knowledge and its storage, as well as making the learning process more effective (Pérez-Ruíz & La Cruz-Zambrano, 2014).

Critical reading strategies

Critical reading strategies are presented in three categories as inference, interpretation, and evaluation. These are carried out by doing a critical reading and depending on the results obtained when evaluating each category, the level of criticality can be measured. (Facione, 2018). The first category is inference; this identifies and ensures the necessary elements to draw reasonable conclusions; formulate conjectures and hypotheses; consider the pertinent

information and draw the consequences that arise from the data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation. The second is interpretation, understanding, and expresses the meaning or relevance of various experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria. Third, there is the evaluation, and this is the assessment of the credibility of the statements or other representations that recount or describe the perception, experience, situation, judgment, belief, or opinion of a person; and the assessment of the logical strength of inferential relationships, real or assumed, between statements, descriptions, questions, among others.

On the other hand, critical reading implants in the reader a disposition to investigate in-depth a text, reflect on the author's position considering the use of his words and statements, question or, on the contrary, support his theories, propose if it is different alternatives are necessary. Moreover, finally, to build more conscious and active citizens who can participate effectively in social and political life (Argudín et al. to 2021). They affirm that critical reading allows evaluating the reliability of a text based on certain beliefs or values of the reader that allow them to argue with logical reasoning a position before life, promoting respect for differences and others. The reader can identify, analyze, and evaluate the central hypothesis, its general or secondary ideas as a chain of arguments to understand the author's message. (Galvis-Lopez et al., 2018).

Another vital contribution on critical reading is defined as a process to make judgments, identify skills about the intention or purpose of the author; with the accuracy, logic, reliability, and authenticity of the writing; and with the literary forms, constituent parts, and plot resources identified through literary analysis. (Bernabeu-Morón, 2015).

These skills are: Deciphering the text: It consists of pointing out all those unknown words and, through study tools, looking for their meaning to understand the text fully. Contextualize: This ability seeks to identify the author, the time and the circumstances in which the text was written, the dominant ideology, the author's purpose, among others. Relate and extrapolate information: It consists of relating the information that a text offers with the previous knowledge that one has, thus adopting perspectives and points of view different from those suggested in the text. Evaluate the text, considering: the reliability of the information sources, the topic it deals with, the arguments it defends, its quality and rigor, and what its reading contributes, as well as the interests and emotions that the text provokes in the receptor. Finally, to develop critical thinking, it is essential to evaluate what has been read and integrate that understanding into the previous knowledge that one has of the world, also to decide what can be accepted as accurate and valuable, to assess the evidence on which discourse is based and estimate the validity of the comments of a text, by providing knowledge and external standards that support it. (Kurland. 20216).

On the other hand, according to an investigation carried out by the University of Georgia in 2018, there are 9 strategies to promote critical thinking.

1. Inductive learning, where the student makes use of prior knowledge. It classifies information that will later help you draw conclusions and make sense of what you have read.

2. Metaphorical expression allows comparison for teaching new concepts or expanding them. It gives the student have a new perspective on the content.

3. Decision-making requires the student to use his criteria and intellectual abilities to make or evaluate decisions in the face of a problem, either his own or that of others.

4. Achievement of concepts. Through exemplification, the student formulates hypotheses that will later be tested and redefined.

5. Integrated learning centered on the student. How the student learns and what he wants to learn is considered to be related to this learning.

6. Circle of knowledge. In this discussion, discussions are promoted through a question, analyzed, and finally, a conclusion is reached.

7. Comparison and contrast. It is based on the similarity and differences of a specific topic.

8. Inquiry/mystery is based on discovering the unknown from questions, riddles, and riddles that arouse the student's curiosity.

9. Strategic interdisciplinary teaching. It is the integration of content from different areas.

Legal Framework

This study was carried out considering the provisions of Law 115 of 1994, General Education Law, which establishes curricular autonomy for Colombian educational institutions to formulate, execute, and evaluate the Institutional Educational Project. Likewise, this project follows the curricular guidelines established by the Ministry of National Education of Colombia (MEN) in agreement with the British Council, where the basic standards of competencies in foreign languages are recognized: English.

This entire area is supported by guide 22, "Training in foreign languages: English, the challenge! What we need to know and know how to do." This guide establishes the components, competencies, and performances for each group of degrees of Colombia's different institutions' educational programs (MEN, 2020). Regarding the reading

comprehension skills to be developed in the students, the "Reading" competencies stipulated in guide 22 were considered, specifically those designated for grades 4 to 5 of primary school. These competencies are:

• I associate a drawing with its written description.

• I can understand short descriptions of familiar people, places, and actions.

• I locate in a short text the places and times when the actions happen.

• I use graphs to represent the most relevant information in a text.

• I use the dictionary to help me understand texts.

• I identify cultural elements such as proper names and places in simple texts.

• I read and understand authentic and simple texts about specific events associated with cultural traditions that I know (birthdays, Christmas, etc.).

• I recognize aspects such as what, who, when, and wherein in a short narrative text.

• I play games of searching for unknown words.

Regarding the performance evaluation system with which the students of the Colegio Británico de Zipaquirá are evaluated, these vary from 1 to 5.0. This assessment scale is accepted by the English area plan of the educational institution and is based on the guidelines of the MEN (Decree 1290 of 2009), as shown in the table 1.

Table 1

Performance rating scale

Achievement Level	Valuation

High	4.5 – 5.0
Medium	4.0 – 4.4
Moderate	3.4 – 3.9
Low	1.0 – 3.3

Note: Dates was obtained from PEI of Colegio Británico de Zipaquirá (Source, Own authorship).

Literature Review

The bibliographic review of various studies at local, national, and international levels; bachelor, master, and doctorate´s thesis were consulted in institutional repositories. Similarly, research published in journals indexed in *Scopus, Scielo, Web of Science, Publindex, Redayc, Latindex, Miar, Doaj, Dialnet,* among others, were consulted.

The intention of carrying out this literary review consisted of having a panoramic vision of the problems that researchers have addressed, such as: learning English, the development of pedagogical strategies, the development of materials, resources, and didactic prototypes that seek to facilitate the process of teaching-learning in English, so for. Likewise, this bibliographic review seeks to recognize the techniques, models, processes, and instruments that the researchers contemplated for the execution of their studies. As a consecuence, the information recapitulated in the theoretical conceptualization, the starting references, the measurement instrument models, and the necessary techniques to carry out this research were established.

In this order of ideas, the research search was carried out under four categories: ICT in primary education, didactic strategies for teaching English, didactic materials for reading comprehension in English, and digital educational resources for learning a foreign language.

ICT In Primary Education

Thanks to the availability that we have today to different technological devices and access to internet connect many children. They are digital natives and therefore master technology without any difficulty. In this same way, much research has been carried out around the implementation of ICT in the teaching-learning processes in primary education.

Some studies, such as those by Mato-Vázquez and Álvarez-Seoane (2019), sought to analyze the impacts of ICT and Digital Teaching Materials (MDD) in primary education classrooms. The results of this study made it possible to highlight the great reception that primary school students had in front of the didactic material presented to them. Undoubtedly, students can improve their performance when guided with innovative and interactive didactic material, as is the case of those developed with digital tools (Fonseca-Barrera et al., 2020).

In the same way, some studies have highlighted the multiple advantages that ICT have in the initial training of students (Quiñonez-Pech et al., 2019). Therefore, the possibility of promoting optimal virtual learning environments according to the physical or cognitive needs of the students is highlighted (Niño-Vega et al., 2019). It has also been noted that ICT promote educational inclusion since different accessible teaching materials can be developed for students with disabilities (Angarita-López et al., 2020). Likewise, it has been shown that ICTs promote collaborative work, self-learning, communication between teachers, students, and parents, etc. (Castro-Robles et al., 2020).

On the other hand, in the face of the public health contingency caused by Covid-19, in several studies it was found that primary school students, belonging to both public and private educational institutions, master the different tools and digital applications very well

(Martínez -León et al., 2021). Teachers can guide their classes effectively, and the students learn differently from the traditional ones through virtuality (Peña-Estrada et al., 2020).

Owing to the multiple studies that have been carried out regarding ICT in early childhood education, it can be said that ICT have been beneficial for students since they have proposed a new way of teaching and learning (Badillo-Jiménez & Iguarán-Jiménez, 2020). Therefore, many authors reject the idea that primary school students are prohibited from using technological devices under the idea that ICT represent a danger to their safety. Given this perception, research indicates that the teacher must control the students when they are using virtual environments. However, access to different technological tools should not be restricted because the student is deprived of a significant source of information, which contributes to enriching their knowledge (Rodríguez-Morillo & González-Serna, 2020).

Didactic Strategies for Teaching English

Didactic strategies of the teaching of English, studies such as those by Calderón-Rojas and Córdova-Esparza (2020) have carried out an exhaustive search where a bibliographic review is detailed regarding the experiences that have been obtained in the use of blended learning (b-learning), in the teaching of English as a foreign language. Research is of utmost importance for this project because it was identified that B-learning could favor the understanding of grammatical topics and the development of communication skills in the English language.

Likewise, some authors have investigated the importance of developing didactic strategies as a set of processes, techniques, methods, and actions which seek to improve the teaching-learning processes (Ñáñez-Rodríguez et al., 2019). This topic has become an object of study

for many teachers since every day there are many emotional, physical, and cognitive problems that students have and which require efficient techniques that allow them to learn in the best way the concepts they are oriented in the different areas of knowledge (Padilla-Ospina et al., 2020).

In this sense, researchers have proposed countless didactic strategies for teaching English to students with attention deficit hyperactivity disorder (ADHD), and didactic strategies for teaching English to students with Down Syndrome, autism, students in disability, and unique learning needs conditions. The results of these investigations allow us to conclude that the application of these strategies adjusted according to the type of student who is being trained can promote their creativity and proactivity in learning any subject (De La Cruz et al., 2020).

On the other hand, in Colombia and other Latin American countries, studies have been carried out to establish the effectiveness of didactic strategies in teaching English at different educational levels (Villamizar & Jaimes, 2021). In this case, it was evidenced that the implementation of teaching strategies is directly related to developing skills, competencies, knowledge, and skills so that students can speak, read, listen, and write in the English language. However, it must be borne in mind that the strategy's success depends on its design and approach, which is why some authors recommend keeping in mind the objective, flexibility, and inclusive participation that the didactic strategy to be developed will have.

Didactic Materials for Reading Comprehension in English

The teacher must employ an effective didactic strategy so that the students can learn the concepts that are optimally oriented; It turns out to be of great relevance that the teacher also implements good didactic material, which facilitates their pedagogical work when teaching,

as well as awaken the interest of students to learn (Vargas-Vargas et al., 2020). Therefore, different didactic materials for teaching English have been designed, developed, and validated around the world (Molina-García et al., 2021).

Some studies have developed didactic materials such as primers, books, brochures, banners, and other printed material, which seek those students to improve their reading skills and reading comprehension after interaction with said material (Salcedo & Fernández, 2018). Although, without doubt, this type of didactic material has managed to impact students, since it is a fun way in which the student manages to learn, the truth is that in recent years this type of material has lost its impact on young people since they already see it as outdated and not very useful for their learning process (Lara-Alcívar et al., 2021).

In a certain way, some authors have developed digital tools, applications for smartphones, tablets, and computers, which integrate a series of interactive didactic materials with which students can improve their knowledge, reading, and communication skills in the English language, as well as in languages other than Spanish (Vergara-Pareja et al., 2021). Undoubtedly, this attracts students, and even in recent years, the self-learning that each of them is opting for has been evidenced to improve their knowledge of new languages (Ríos-Muñoz & Herrera-Araya, 2020).

In this case, it can be said that over time, different types of didactic material have emerged to strengthen reading comprehension in English and improve other communication skills (Huillca-Mosquera et al., 2020). However, the research consulted highlights that the success of the didactic material affects its constant updating since, if it is not adapted to the student's interests, the didactic material will not fulfill its pedagogical intention (Ducuara-Amado et al., 2020). In the same way, the need for the teacher as a developer of didactic material to be

in a constant process of updating is highlighted to innovate both in the way of teaching and in the way of captivating the motivation to learn of the students (Meneses-Ortegón et al., 2020).

Digital Educational Resources For Learning A foreign Language

The studies carried out regarding digital educational resources for learning a foreign language are few (Rodríguez-Parrado, 2020). Many of the applications created for their purpose are not educational but rather a hobby or a communication and entertainment tool (Méndez-Vázquez et al., 2021). Computer applications such as Tik Tok, Youtube, Facebook, Instagram, hello, among others, have been developed as a social network. However, some researchers have sought its educational purpose, and through videos and short exercises, they achieve that the student acquires knowledge to understand a language (Cevallos-Taxi, 2020).

On the other hand, some teachers have developed web pages to insert various multimedia materials such as videos, audio, texts, images, and interactive activities through games and simulators. Most investigations have reported the gain of significant learning in terms of students' performance levels when guided under a digital educational resource (González-Vega, 2020).

