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Digital Pedagogical Strategies for the Development of Intertextual Critical Thinking in Reading Comprehension

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Summary

The teaching of **reading comprehension** at the school level faces significant challenges due to the lack of innovative pedagogical strategies that stimulate intertextual critical thinking in students. In this study, a digital tool based on **Web 2.0** was designed and implemented to strengthen