Some authors indicate that the importance of developing a digital educational resource lies in developing materials in various formats adapted to the students' learning styles. To do this, you must consider their cognitive, physical, or sensory difficulties. In the same way, it is necessary to identify how they manage to capture the information better (Fajardo-Murillo & García-Herrera, 2021).

In like manner, even though numerous investigations have not been found in which digital educational materials are developed for the teaching of a foreign language, the importance of this bibliographic review made it possible to denote the need to do so, since in the English subject of knowledge that has not innovated its techniques in recent years. Therefore, the need to develop the research proposed in this degree work is reflected.

CHAPTER III

Methodology

Research Approach and Type

This research project was carried out under a mixed approach since the quantitative approach was used to measure the levels of performance in terms of critical reading competence in English that students have before and after interacting with the Digital Educational Resource developed. In the same way, the qualitative approach was used to know the perception of each of the students regarding the functioning, units, activities, and the topics presented in the Digital Educational Resource. (Hernández-Sampieri, Fernández-Collado & Baptista-Lucio, 2010).

In the present study, an inductive investigation was proposed since it starts from the data or elements identified in the population under study. After having been intervened, the results are analyzed and generalized. In this sense, the study was conducted quasi-experimental since what is sought with the project's development is the construction of significant learning in terms of critical reading in English mediated by a Digital Educational Resource.

Population and Sample

The target population for this study corresponded to 40 fifth-grade students but was taken 20 students as a sample assigned to the Colegio Británico de Zipaquirá educational institution, located in Colombia in the department of Cundinamarca, specifically in the municipality of Zipaquirá. This educational institution is urban and private and provides the service of preschool and primary education to students from socioeconomic strata of levels

2, 3, and 4. To research that educational institution, the principal provided the required permission, which is evidenced in Appendix A.

The sample in this study corresponded to 20 fifth grade students, including 12 women and 8 men with ages ranging from 9 to 10 years old; the sample was selected at the convenience and under voluntary participation of the students, this was obtained through a signed consent, which was authorized by the parents or legal representative of the student. Such a consent is included in appendix B of this project.

This research was carried out at the Colegio Británico de Zipaquirá, due to two factors: the first, because the educational institution emphasizes English as a foreign language; As a consequence, this area is prioritized over all others, for students to acquire knowledge and skills, which allow them to recognize English vocabulary and apply it to communicate with others. As for the second factor, it is because, in the fifth grade, students must present the tests proposed by the state "Saber 5 °", where the knowledge of the students is measured, and the quality of education provided by each institution is valued.

Collection methodology and techniques

A *questionnaire* is a research or evaluation instrument considered a classic procedure in the social sciences for obtaining and recording data. This document's versatility is an evaluation technique that can cover quantitative and qualitative aspects. Its main characteristic is to record information requested from the same subjects in a profound and impersonal way. The purpose of the questionnaire is to obtain, in a systematic and orderly manner, information about the population with which one works, about the variables of the

object of study, etc. For this, open questions, closed questions, relationship questions, true or false, or multiple selections with several or only answers can be used (Muñoz, 2003).

On the other hand, the survey is a technique used in descriptive research, which allows obtaining and processing data quickly and efficiently. In oder to the survey is considered a measurement instrument characterized by using a series of standardized procedures. According to its application, a set of data from a study sample can be collected, processed, and analyzed (Casa-Anguita et al., 2002).

As a data collection instrument for this research, two questionnaires were considered, an initial one used to identify the knowledge and skills that each student has in terms of critical reading in the English language. The second questionnaire is the final one, which was similar to the initial questionnaire. However, it sought to measure the critical reading skills in English that students acquired after being guided with the prepared Digital Educational Resource.

Similarly, two surveys were used: a characterization survey and the other for validation. The characterization survey had the purpose of identifying the format in which they like the information to be presented to them and knowing why it is difficult for them to recognize the central idea of a text in English. Regarding the validation survey, it had the intention of knowing each student's perception regarding the Digital Educational Resource that was used in the study.

Likewise, the assessment tool for the Calidad de Objetos de Aprendizaje, CODA, proposed by Fernández-Pampillón, Domínguez-Romero, and Armas-Ranero (2012), was used as a measurement instrument. This tool will be selected to assess the technological and didactic effectiveness of the educational material to be developed. The evaluation matrix is

divided into two criteria: didactic and technical. The didactic criteria evaluate the quality of the contents, the objectives, the adaptability, the motivation, the reflection, and the innovation. The technical criteria evaluate presentation, design, reusability, adaptability of formats, interactivity, interoperability, usability, and accessibility. The assessment scale is measured by the level of compliance from 1 to 5, where 5 represents that the item is fully met and 1 that the item is not met (Niño-Vega, Fernández-Morales & Duarte, 2019). It should be noted that this matrix will be filled out by three experts as follows: a teacher in the English area, a teacher in the language area, and a teacher in the technology area.

On the other hand, this research had 14 activities, which are listed below:

The literature reviews the research findings reported by other authors regarding the subject of study and thus identifies valuable instruments, methods, and materials for this study.

Design of measuring instruments. The two questionnaires and two surveys were designed to be implemented to the target population, before and after the execution of the study.

The initial measuring instruments. Both the initial questionnaire and the characterization survey were applied to obtain the topics, as well as the formats in which the students would like to present the information in the Digital Educational Resource.

Identify the model of the Digital Educational Resource to be developed. The design of windows, buttons, and interactions that will contain the educational material to be developed was established.

Select the development interface. The platform, tool, or software on which the Digital Educational Resource would be developed was chosen.

Establish the themes and the learning activities to be integrated into the educational material concerning the data obtained in the initial test of the students.

Prepare the Digital Educational Resource, verifying that the established design parameters are met.

Adjust the Digital Educational Resource to its maximum operating conditions. For this, the corresponding pilot tests were carried out so that the Digital Educational Resource works fully.

Make the learning guides, as well as the corresponding lesson plans. To identify the number of sessions and how the Digital Educational Resource would be implemented with the sample under study.

The implementation of educational material in the classroom. Each of the proposed activities was applied to intervene with the students, and the Digital Educational Resource was developed.

Apply the final questionnaire and the validation survey to the students to obtain the perception of each of them regarding the activities, units, and evaluations that the Digital Educational Resource had.

Analysis and interpretation of the initial and final tests. The effectiveness of the Digital Educational Resource was validated through the comparison between the questionnaire that was applied to the students before and after having been intervened with the Digital Educational Resource. Based upon the results, it was established whether it had any effect. For this activity, the learning gain was validated, based on the correct questions obtained by the 20 students, both in the initial and final tests. For this, equation 1 was applied, where the

Hake factor is calculated to measure the range of learning gain, as follows: Low (g ≤ 0.3), Medium (0.3 <g ≤ 0.7), and High (g> 0.7) (Martínez-Velásquez & Riveros-Míguez, 2019).

$$g = \frac{Final\ test\ (\%) - Initial\ test\ (\%)}{100\% - Initial\ test\ (\%)} \quad (1)$$

As the last aspect of the following, the Digital Educational Resource was evaluated with the CODA matrix. In order to three experts were selected to analyze the operation of the Digital Educational Resource and indicate their concept to make the respective improvements.

Ethical Considerations

This project follows the ethical guidelines established by the Universidad Nacional Abierta y a Distancia (UNAD). For this reason, for this research, the necessary permits were obtained for the pedagogical intervention by the principal of the educational institution Colegio Británico de Zipaquirá, Cundinamarca - Colombia. Likewise, this study was applied with fifth-grade students authorized by their parents or legal representatives through informed consent, as these were minors.

CHAPTER IV

Results and Discussion

Initial Test Results

The initial test was applied in-person to the 20 students of fifth grade of the Britanico de Zipaquirá school. The objective was to identify the skills that the students had concerning reading comprehension in English. The application of this test had a time limit of 45 minutes and was evaluated in the first week of the third academic term of the year 2021.

The test has a total of 20 multiple-choice and short-answer questions. It is, in turn, subdivided into categories such as text interpretation, graph interpretation, and image interpretation. To interpret the text, the students had to read a short paragraph, which gave them the necessary information to answer the first 7 questions. For the category of interpretation of graphs, the students had to interpret the information shown in the graphs; this subcategory had other seven questions. Additionally, for the image interpretation subcategory, students had to observe the informative images and, in this way, answer the last 6 questions. The initial test can be seen in appendix D of this report.

None of the 20 students passed the initial test. In table 2, the results obtained by the students can be seen in detail by categories. In this, it is evident that only one student obtained the primary level in interpreting texts. Similarly, 14 students did not pass the image interpretation item.

Table 2 *Initial Test Results by Categories*

Items	Rating			
	Low	**Moderate**	**Medium**	**High**
Interpretation of texts	17	2	1	0
Interpretation of graphics	14	4	1	1
Interpretation of images	14	4	2	0

(Source: Own authorship, 2021).

The analysis of the results of the initial test shows that the competence that was most difficult for the students was the interpretation of texts, this is because 17 students are at the low-performance level since they do not count with the vocabulary necessary for the interpretation of texts and for this reason, they cannot get the main idea of readings, whether short or long.

When carrying out an analysis on the student who obtained a high performance in the category of interpretation of graphs, it was possible to realize that he likes mathematics a lot; This was one of the reasons why he understood statistical graphs very well, and although some words were not known to him, the student related them appropriately to the information. In contrast, the other students do not perform well in the same area. When trying to understand the information presented to them, they found it too difficult to relate the question that was being posed, especially since the information was in English.

For the image interpretation item, only 2 students of the 20 who were evaluated obtained a high result; this is because they have more significant learning when the activity contains: images, videos, and flashcards. When they saw the information, the students mentioned that they related it to data found on street signs or places.

Another strategy applied by two students was to relate the known words with what was being asked and deduce the answer, although they could not translate it completely.

The diagnosis obtained with the initial test allowed us to know the categories that students find difficult to understand in terms of critical reading comprehension in English. In the same way, the results made it possible to establish the didactic units and themes that would help to reinforce the weaknesses in terms of the interpretation of texts, graphics, and images in English to the students of the fifth grade of the primary school of the Britanico de Zipaquirá school.

Initial Survey

The initial survey had 9 multiple-choice questions and was applied to the 20 students in grade 5th of the Britanico de Zipaquirá school. Considering the results, the age of the students ranges between 9 and 10 years. Regarding gender, 11 of the students were women and 9 men; 19 students live in an urban area, and one lives in the rural area of Zipaquirá. When asked, what is your favorite type of reading? 16 students answered that they like adventure, fiction, horror, and comedy literature, 2 students only like comedy readings, 1 student likes horror books, and 1 student likes adventure literature.

Regarding the time they devote to reading, most of the students (17) responded that they spend 30 minutes reading; the remaining 3 indicated that they dedicate 1 hour of reading a day. Considering the reading system's preference, 15 students answered E-book, 2 students favored online books, and 3 marked the option of physical books. In the same way, regarding the question, what is it that strikes you the most when you read? The students indicated that they pay attention to the text and images, and in the case of students who like to read online, they are attracted to sounds. Additionally, considering the cognitive aspects of the students,

the following questions were asked. When you present a reading comprehension quiz, do you generally do well or poorly? 14 students answered that they were doing poorly because the text is complex or there are many unknown words. For the question, how many times do you need to read to understand a text? 18 students mentioned that they must read the text at least twice to understand what they are reading. Also, when asked, do you think reading is helpful for your personal development? All 20 students answered that it is essential since it helps them have a better academic performance.

DER Design

According to the needs identified in the initial test; a digital educational resource was designed to serve as didactic material, allowing students to improve their understanding of critical reading in English. The following order: the student section, the teacher section, the user manual, and a fourth credit section was established within the DER.

Figure 1 shows the structure that the digital educational resource will have. For the student section, each of the previously evaluated categories was considered. As a consecuence, 4 units named as follows: *"Bookroom," "Statistic room," "interpretation room,"* and *"trainer room"* were designed. In the *Bookroom* unit, three books are proposed, which will allow students to synthesize the information and take note of the unknown words, and then look up the meaning in the dictionary either physically or online, this it is sought that the student internalizes the information through compound sentences, made by themselves. In the *Statistic room* unit, the students found five informational graphics activities that will help them strengthen their reading comprehension through statistical bars. For the *Interpretation room* unit, activities based on the reading of images were proposed. They must interpret each of the exercises and solve the questions about the image presented. In the same way, a unit

called *Trainer Room* was designed, where 10 exercises from each of the previously mentioned units are proposed so that the student can strengthen their acquired knowledge.
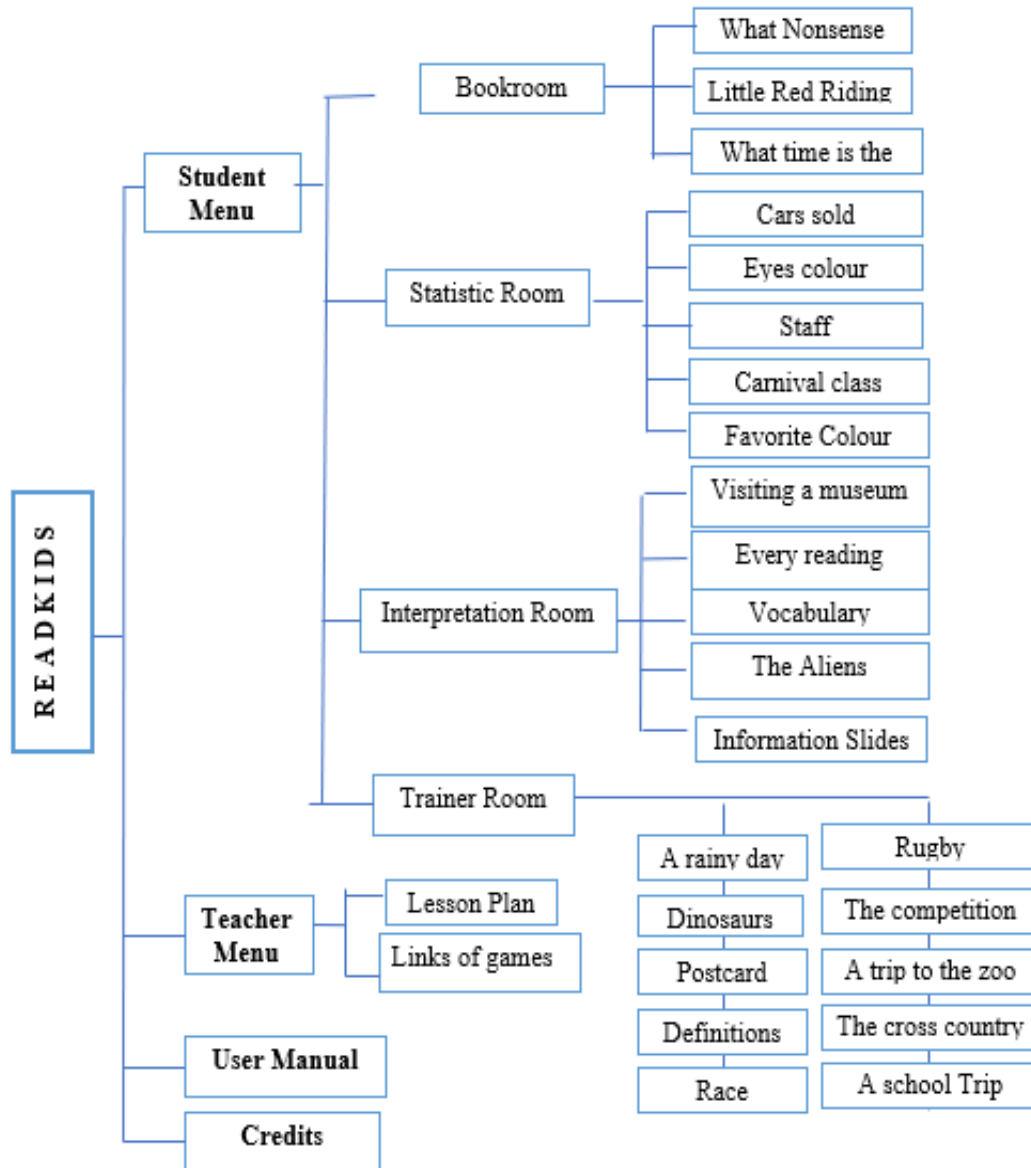
Figure 1. Structure of the digital educational resource (Source: Own authorship, 2021).

In the session of the *teacher menu*, the lesson plans are provided. The purpose of such units is evidenced, what is expected to be achieved during the implementation of the digital educational resource, and under what pedagogical approach is being worked. Additionally,

teachers are presented with some links to free access platforms, which can make the classes more attractive for students. Next is the user manual section, where the functionality of the buttons and the meaning of each are explained so that users can navigate through the DER without any inconvenience. Finally, there is a credit section; in this space, the person who designed the DER is shown.

Site Map

Figure 2 details how the information will be presented in each section that makes up the DER. This diagram shows the presentation of the contents, such as activities, images, books, exercises, graphics, audios, and informative texts. Each of these formats is of vital importance when designing a digital educational resource since it allows greater attention and understanding on the part of the student. When texts are designed for educational purposes, they must be clear. They must have a suitable font size and adequate colors, which allow the correct visualization of the content. It does not present any effort or limitation for the student. As for the images, they must be carefully selected since they must be consistent with the subject that is being presented; they must also respect copyright and must have a good resolution. In the case of the audios, they must have a good quality, the pronunciation and the rhythm of the talk must be adequate for easy understanding.

In the same way, the exercises and interactive activities must have a format that can be reproduced, viewed, or developed without any limitation, verifying that it works on different electronic devices. On the other hand, the contents found in the DER are self-made, and others are taken from other authors, to whom their respective credits were attributed.
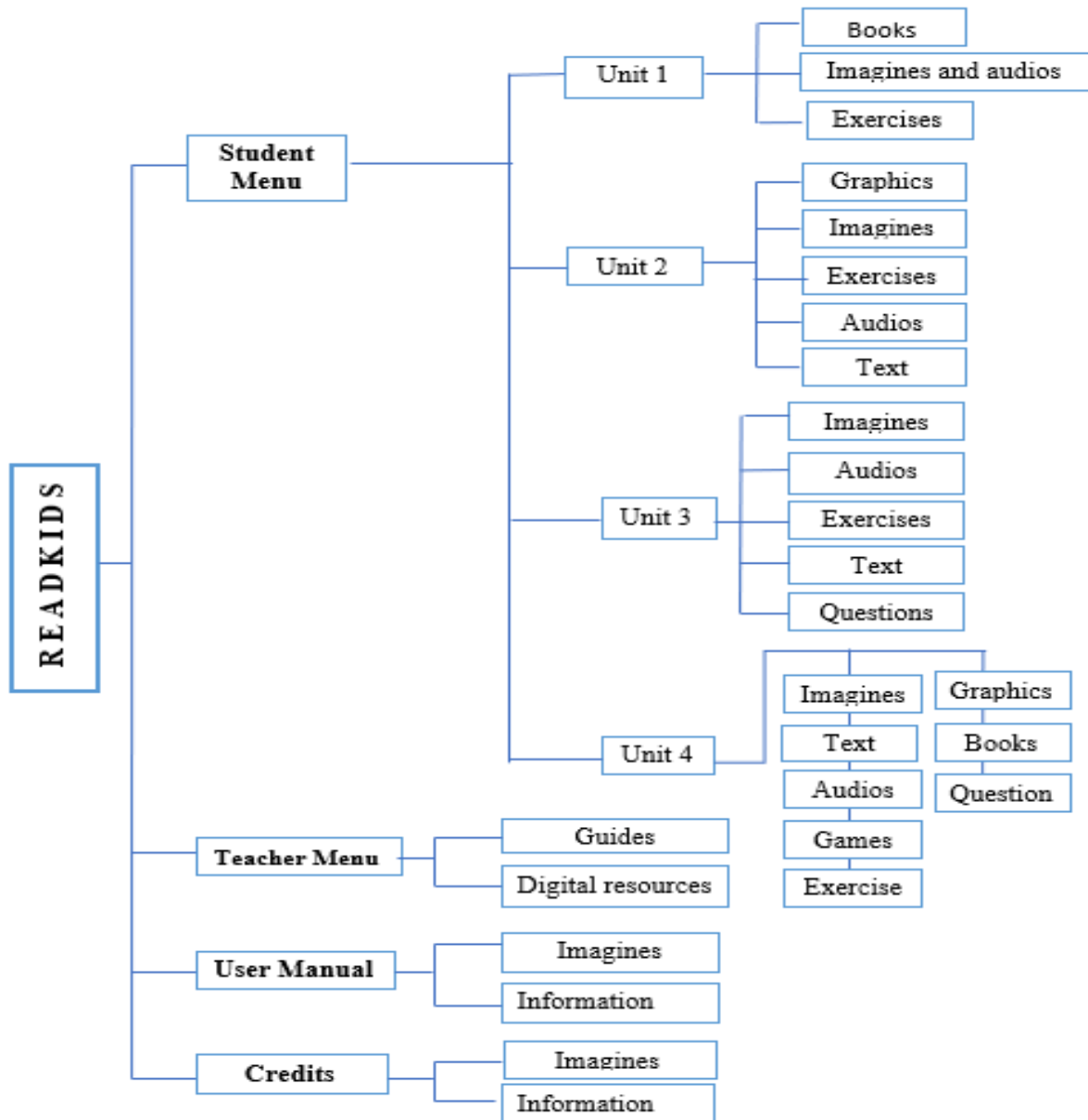
Figure 2. Diagram of the presentation of contents (Source: Own authorship, 2021).

Interface selection

Considering the benefits that Information and Communication Technologies (ICT) bring, it is evident that at present, there are multiple digital tools for the development of DER, some applications for this can be: WordPress, Wix, Blogger, Google Site, and others for the

development of educational materials without the need for an internet connection such as Microsoft PowerPoint, Exelearning, Java, Authorware, among others.

For this research, Microsoft PowerPoint was chosen for the programming of the DER since it allows the educational material to be designed skillfully; it allows gifs, images, videos, sounds to be inserted. On the other hand, PowerPoint allows to incorporate add-ons such as iSpring Suite, in which you can design multiple-choice, matching, short answers, and fill-in-the-blank quizzes. In the same way, this complement has the option of providing feedback to students regarding their development of exercises, quizzes, or any other designed activities. In the same way, students can download a file *.rar,* it is available at the following link https://drive.google.com/file/d/1G-XrBVqXfPtRhynLMv_5gq5XsuYSbJoD/view. One of the advantages of the iSpring Suite is that it can insert audio so that people with disabilities can develop the units proposed in the DER, generating educational inclusion. In the same sense, considering that the computer room of the Britanico de Zipaquirá school. did not have internet, the iSpring Suite allows a publication offline and in HTML format, providing the opportunity to be implemented anywhere without being mandatory internet connection necessary. Likewise, the plugin can convert the HTML into Apk to view the content on tablets and smartphones with the Android operating system.

Programming of the digital educational resource

The DER programming began with the customization of the interface with which the content was presented, which had to be interactive and attractive to the students, verifying that the buttons were easy to locate and were in operation. In the same way, it was considered that the DER could be adapted to all electronic devices such as computers, tablets, or cell

phones. In figure 3, the DER menu is shown; there are several interactive buttons. Each redirects to sections such as *Student, Teacher, user manual,* and *credits*, highlighted with a different icon for quick identification.
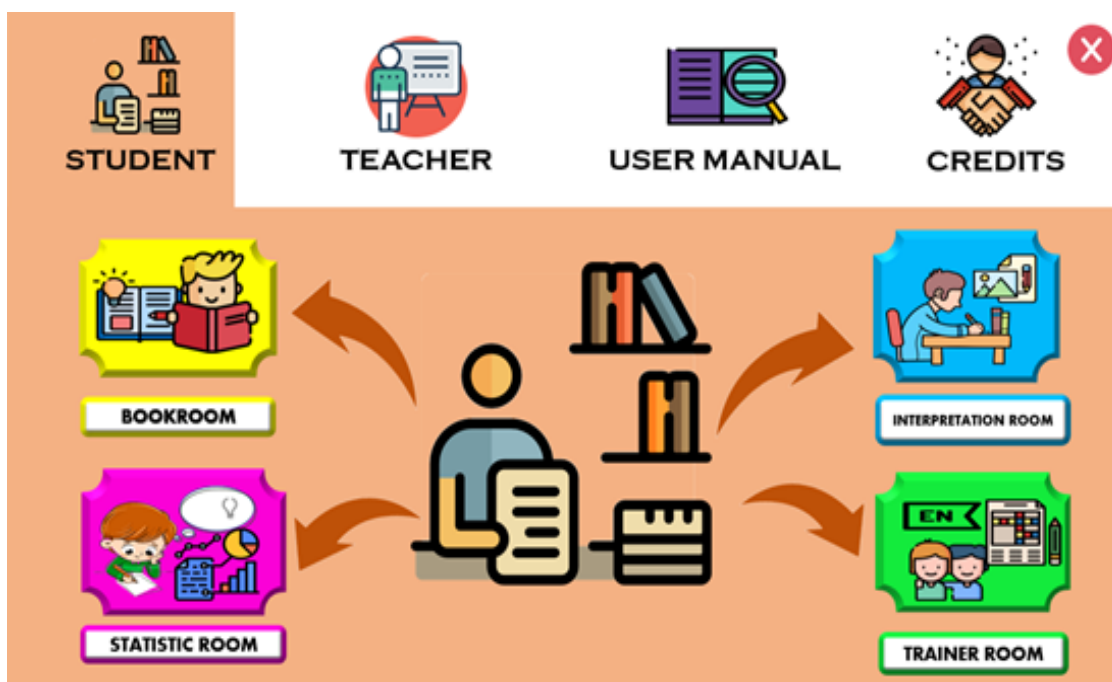
Figure 3. Principal menu of the DER (Source: Own authorship, 2021).

In the *teacher* section, reflected in figure 4, there are guides and classroom plans which will help the teacher to have a greater understanding regarding the use of the DER. When the teacher has the guides, they can focus on what the student can achieve with their implementation. In the same way, it will help know how effective was to apply it in class and what progress the student made during the development of each unit. On the other hand, this section has a space where the teacher will find links to online platforms that allow designing educational material to attract the student's attention. The class has a significant impact on the student.
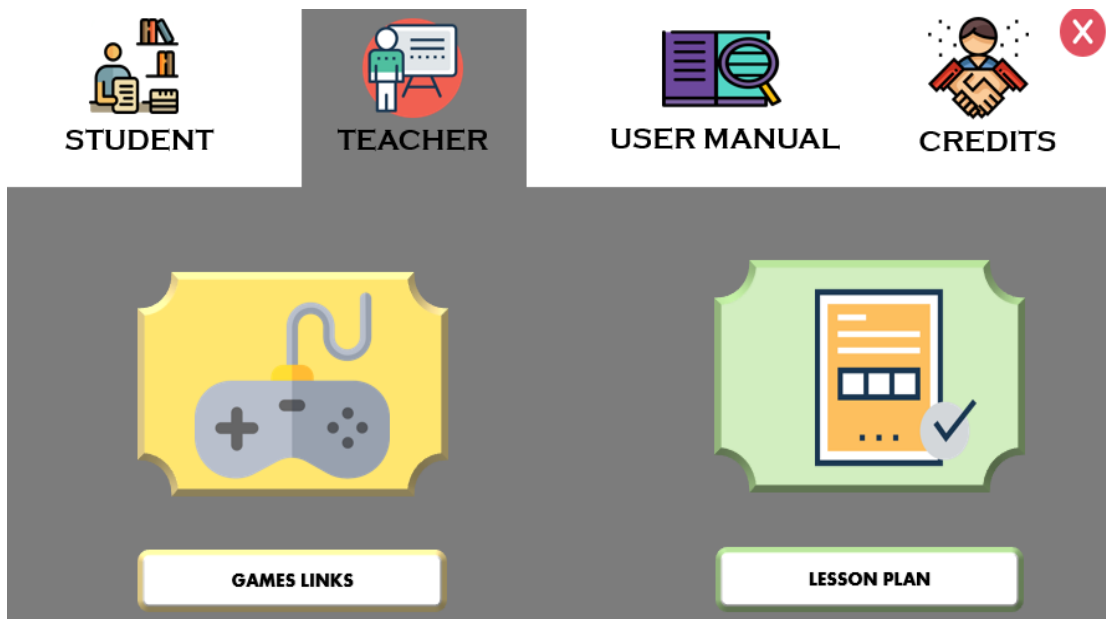
Figure 4. Teacher section in the DER (Source: Own authorship, 2021).

The DER has a *user manual*, which provides relevant information to the user to understand the organization and operation of each of the buttons inserted in the DER, which is called "*READKIDS-Critical Reading*." The user manual interface can be seen in figure 5.

Figure 5. User manual of the DER (Source: Own authorship, 2021).

Figure 6 shows the section containing the *Bookroom unit*, where you can see each of the digital books programmed. These books have a number that identifies them; as the number of the book increases, the reading becomes a little more complex and requires a higher level of concentration. Inside each book, there are interactive buttons, images, audio, gif, short texts, and learning activities, which allow the student to enrich their reading comprehension skills. These activities were adapted from the original authors, giving them their respective credit. At the top of the screen is the icon representing the unit and, in turn, the name selected for it. As for the images, these were taken from free repositories such as Pixabay, PNG images. unplash, pixels, Splitshire, etc.

Figure 6. Bookroom unit of the DER (Source: Own authorship, 2021).

Figure 7 shows the *Interpretation room* unit screen. In this section, 5 activities were designed, which had audios and images carefully selected to be consistent with the unit's

study themes. The images provided in this section allowed the student to obtain helpful information to answer each of the exercises proposed for this unit.


Figure 7. Interpretation room unit of the DER (Source: Own authorship, 2021).

In the *statistic room* unit, figure 8, its interface is illustrated where 5 exercises were designed, which were programmed according to the ages and educational level of the students. For the design of these activities, it was considered that the information had to be clear and precise so as not to generate confusion when deducing the information presented in each exercise.

Figure 9 shows some activities programmed in the different units of the *"READKIDS-Critical Reading"* DER. Examples of the matching, multiple-choice, and short answer activity are shown in Figure 10. Each activity has a striking design based on the students' liking; at the bottom is the delivery button, in which the student is notified when they send

the answer. On the other hand, the upper part shows how many exercises this activity has and what question number it is.
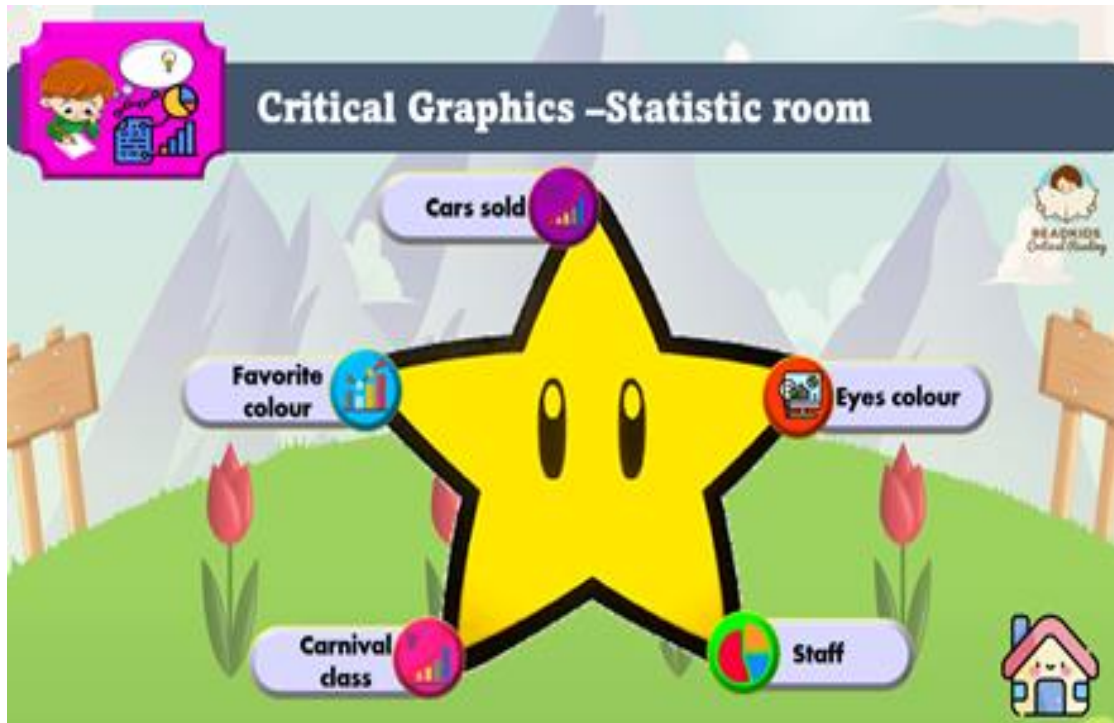
Figure 8. Statistic room unit of the DER (Source: Own authorship, 2021).

Other examples of the design of the quizzes that were programmed in the units are illustrated in figure 10. In section A, the activity with a written response option is evidenced, where students must write a short text about the readings carried out. In section B, a quiz is shown where the students had to drag and drop the words that they considered correct to complete the text; A peculiarity of this exercise is that a time limit was set for the development of the activity. In section C, the multiple selection activity is evidenced; as a consecuence, students could select one or more options as indicated in the statement. Finally, in section D, the student's feedback on whether his answer was right or wrong when solving the activity.

Figure 9. Games and activities of the DER (Source: Own authorship, 2021).

Figure 10. Games and activities of the DER (Source: Own authorship, 2021).

Implementation in the classroom

The following section shows the work carried out in the classroom, where photographs are included that have the parents' authorization and the educational establishment. This experience was developed with the 20 fifth-grade students from the Britanico de Zipaquirá school and had an extension of 19 sections each with a duration of 90 minutes corresponding to two hours of class. This project was applied during the third academic period of 2021, where initially, a survey was applied in a 45-minute session. The results obtained showed the interests and preferences of the students, the time that each student spends daily reading. In the same way, the ability in reading comprehension was considered. Likewise, how they most like to read was identified, such as physical texts, e-books, or online books; Given the responses obtained, the physical texts were discarded, which was critical information when designing the DER. The initial survey can be reviewed in appendix C.

For the second moment, an initial questionnaire was applied, which lasted 45 minutes. The questionnaire intended to identify the knowledge, skills, and shortcomings in front of critical reading; When obtaining the results of this initial questionnaire, the difficulties that the students had were identified. In this way, the needs of the students were evidenced. That test can be reviewed in appendix D.

After obtaining the results of both the survey and the initial questionnaire, the digital educational resource was developed; for this DER, a pedagogical strategy was implemented, as shown in figure 11.
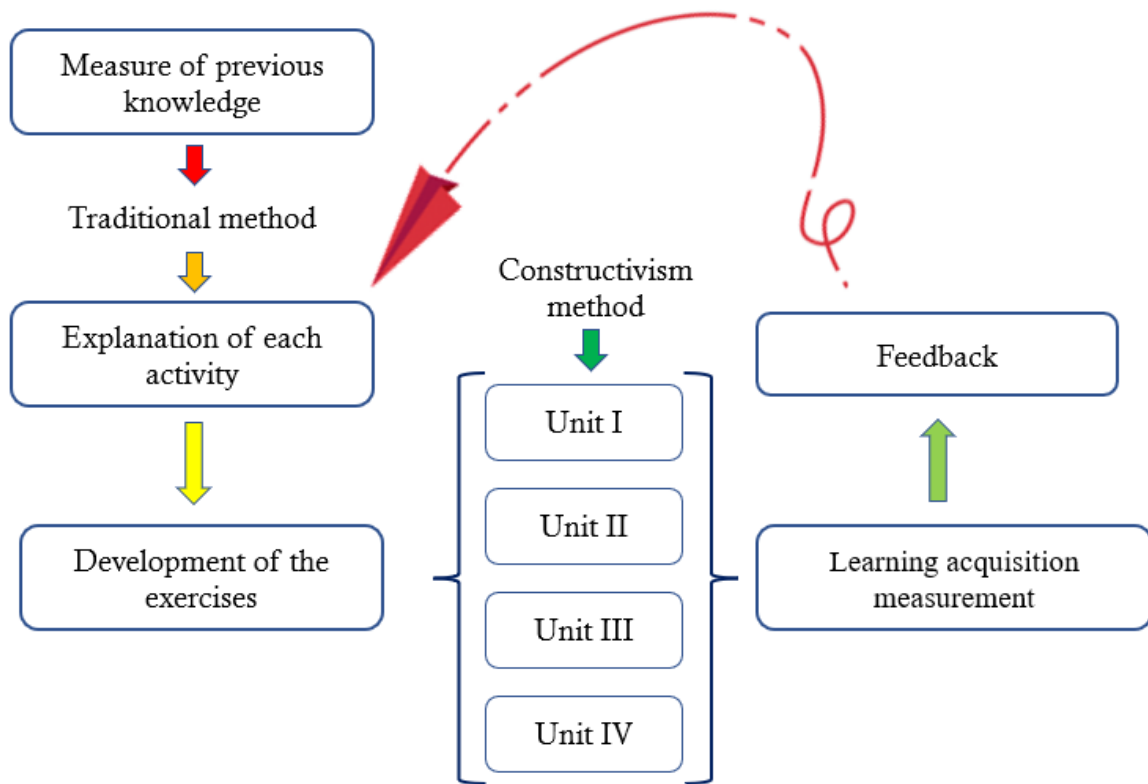
Figure 11. Pedagogical strategy (Source: Own authorship, 2021).

The didactic strategy proposed in figure 11 is established from the previous knowledge and skills that each student had. Later, through the traditional method, each activity's objective to be developed through the DER was explained to the students. Then, the student had to develop the exercises of each unit; for this, it was decided to use the constructivist method so that they would build their knowledge based on the interaction with the DER; in this phase, the teacher guided, motivated, and attended the doubts that each student had. Once each student solved one of the 4 units proposed in the DER, the knowledge they acquired was measured through an evaluative activity. Next, feedback was given to the student to consolidate the knowledge that was not fully understood. Finally, the student repeated the cycle for the other remaining units.

During the first intervention, the students were allowed to interact with the DER, while in turn, they were shown in the video beam each of the units and the spaces they would have to improve their critical reading. After this, the first activity found in the *Bookroom* section, the *What Nonsense book*, was explained to them to be later developed. Duing the first interventation many students read using the microphone while the other classmates followed the story. In the same way, the students wrote the unknown words in their notebooks and then looked up the meaning in the *WordReference* dictionary and later made a simple sentence with the unknown words as shown in figure 12.

Figure 12. Explanation and participation of units (Source: Own authorship, 2021).

Once unit one had started, each of the units designed in the DER was applied. The student had a 90-minute section to read, write the unknown vocabulary, look up the words, form the sentences, and answer the questions presented in the quizzes, exercises, and activities. However, on some occasions, the students read all the content to better understand during the

activity and then do a second reading and carry out each of the pre-established steps for the activity. as evidenced in figure 13.

Figure 13. Interaction with the DER (Source: Own authorship, 2021).

Similarly, in Figure 14, the students competed among themselves to achieve a better result. This degree of competitiveness allowed them to maintain the interest among the students. In this way, they could demonstrate their capacities, abilities, and skills in English against reading comprehension. In the same sense, the team spirit was demonstrated since in some activities, some students did not understand, and they helped each other to be able to develop the activity.

Figure 14. Exploration games (Source: Own authorship, 2021).

Finally, the digital educational resource implementation, a similar final questionnaire was applied and with the same characteristics of the initial questionnaire. The intention of this was to identify the knowledge learned after having intervened with the digital educational resource. In the same way, a survey was made to find out the opinions and observations that the students could appreciate by navigating the DER.

Analysis of the Initial and Final Test

This section presents a descriptive analysis between the initial questionnaire and the final questionnaire that was carried out with the 20 students who were taken as the sample under study. This analysis allows validating if the objectives proposed for the *READKIDS-Critical Reading* were achieved. For this, the Microsoft Excel tool was used. Each of the questions and answers obtained was tabulated. In the same way, the tables were designed, allowing a better understanding of the results.

In table 3, the students are located according to their general performance level, achieved both in the initial questionnaire and final questionnaire.

Table 3

General results between initial questionnaire vs final questionnaire

	Rating			
Test	**Low**	**Moderate**	**Medium**	**High**
Initial questionnaire	20	0	0	0
Final questionnaire	0	1	3	16

Source: Own authorship (2021).

Table 3 shows the results obtained in the initial and final questionnaire. The 20 students improved their performance in the final questionnaire compared to the initial questionnaire. In the final questionnaire, no student failed it, while all students failed to pass it in the initial questionnaire. Similarly, in the final questionnaire, it is reflected that most of the students (16) obtained a high level, followed by three students with a medium level and one with a moderate level. From the above, it can be said that the improved results achieved by the 20 students are due to the activities, quizzes, games, and other activities proposed in the DER.

Final questionnaire results by categories

Identify the performance achieved by the students; before each of the categories of critical reading in English, the final questionnaire results were analyzed. These results are reported in table 4.

Table 4

Final questionnaire results by categories

	Rating			
items	**Low**	**Moderate**	**Medium**	**High**

Interpretation texts	0	1	4	15
Interpretation graphics	0	0	0	20
interpretation imagens	0	1	5	14

Source: Own authorship (2021).

The analysis of the final test results, reflected in table 4, shows that in the text interpretation competence, 15 of the 20 students obtained high performance. At the same time, only one was in the moderate performance. With the implementation of the DER, the students acquired more vocabulary, which allowed them to understand more information to develop later each of the activities proposed for the unit. In the same way, by identifying the book's main idea, they could relate the vocabulary they knew together with the images that aided in easy reading comprehension.

Regarding the results obtained against the graph interpretation criterion, it is observed that 20 students had high performance; this is since mathematics is easier for students. by relating the quantities in the Statistical bars and the information of the questions, the students were able to relate the image, vocabulary, mathematical data, and known words in English to answer the quizzes of the unit.

For the image interpretation item, it is evidenced that 14 students of the 20 who were evaluated obtained a high result; this is because they have visual learning, which allows them to remember the information they perceive more easily. On the other hand, only one student occupied the primary performance. The student stated in moderate performance said "it was difficult for him to see the images due to a visual problem".

The results reported in the final questionnaire allowed to publicize the progress by categories that the students obtained through the application of the digital educational resource. It was evidenced that, by using an educational resource that is adapted to the needs

of the students, they allow to supply each of the deficiencies and weaknesses that they have according to learning critical reading in English as a foreign language. The final questionnaire can be reviewed in appendix E.

Learning gain factor

After having designed, elaborated, and implemented the digital educational resource *READKIDS- Critical Reading,* the aim was to identify the learning gains of the 5th-grade students of the Británico de Zipaquirá school. To follow, equation 1 proposed for the methodology of this research was used, the Hake factor (g) is measured. This establishes the measurement range as follows: Low (g ≤ 0.3), Medium (0.3 <g ≤ 0.7), and High (g> 0.7). In the same way, the data required to know the impact are the results of the initial and final test as a percentage.

$$g = \frac{94{,}7\% - 26{,}25\%}{100\% - 26{,}25\%} = 0{,}928$$

The precise results of the students in the initial test, each of the correct answers obtained by the 20 students, were counted. Therefore, for the initial test, there were 400 answers, where only 105 answers were correct by the population under study. Which corresponds to a percentage average of 26.25%. Similarly, for the final test, a total of 400 responses were obtained, where 379 were answered correctly, corresponding to the average percentage of 94.7%.

Indeed, when using the Hake factor equation (g), a 0.928 result is obtained, and since this result is more significant than 0.7, it can be said that the learning gain was high. The strategy used in the classroom was clear, precise, and timely. The activities, games, readings, and quizzes were specific to the population. In the same way, the design of the digital educational

resource was of vital importance since, by capturing the student's attention, it was possible to increase their interest in the optimal learning of English. Finally, the vocabulary within the Digital Educational Resource allowed students to learn new words and put them to use in their daily lives to achieve long-term learning.

Final survey

To measure the impact that the digital educational resource had on the 20 students who were part of the population under study, a satisfaction survey was designed. The survey consisted of 10 questions. The first 4 questions were evaluated under the Likert scale: Excellent, Good, Regular, and Low, while the remaining 6 questions were evaluated under the decision scale, such as: Yes or No. The instrument that was carried out to measure the impact of the DER is in appendix F.

The results obtained when applying the satisfaction survey to the students are presented in tables 5 and 6, respectively. It shows the opinions of each of the students regarding the activities, games, images, audios, etc.

Table 5

Results of the satisfaction survey to questions on the Likert scale

Questions	Excellent	Good	Regular	Lower
1 ¿El diseño del recurso *READKIDS- Critical Reading*, usted lo considera?	15	5	0	0
2 ¿Las imágenes empleadas en el recurso le parecieron?	11	8	1	0
3 ¿Las actividades que aparecieron en el recurso fueron?	14	6	0	0

4	La apreciación que tiene con respecto los juegos de entrenamiento es:	17	3	0	0

Source: Own authorship (2021).

Table 6

Results of the satisfaction survey to questions on the decision scale

Questions		Yes	Not
5	¿Los audios ayudaron a mejorar la pronunciación?	16	4
6	¿Tuvo algún problema con el ingreso a alguna unidad del recurso?	0	20
7	¿Consideras que aprendiste a interpretar textos imágenes y graficas en inglés?	17	3
8	¿Recomendaría el READKIDS- Critical Reading para que más personas mejoren su comprensión lectora en inglés?	19	1
9	¿Este software te permitió mejorar tus habilidades lectoras en inglés?	17	3
10	¿Usted cree que se debe mejorar el recurso educativo READKIDS-Critical Reading?	5	15

Source: Own authorship (2021).

Next, each of the questions found in tables 5 and 6 is analyzed. In them are the data obtained about the satisfaction survey applied, which allowed to know the opinion of the students about the DER.

1. Regarding the design of the digital educational resource, 15 students out of the 20 who participated said that the resource was excellent; this is because they liked the design. When

browsing it, the activities could be easily found. While the 5 remaining students said that the resource was good since each of the environments allowed them to find and identify where they were in the DER.

2. Regarding the images used in the DER, 11 students said that they were of good quality, that they helped to understand the text or the exercises. Similarly, 8 students said that the quality of these was good but that some looked pixelated. Whereas only 1 student thought that the images were terrible because he could not relate them to the stories presented.

3. Regarding the activities presented in the DER, 14 of the 20 students said that they had been excellent since they could learn more vocabulary, new words, etc. Similarly, the other 6 students said that the activities were engaging and an excellent way to learn to read texts in English.

4. Regarding the appreciation of the training games, 17 students said they were excellent because they were short games and very practical at the time of developing them. This motivated them to continue developing each of the games. On the other hand, 3 students said that the games were good since they adjusted to the subject learned in that third academic period.

5. Regarding the question Did the audios help improve the pronunciation? The majority (16 students) said yes since they were correcting the words they read. However, 4 of the 20 students said no; this was since the computers where they were working did not have sound, and for that reason, they could not hear any audio during the development of the activities proposed in the DER.

6. About the question Did you have any problem with entering any of the resource units? the 20 students said no; they stated that every time they needed to develop an activity when entered, they were charged quickly and without any downside. In the same way, the students mentioned that since the internet was not needed, it was easier to carry out the activities because they did not have to wait.

7. Regarding the question, do you think you learned to interpret texts, images, and graphics in English? 17 students said yes because they learned to relate the known vocabulary to the images supporting the text. In the same way, the students mentioned that, when interpreting a graph, they read the question well and related the word to the information found in the graph. However, three students answered no, and their argument was that: the vocabulary was complicated, and no matter how much they looked at the images, they could not interpret what was being asked.

8. Faced with the question, would you recommend *READKIDS-Critical Reading* for more people to improve their reading comprehension in English? 19 students said yes because they liked learning English differently. After all, the resource allowed them to learn new vocabulary and identify the main idea of a text and the interpretation of graphs. Additionally, they liked that the DER gave them feedback automatically. Listening to the pronunciation of the words allowed them to improve their reading ability and their oral production. However, a student would not recommend the digital educational resource because her learning was not as significant as her classmate's and because she "does not like English."

9. Regarding the question, did this software allow you to improve your reading skills in English? 17 students mentioned that yes because before starting each activity, they were given the guidelines to identify the main idea, the characters in the text, the beginning, knot,

and denouement. However, three students said no because there was a lot of confusing vocabulary, in which they thought that the meaning of a word changed depending on the context in which it was being spoken.

10. Faced with the question, what do you think should be improved in the *READKIDS-Critical Reading* educational resource? 15 students said that it was unnecessary to make any changes and that they were satisfied with each of the activities and interactions found in the DER. On the other hand, five students said that if it was necessary to make some improvements such as: that it be placed by age, that it has more activities with which to interact and that it be by levels, that is, that it had space from beginner to advanced.

The previous results show that each of the units, together with the exercises, quizzes, and activities proposed in the *READKIDS- Critical Reading* digital educational resource, were appropriate. This is because it was possible to capture the students' attention. It was possible to consolidate their knowledge of English as a foreign language, improve their pronunciation when reading in front of their classmates, and identify the essential parts of a text for its optimal understanding, so for. In this way, a different mentality was generated since many of them at the beginning mentioned that they did not like it and that it was very dull to learn that language. However, it is notable that 3 of the 20 students feel that they did not learn a little more. This implies that different pedagogical strategies must be sought for these children and thus ensure that they advance in their English learning and reading comprehension.

DER Validation by Experts

Three teachers validated the educational resource. The first professor corresponds to the area of technology and informatics (P1); the second professor corresponds to the pedagogy area (P2) of the Britanico de Zipaquirá school; and finally, the third professor corresponds to

the English area (P3). The instrument used to validate the resource was an adaptation of the Calidad de los Objetos de Aprendizaje (CODA), proposed by Fernández-Pampillón, Domínguez-Romero and Armas-Ranero (2012). This was selected because it allows evaluating the effectiveness in terms of Virtual Learning Objects. This matrix is divided into didactic and technical criteria. In the didactic criteria, it evaluates what the contents are in each of the units of the Digital Educational Resource, verifying that they are following the ages of the students and that the activities grant the property rights to the authors.

In the same way, the CODA matrix validates that the objectives proposed for each activity are consistent with the planned activities and that they are achieved. Compared adaptability of the resource, this matrix ensures that the contents are developed autonomously by each student. On the other hand, it verifies that the quality of the images, videos, fonts, and audios manages to capture the students' attention to maintain motivation during the navigation with the educational resource. As for the technical criteria, these focus on the presentation, the design, and interactivity, which can also be reused with another educational population.

The assessment scale is measured by the level of compliance from 1 to 5, where 1 is the item that does not comply and 5 is that the item is satisfactorily met. The results obtained in this matrix are presented in Tables 7 and 8.

Table 7

Validation of the didactic criteria of the resource by teachers

Criteria	P1	P2	P3
CONTENIDOS: Evalúa la presentación del contenido, las actividades, la veracidad de la información y los derechos de propiedad intelectual.	5	5	5

OBJETIVOS: Valora la coherencia y claridad de los objetivos didácticos, las destrezas a desarrollar y la explotación didáctica que se le puede sacar al OA.	5	5	5
ADAPTABILIDAD: Se asegura que el contenido/actividades sea el indicado según tipo/nivel del estudiante. Igualmente se valora que el OA se pueda usar independientemente del método de enseñanza o aprendizaje de quien lo utilice.	5	5	5
MOTIVACIÓN: Evalúa si el OA logra atraer y mantener el interés del alumno por aprender. Se verifica la calidad del contenido, reflexibilidad, critica, creatividad, interactividad y adaptabilidad que contribuyen a la motivación.	5	5	5
REFLEXIÓN: Verifica si el OA estimula, fomenta, promueve la reflexión, la crítica y las ideas frente a los contenidos que se presentan.	5	5	5
INNOVACIÓN: Se asegura si el OA, promueve la creación de nuevas ideas y la búsqueda de nuevos procedimientos/técnicas/métodos para la resolución de problemas o de generación de conocimiento.	5	5	5

Source: Own authorship (2021).

It considered the assessment given by technology, pedagogy, and English professor. The DER met each of the criteria proposed in the CODA matrix. The digital educational resource can be implemented in the school where the application of this research project was carried out, but it can be adapted for other educational institutions. The topics proposed in the DER follow the needs of 5th-grade students. Similarly, in assessing how innovative this resource was; The three evaluators agreed that the expectation was met since children can learn English differently from the traditional one, the validation by experts is found in appendix G.

Table 8

Validation of the technical criteria of the resource by teachers

Criteria	P1	P2	P3
PRESENTACIÓN: Se evalúa si la presentación del contenido es clara y si se localiza en cada uno de los apartados e ideas que se exponen.	5	5	5
DISEÑO: valida la organización, calidad y estética del contenido que se presenta en el OA	5	5	5
REUSABILIDAD: Evalúa si el contenido puede utilizarse para construir otros OA. Se puede utilizar en diversos entornos de aprendizaje: presencial, virtual, mixto. Y si se puede utilizar en más de una disciplina o grupos de alumnos.	5	5	5
FORMATO: Valora si el formato y diseño de los contenidos audiovisuales favorece la comprensión y asimilación del conocimiento que contienen. Así mismo si los contenidos audiovisuales se complementan y completan mutuamente.	5	5	5
INTERACTIVIDAD: Evalúa que la presentación del contenido no sea estática y que el contenido que se presenta depende del conocimiento previo del alumno o de sus necesidades.	5	5	5
INTEROPERABILIDAD: Verifica si el OA puede ser utilizado en múltiples entornos y sistemas informáticos. Además, permite validar si los contenidos fueron creados en formatos de uso general o estándar.	5	5	5
USABILIDAD: Mide la facilidad con la que una persona interacciona con el OA: Navegación, interfaz, interacción y veracidad de los enlaces externos que se presentan.	5	5	5
ACCESIBILIDAD: Evalúa que el OA esté adaptado para personas con discapacidad de tipo visual, auditiva o motora, con el fin de que puedan utilizarlos con los dispositivos asistenciales.	5	5	5

Source: Own authorship (2021).

In table 8 are the observations of the experts where they highlighted the importance of the resource being used in different electronic devices, like computer, tablet, or smartphone. In addition, using a platform that does not require internet connectivity favors the student population that does not have internet connectivity, be it an urban or rural institution. They also mention that the interface is according to the children's ages for whom they were designed. It has an affordable and inclusive format, both for people who have some visual or hearing difficulty.

Discussion

This research made it possible to design, program, and validate a digital educational resource to strengthen critical reading proficiency in English for 5th-grade students of the Británico de Zipaquirá school. Then, a survey and an initial questionnaire were designed, which allowed to identify the interests and preferences of the students in terms of learning English. In the same way, the needs and deficiencies that the students presented were denoted concerning the critical reading of texts in English. About these results, it was possible to design a DER, considering that it would accommodate the needs of the students, but not that the students will accommodate it (Ochoa-Martínez & Díaz-Neri, 2021; Díaz-Garay et al., 2020; Calle-Álvarez, 2020).

In this sense, when applying the initial questionnaire, it was evident that most of the students were at a low level since they had great difficulty interpreting texts, images, and graphics in English. After having implemented the digital educational resource and when applying the final questionnaire, it was noted that the results obtained by the population under study were established between medium and high levels; upon obtaining these results, the implementation of the Hake factor equation was carried out. Allowed to identify the students'

learning gain in a more detailed way, which determined that the activities designed for each category allowed the student to develop reading ability in English (Vergara-Pareja et al., 2021; Marlés-Betancourt et al., 2021). In the same way, the training games allowed them to consolidate their knowledge and identify the main parts of critical reading in English. Finally, the quizzes helped the students to identify if they had indeed learned. With automatic feedback, the students struggled to pass the quiz using the knowledge acquired during the class.

On the other hand, by including ICT in education, it is shown that digital educational resources have a significant impact since today's students are considered digital natives and like to learn through different digital tools (Burbano-Pantoja et al., 2021; Gallo et al., 2021; Pitre-Redondo et al., 2021). Learning is facilitated when digital tools are implemented in technology and other areas such as English (Cruz-Carbonell et al., 2020; Cifuentes-Garzón, 2021). It is here where the interdisciplinarity and transversality of areas and contents are implemented (Díaz-Solano et al., 2020; Hernández-Suárez et al., 2021). In this sense, educating students from virtual platforms in Colombia is a process that has been implemented in schools recently, which is why public and private educational institutions have been forced to invest in computers, tablets, and others. Electronic devices (Moran-Borbor et al., 2021; Burbano-Pantoja et al., 2021).

For this investigation, an agreement had to be made with the owner of the school since this institution had computers., but they were not in operation. In this case, the computers were installed, updated, and optimized so that the children of the Britanico de Zipaquirá school had the opportunity to learn new topics on virtual platforms. After that, the *READKIDS-Critical Reading* program was installed, to be later applied and developed

by each student. When the school rector realized the usefulness of computer equipment, it was arranged that they would place the internet in the computer room since that service was not available either. Once the network was installed, the students exchanged their physical dictionary for virtual dictionaries, which allowed them to find the meaning of the unknown word more quickly.

In the same way, the current applied project, the pedagogical model is the constructivist model because it was considered to allow the student to go at their own pace and develop the activities independently (Ochoa-Martínez & Díaz-Neri, 2021; Bernate et al., 2020). Consequently, it is highlighted that, when designing educational material or virtual activities, these pedagogical currents must be considered since it is necessary to teach the student what to do so that he can then do it autonomously (Rincón -Duran et al., 2021; Salazar-Gómez et al., 2021).

Finally, the digital educational resource was validated through the CODA matrix; this allowed to assess each of the parts of the digital educational resource, both the activities and the interface. It was also adapted to the population and the ages of the students. The validation of the DER by the experts shows that the program fulfilled each of the evaluated characteristics. The advantage of this resource is that it could be used offline because educational institutions do not have internet service and can use the application without any inconvenience. Additionally, because this educational material has minimum technical requirements of an electronic device, it can be run on a computer, tablet, or smartphone. It has a responsive system that allows the adaptability of the contents in different resolutions and platforms.

CHAPTER V

Conclusions

The objective of this degree project was to implement a digital educational resource to strengthen critical reading in English, aimed at fifth-grade students. The population under study were the 20 fifth-grade students belonging to the Británico de Zipaquirá school educational institution, Cundinamarca - Colombia. This population was taken because at this educational level, students must have knowledge, abilities, and skills in English to take the "Saber 5" tests. In the same way, the knowledge, and skills that students acquire in the English language contribute as pre-knowledge for the beginning of secondary education. The contents to present through the DER were considered according to the difficulties identified by the students in the initial test.

Similarly, the multimedia formats that were considered to present the information in the DER were concerning the needs and interests that the students expressed in the initial survey. Regarding the design of the DER, this was carried out in the Microsoft PowerPoint tool, where interactive buttons, animations, gifs, videos, audios, and texts were inserted through the multiple functionalities offered by that office tool. In addition, the *iSpring Suite* tool was used, which allowed the development of interactive activities such as quizzes, multiple-choice evaluations, true or false, short answers, long answers, and relationships, all of these with the possibility of feedback. In the same way, the *iSpring Suite* tool made it possible to export the DER in HTML 5 and App to be able to view the content on different technological devices such as tablets, computers, and smartphones, with or without an internet connection.

The pedagogical intervention carried out with the DER and the population under study denotes the increase of interest that the students took to learn through it. It was evidenced

after the development of each of the activities proposed in the DER units, which were "*Bookroom*," where the students, through 3 books, had to attend interactive activities, the objective of which was to strengthen skills in interpreting texts in English. In the unit *"Statistic Room,"* the students, through information illustrated in graphs, had to develop reasoning exercises to strengthen their skills in interpreting graphs. In unit 3, called *"Interpretation Room,"* the students, through images, had to interpret the information that was presented to strengthen their skills in interpreting images. Finally, in the *"Trainer Room"* unit, the students had to practice all the knowledge they acquired in the other units. In this way, the student applied what they had learned and gave feedback on the problematic skills to achieve.

On the other hand, the statistical analysis carried out among the performances obtained by the 20 students of the fifth grade in the initial and final tests showed that the DER was optimal for strengthening critical reading in English. Because the 20 students obtained a low level in the initial test and after being oriented with the DER elaborated, 16 students in the final test obtained a higher performance level, three students high and only one moderate. Likewise, when calculating the Hake factor, a value of 0.928 was obtained, which allows us to affirm that there was a high learning gain thanks to the DER used.

The students' validation against the content and activities proposed in the DER allowed showing that the DER was to their liking; because of the design of the resources and activities, most students found it excellent. When comparing it with other activities, which teachers use to guide them on the topics seen, the students considered that the DER was better than the others. Similarly, no student reported having some problem navigating the DER, which is why most of the students indicated that they would recommend this DER to people

interested in improving their reading comprehension in English. Likewise, the DER was valued by an expert in technology, a pedagoge teacher, and another teacher in English through the CODA matrix, which allows validating the Virtual Learning Objects in terms of didactic and technical aspects. In order to, the three experts considered that the DER complied with all the technical and pedagogical parameters of the matrix and indicated that the DER is an excellent didactic material for strengthening critical reading in English.

Finally, with the execution of this research, the need to innovate in the classroom with optimal didactic material is highlighted, starting from the students' needs and interests. In the same way, the teacher must be at the forefront of the students' styles and way of learning since the teaching methods used require an update according to the behaviors of the new generations. Similarly, after the execution of this investigation, the Británico de Zipaquirá school was able to acquire the internet connection service and invest in a computer room; This undoubtedly brought great benefits to both teachers and students since ICT could be incorporated into the teaching-learning processes. In this way, it is reflected that the directors of educational institutions have the fundamental task of drawing up action plans that seek to improve the educational infrastructure, as well as constantly training teachers so that they are updated with the new challenges and new methodologies that aim to improve pedagogical work.

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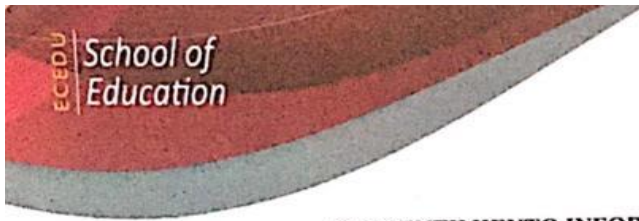
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APPENDIX

Appendix A. Informed consent form

School of Education

READKIDS Critical Reading
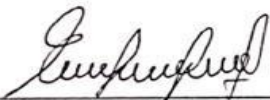
UNAD Universidad Nacional Abierta y a Distancia

CONSENTIMIENTO INFORMADO

Zipaquirá, 30 de Julio de 2021

Diana Carolina Corral Leyton
Rectora
Colegio Británico de Zipaquirá
Zipaquirá-Cundinamarca

Por medio de la presente yo Marcela Vergara me dirijo a usted de manera respetuosa, para solicitarle su consentimiento y autorización para poder aplicar en la institución educativa mi proyecto de grado titulado: **RECURSO EDUCATIVO DIGITAL PARA EL FORTALECIMIENTO DE LA LECTURA CRÍTICA EN INGLÉS AL GRADO QUINTO DEL COLEGIO BRITÁNICO DE ZIPAQUIRÁ**, el cual sería trabajado con los estudiantes durante el tercer periodo académico del presente año. Adicionalmente, poder tomar registro fotográfico de cada una de las actividades propuestas, las cuales no tendrá otro fin más que académico.

Cordialmente,

CLAUDIA MARCELA VERGARA PAREJA
Estudiante de Licenciatura en Inglés como Lengua Extranjera
Universidad Nacional Abierta y a Distancia- UNAD

Recibí 30 de Julio.

Appendix B. Informed consent for parents

Colegio Británico de Zipaquirá
Consentimiento a padres
Fifth Grade
2021

Estimado padre de familia,

La estudiante de la Licenciatura en inglés como Lengua Extranjera de la Universidad

Nacional Abierta y a Distancia- Claudia Marcela Vergara Pareja identificada con cédula de ciudadanía N°1.052.399.906 de Duitama, está llevando a cabo el proyecto

"Recurso Educativo digital para el fortalecimiento de la lectura crítica en inglés al grado quinto del colegio británico de Zipaquirá". Mediante la presente solicitamos muy amablemente su autorización para que su hijo(a) participe voluntariamente en este estudio.

El proyecto consiste en caracterizar a la población objeto de estudio en cuanto la lectura critica en inglés para identificar los requerimientos pedagógicos del recurso educativo digital. Con esto, establecer el diseño tecno-pedagógico de un recurso educativo digital que permita fortalecer la lectura critica. Además, elaborar recurso educativo digital TIC que aplique los requerimientos identificados previamente y validar dicha herramienta con la población objeto de estudio para identificar las posibles falencias y corregirlas. Las sesiones con los estudiantes tendrán una duración de 45 a 90 minutos cada una, y se realizara durante el tercer periodo académico del presente año. Las actividades descritas contarán con la supervisión y acompañamiento de la docente en formación y del profesor (a) del grupo. El proceso será estrictamente confidencial y el nombre no será utilizado en ningún lugar. Toda la información suministrada por usted y/o su hijo(a) será manejada de manera ética y confidencial de acuerdo con la Ley de Habeas Data y la Ley de Derechos de Autor (Ley 23 de 1982). La participación o no participación en el estudio no afectará la nota del estudiante de ninguna manera. Esta participación es totalmente voluntaria. Usted y su hijo (a) tienen el derecho de retirar el consentimiento para la participación en cualquier momento. El estudio no conlleva ningún riesgo. No recibirá ninguna compensación económica por participar. Si tiene alguna pregunta

sobre este proyecto se puede comunicar con la investigadora **Claudia Marcela Vergara Pareja al 3176359098.**

Si desea que su hijo participe, favor llenar la siguiente autorización y devolver al profesor (a) del estudiante.

Claudia Marcela Vergara

Investigadora del Proyecto.

UNAD – Seccional Duitama.

AUTORIZACIÓN

Yo _____, identificado con la cédula de ciudadanía N.º _____, de_____, he leído el procedimiento arriba descrito. Voluntariamente doy mi consentimiento para que mi hijo (a)_____, participe en el estudio " Desarrollo de "recurso educativo digital para el fortalecimiento de la lectura crítica en inglés al grado quinto del colegio británico de Zipaquirá". Estoy consciente que el desarrollo de este estudio no conlleva ningún riesgo para mi hijo(a), y que por su participación no se recibirá ningún tipo de compensación económica o académica.

Firma: _____   Fecha _____

Appendix C. Characterization Survey

Colegio Británico de Zipaquirá
Characterization survey
Fifth Grade
2021

UNAD
Universidad Nacional
Abierta y a Distancia

READKIDS
Critical Reading

Student Name: _____   course: _____

La información que se encuentra en la siguiente encuesta nos permitirá conocer sobre sus gustos, tiempo y comprensión lectora, para ello se solicita que la conteste con la mayor sinceridad posible. Marque con una X la opción que más se adapte a tus gustos.

1) **¿Cuál es tu edad?**
   a) Mas de 11 años
   b) 11 años
   c) 10 años
   d) 9 años

2) **Género**
   a) Femenino
   b) Masculino
   c) Sin definir

3) **¿Cuál es tu tipo de literatura favorita?**
   a) Aventura
   b) Ficción
   c) Terror
   d) Comedia
   e) Todas las anteriores

4) **¿Cuánto tiempo dedicas a la lectura?**
   a) 30 minutos
   b) 1 hora
   c) Mas de una hora
   d) Nunca lees

5) **Prefieres leer**

a) Libros físicos
b) E-book
c) Libros online

6) **¿Qué es lo que más te llama la atención cuando lees?**
   a) Texto
   b) Imágenes
   c) Sonidos
   d) Todas las anteriores

7) **¿cuándo la profesora te hace un quiz de comprensión lectora de 10 preguntas, cuantas respondes bien?**
   a) 9-10
   b) 7-8
   c) 4-6
   d) menos de 3

8) **¿Cuántas veces necesitas leer para entender el texto?**
   a) Una vez es suficiente
   b) Dos veces
   c) Tres veces
   d) Más de cuatro veces
   e) Nunca entiendes

a) Si
b) No

9) ¿Piensas que la lectura es útil para tu desarrollo personal?

¡Gracias por tu colaboración !

Appendix D Initial questionnaire

Colegio Británico de Zipaquirá
PRE-TEST
Fifth Grade
2021

1) Julian must make a billboard to convince his classmates to exercise. The topic that you should consult to make the billboard is:

A. Exercises and gym.

B. The sport groups.

C. The advantage of exercises.

D. The sports and history.

2) Cristian has taken the eleven from one of his classmates and the coexistence coordinator has asked him to write everything that happened in the student's academic report. Cristian wrote the following: When Cristian hands over the academic report to the coordinator, he tells him that his writing is inadequate.

> **ACADEMIC REPORT**
>
> DATE: 12nd of May
>
> HOUR: 9:42 a.m.
>
> **Social Harmony:** Coexistence is very important to have good relations with our colleagues, for this reason we must not act violently with others, yell at them, threaten them or take their snacks.

3) Why do you think that coordinator said that?

A. Because the text does not have a good orthography.

B. Because that not correct form to write the coordinator.

C. Because he is not writing what really happened.

D. Because the text is not clear.

ANSWER QUESTIONS 4 TO 6 BASED ON READING THE FOLLOWING TEXT:

A LOVE TOO BIG

Since he was little, he was a giant. The largest shoe size. The tallest in line. The heavyweight of the basketball team. When Mauricio fell, the whole earth rang. He winced at the blow. He was exaggerated, disproportionate, colossal… he emptied the refrigerator at every meal and was always hungry. A child out of the ordinary. He was eleven years old, and he never stopped growing. One day he fell in love like crazy. With his big hands he would pluck the flowers from the garden and then, trembling, he would leave them at the door of Juanita's house. He did not dare to put his face. He did not speak to her, because of so much love he had in store for her. He only spoke to her with his eyes. In class, she felt eyes fixed on her back. The giant spent hours in front of her window. Behind the cherry tree he was taking care of her. When Juanita turned off the light, he would serenade her with her huge jar voice. Mauricio never did homework or train with the team again. Rarely did anyone meet with them. It was just a shadow. A giant shadow.

4) The first paragraph is?

A. Procedure

B. Description

C. Recount

5) Mauricio was a boy...

A. Shy and sensitive

B. surely and bold

C. playful and distracted

6) The option that best represents the organization of ideas in the text is:

A. What happened to Mauricio? What did Mauricio eat? What was Mauricio like?

B What was Mauricio like? What happened to Mauricio? What changes did Mauricio have?

C. What was Mauricio doing? What was Mauricio like? Did Mauricio have changes?

The teacher asks you to describe the facilities of your school playground and you have written the following:

When reviewing the text, you realize that there is an idea that does not correspond to what the teacher asked you.

7) Which of the following ideas does not meet the requirement?

A. The back yard has three large courts.

B. There is a small park with swings.

C. Sometimes it rains too much.

8) To understand what Roberto is writing, the words that must be added in the spaces are:

Roberto writes a letter to his best friend, in which he tells him about the dance contest:

The contest was organized by all elementary school children. _____ It rained a bit; we had a lot of fun. Finally, the award went to the third graders; _____, they gave us a medal of honor.

A. Therefore/ Example   C. For Example/ in addition

B. moreover/ Therefore   D. Although/ however

Answer question 9 according to the following information.

*The following graph shows the number of animals of each species in a green park.*
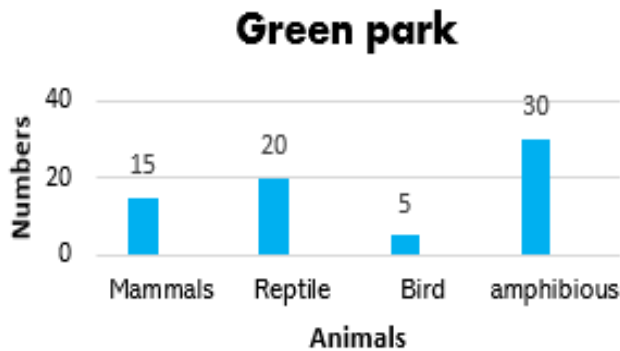
9) Which of the following statements about the animals in the green park is not correct?

A. There are fewer birds than reptiles.

B. There are fewer mammals than amphibians.

C. There are more reptiles than amphibians.

D. There are more mammals than birds.

Isabel has 4 guests for a dinner, and she asks her son Iván to buy enough truffles so that all the guests eat the same number of truffles, but that there will not be any left over.

10) Which of the following boxes of truffles should Ivan buy to fulfill his mother's order?
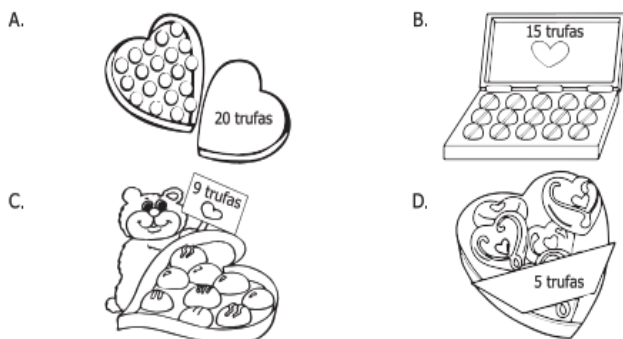
11) *In a cage there are 60 birds between macaws and toucans. The number of macaws is double the number of toucans. How many macaws and how many toucans are in the cage?*

A. 15 macaws and 30 toucans.   C. 40 macaws and 20 toucans.

B. 30 macaws and 60 toucans.   D. 50 macaws and 10 toucans.

12) In a news program it was mentioned that 48% of the people in a city are men. Another way to express this percentage is:

A. 48 out of 100 people are men.   C. 1 in 48 people is male.

B. 48 out of 10 people are men.   D. 100 out of 48 people are men.

*In the fifth grade of a school, there are two courses. In fifth **A** there are 33 students and in fifth **B** there are 12 more students.*

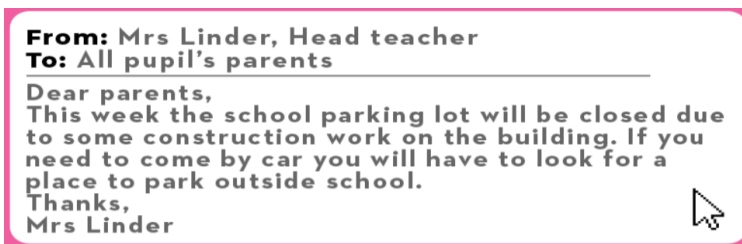**13) How many students are in fifth B?**

A. 12   C. 33

B. 21   D. 45

In a club, employees can have an hour and a half time for lunch.

14) What is the maximum time that club employees can have lunch?

A. 30 minutes.   C. 75 minutes.

B. 60 minutes.   D. 90 minutes.

15) Look at the images and select the best option

A. To ask parents to help with construction work.   C. To tell the parents about a new parking lot.

B. To let the parents know they can´t park in the school lot.

16)Look the imagines and select the best option

Swimming pool opens today!
Classes start next Monday

A. The classes will start on Monday.

B. The classes will start today.

C. There won´t be class today.

Look at the picture and read the sentence. write yes or no.

17) The blue alien has got three legs. _____

18) There are eight aliens in the picture. _____

19) The orange alien has got two legs. _____

20) The orange alien hasn't got a mouth. _____

Student name:										FIFTH GRADE	
1	A	B	C	D		**11**	A	B	C	D	
2	A	B	C	D		**12**	A	B	C	D	
3	A	B	C	D		**13**	A	B	C	D	
4	A	B	C	D		**14**	A	B	C	D	
5	A	B	C	D		**15**	A	B	C	D	
6	A	B	C	D		**16**	A	B	C	D	
7	A	B	C	D		**17**	A	B	C	D	
8	A	B	C	D		**18**	A	B	C	D	
9	A	B	C	D		**19**	A	B	C	D	
10	A	B	C	D		**20**	A	B	C	D	
FINAL SCORE											

The Golden Fish Keeps a Promise

By L. M. Gask

Upon a certain island in the middle of the sea lived a fisherman and his wife. They were so poor they often went without bread when the fishing did not go well. One day when the man had been fishing for many hours without any luck, he hooked a small golden fish with eyes as bright as diamonds. "Let me go, kind fisherman," the little creature cried. "I would not even make a single mouthful for your dinner." The man was so moved by the beauty of the golden fish that he let him go. Before he swam away, the fish promised that he would come back if the fisherman ever needed help. The fisherman laughed, for he could not think how a little fish could help him, other than providing a bit of food. He went home and told his wife about his adventure. "What!" she cried. "You let him go? We have not a scrap of food in the house, and I suppose that now we must starve." The fisherman's wife continued to fuss at him until, finally, he decided to go and put the little fish to the test. He hurried down to the seashore and stood at the edge of the waves. "Golden Fish, Golden Fish! Come and help me, please," he called. The last word was not out of his mouth when the little fish popped its head up out of the water. "You see I have kept my promise," said the fish. "How can I help you, my friend?" And when the fisherman made his request, the fish simply said, "Don't worry about that. There will be plenty of food when you get home." And strangely enough, when the fisherman arrived home, there was a

basket of bread on the table, and cheese and fruit as well.

1. **Characters:** Who is this story mostly about?

A. a little golden fish.

B. a fisherman, his wife, and a little golden fish.

C. a fisherman's wife and a little golden fish.

2. **Setting:** Where does this story mostly take place?

A. in a small cabin.

B. on a beach.

C. on an island.

3. **Problem:** What problem does one or more of the story characters have?

A. The fisherman and his wife do not have much food to eat.

B. The fisherman does not want to let the golden fish go free.

C. The golden fish does not keep his promise to help the fisherman.

4. **Event 1:** Which event happens first in this story?

A. The fisherman's wife fusses at him for letting the fish go free.

B. The fisherman catches a small golden fish.

C. The fisherman calls for the golden fish to come and help him.

5. **Event 2:** Which event happens second in this story?

A. The fisherman's wife fusses at him for letting the fish go free.

B. The fisherman catches a small golden fish.

C. The fisherman calls for the golden fish to come and help him.

6. **Event 3:** Which event happens third in this story?

A. The fisherman's wife fusses at him for letting the fish go free.

**B.** The fisherman catches a small golden fish.

C. The fisherman calls for the golden fish to come and help him.

7. Problem Solution: How is one of the characters' problems solved?

A. The fisherman catches the golden fish again.

B. The fisherman asks the golden fish for help, and food appears on the table.

C. The fisherman's wife asks the golden fish for help.

Study the bar graph and answer the questions.
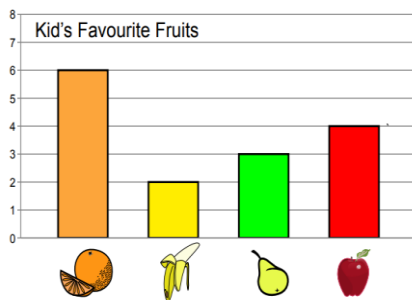
8. How many kids liked apples? _____

9. Which fruit did the most kids like? _____

10. Which fruit did the kids like the least? _____

11. How many kids liked bananas? _____

12. How many kids liked either pears or bananas? _____

13. How many kids liked either oranges or apples? _____

14)

A. If you want to help, join the club.

B. If you are real and better, join the club.

C. If you are different, join our club.

15)

A. You can hurt the animals if you feed them.

B. If you don´t feed the animals, they might bite you.

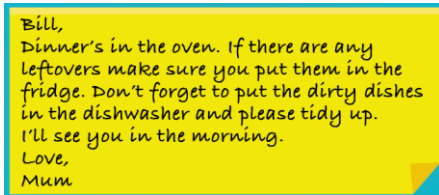**C.** The animals can hurt you if you feed them.

16)

A. Buy two pairs of shoes and we will give you a 50% discount on one pair.

B. Buy two, you will get a discount on both for the rest of the week.

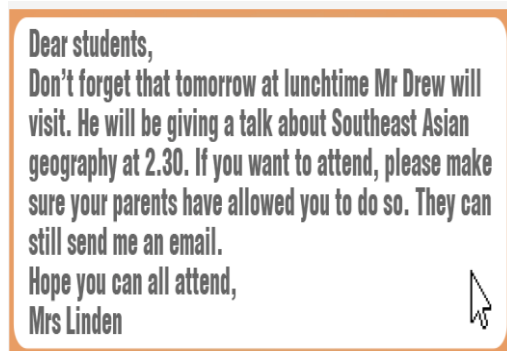**C.** Buy two and we will give you o 50% discount on you next purchase.

17)

Bill,
Dinner's in the oven. If there are any leftovers make sure you put them in the fridge. Don't forget to put the dirty dishes in the dishwasher and please tidy up. I'll see you in the morning.
Love,
Mum

A. Bill has to eat all the food.

B. Bill has to clean up after he has dinner.

C. Dinner is in the fridge and the dishes are in the dishwasher.

18)

Dear students,
Don't forget that tomorrow at lunchtime Mr Drew will visit. He will be giving a talk about Southeast Asian geography at 2.30. If you want to attend, please make sure your parents have allowed you to do so. They can still send me an email.
Hope you can all attend,
Mrs Linden

A. They need their parents 'permission to attend Mr. Drew´s talk.

B. The talk will take place before two o´clock.

C. No more students are allowed to attend Mr. Drew´s talk's

19)

Passengers, please note the next train to Birmingham will be leaving from platform 2 instead of platform 5.
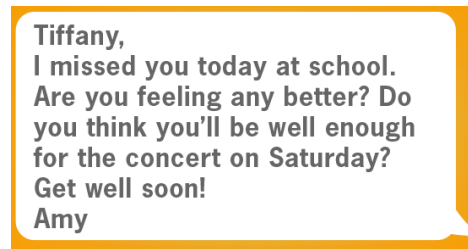
A. The train from Birmingham will arrive in 5 minutes to platform 2.

B. The train to Birmingham is Leaving from platform 5.

C. You will need to go to platform 2 if you want to take the train to Birmingham.

20)

Tiffany,
I missed you today at school. Are you feeling any better? Do you think you'll be well enough for the concert on Saturday?
Get well soon!
Amy

A. Why Tiffany didn´t come to school today.

B. If Tiffany will come to school tomorrow.

C. If Tiffany will be going to the concert on Saturday.

Appendix F. Final Survey

Student Name: _____   **course:**

La siguiente encuesta tiene como objeto, conocer su opinión con respecto al software READKIDS- Critical Reading.

Marque con una **X** la respuesta que usted considere pertinente.

1. **El diseño del recurso READKIDS, usted lo considera:**
   a. Excelente.
   b. Bueno.
   c. Regular.
   d. Malo.

2. **Las imágenes empleadas en el recurso le parecieron:**
   a. Excelente.
   b. Bueno.
   c. Regular.
   d. Malo.

3. **Las actividades que aparecieron en el recurso fueron:**
   a. Excelente.
   b. Bueno.
   c. Regular.
   d. Malo.

4. **La apreciación que tiene con respecto los juegos de entrenamiento es:**
   a. Excelente.

   b. Bueno.
   c. Regular.
   d. Malo.

5. **¿Los audios ayudaron a mejorar la pronunciación?**
   a. Si
   b. No

6. **¿Tuvo algún problema con el ingreso a alguna unidad del recurso?**
   a. Si
   b. No

   ¿Cuál?

   _____

7. **¿Consideras que aprendiste a interpretar textos imágenes y graficas en inglés?**
   a. Si.
   b. No.

8. **¿Recomendaría el READKIDS para que más personas mejoren su comprensión lectora en inglés?**

a. Si.

b. No.

_____

10. **¿Qué cree que se debe mejorar en el recurso educativo READKIDS?**

9. **¿Este software te permitió mejorar tus habilidades lectoras en inglés?**

11. Si.

a. Si.

12. No.

b. No.

¿por qué?

¿por qué?

_____

Thanks for your cooperation!

Appendix G Validation of DER by experts

Estimado profesor,

Conociendo su experticia en el sector educativo. Amablemente solicito su concepto frente al recurso educativo digital *"Readkids",* el cual fue desarrollado como trabajo de grado. Este, busca fortalecer las competencias lectoras en el idioma inglés de los estudiantes del grado quinto del colegio Británico de Zipaquirá. Para la evaluación del RED, a continuación, se enlista la matriz CODA en donde podrás evaluar de 1 a 5, donde 5 representa que el ítem se cumple a cabalidad y 1 que el ítem no se cumple.

Validación de los criterios didácticos del recurso por parte de los docentes.

Criterio	P1	P2	P3
CONTENIDOS: Evalúa la presentación del contenido, las actividades, la veracidad de la información y los derechos de propiedad intelectual.	5	5	5
OBJETIVOS: Valora la coherencia y claridad de los objetivos didácticos, las destrezas a desarrollar y la explotación didáctica que se le puede sacar al OA.	5	5	5
ADAPTABILIDAD: Se asegura que el contenido/actividades sea el indicado según tipo/nivel del estudiante. Igualmente se valora que	5	5	5

Criterio			
el OA se pueda usar independientemente del método de enseñanza o aprendizaje de quien lo utilice.			
MOTIVACIÓN: Evalúa si el OA logra atraer y mantener el interés del alumno por aprender. Se verifica la calidad del contenido, reflexibilidad, critica, creatividad, interactividad y adaptabilidad que contribuyen a la motivación.	5	5	5
REFLEXIÓN: Verifica si el OA estimula, fomenta, promueve la reflexión, la crítica y las ideas frente a los contenidos que se presentan.	5	5	5
INNOVACIÓN: Se asegura si el OA, promueve la creación de nuevas ideas y la búsqueda de nuevos procedimientos/técnicas/métodos para la resolución de problemas o de generación de conocimiento.	5	5	5

Validación de los criterios Técnicos del recurso por parte de los docentes.

Criterio	P1	P2	P3
PRESENTACIÓN: Se evalúa si la presentación del contenido es clara y si se localiza en cada uno de los apartados e ideas que se exponen.	5	5	5
DISEÑO: valida la organización, calidad y estética del contenido que se presenta en el OA	5	5	5

REUSABILIDAD: Evalúa si el contenido puede utilizarse para construir otros OA. Se puede utilizar en diversos entornos de aprendizaje: presencial, virtual, mixto. Y si se puede utilizar en más de una disciplina o grupos de alumnos.	5	5	5
FORMATO: Valora si el formato y diseño de los contenidos audiovisuales favorece la comprensión y asimilación del conocimiento que contienen. Así mismo si los contenidos audiovisuales se complementan y completan mutuamente.	5	5	5
INTERACTIVIDAD: Evalúa que la presentación del contenido no sea estática y que el contenido que se presenta depende del conocimiento previo del alumno o de sus necesidades.	5	5	5
INTEROPERABILIDAD: Verifica si el OA puede ser utilizado en múltiples entornos y sistemas informáticos. Además, permite validar si los contenidos fueron creados en formatos de uso general o estándar.	5	5	5
USABILIDAD: Mide la facilidad con la que una persona interacciona con el OA: Navegación, interfaz, interacción y veracidad de los enlaces externos que se presentan.	5	5	5
ACCESIBILIDAD: Evalúa que el OA esté adaptado para personas con discapacidad de tipo visual, auditiva o motora, con el fin de que puedan utilizarlos con los dispositivos asistenciales.	5	5	5

Observaciones:

P1: Sin llegar a dudas el Recurso Educativo Digital "*ReadKids: Critical Reading*", cumple con los aspectos técnicos y pedagógicos necesarios para ser considerado un buen material educativo, ya que, contribuye al fortalecimiento de competencias de lectura crítica en inglés a estudiantes de grado quinto de primaria. En cuanto a los aspectos didácticos, las unidades son pertinentes a las habilidades y competencias a alcanzar por parte de la población objeto de estudio. Además, estas se adecuan a los estándares básicos propuestos en la guía 22 del MEN. Por otra parte, el RED también se desarrolla en base a objetivos, los cuales son claros y coherentes con las temáticas y actividades que en este se presentan. El RED es acorde a la edad y al nivel educativo del estudiante; este es motivador y permite que el estudiante controle su ritmo de aprendizaje y genere nuevas ideas entorno al conocimiento que se les orienta.

En relación con los aspectos técnicos, el RED es multiplataforma y puede ser visualizado con y sin conexión a internet, lo que es importante para las instituciones que cuentan o no con conectividad. El RED tiene imágenes de buena calidad, los audios son pertinentes, ya que ayuda a estudiantes que tienen baja audición para que puedan comprender la información que se les presentan. El RED tiene buen contraste de color entre la fuente y el fondo, el tamaño de la letra es idóneo, las interacciones y animaciones son apropiadas y la navegación es intuitiva. Además, el RED ofrece un manual que facilita su operabilidad por parte del usuario.

En síntesis, el RED cumplió con los aspectos de forma y de fondo, lo cual lo hace un excelente material didáctico para ser empleado en la asignatura de inglés.

P2: Se resalta que la aplicación es un buen material educativo que permite fortalecer las habilidades del pensamiento relacionadas con la lectura crítica y todas aquellas que tienen que ver las pruebas saber, lo cual es óptimo para la ejercitación y preparación del estudiante en cuanto a las mismas. Se videncia que todo el componente pedagógico es pertinente y relevante para el fin educativo con el que está planeado y se sugiere organizarlo teniendo en

cuenta las edades y tal vez el nivel de inglés en el que se encuentre el estudiante independientemente del grado.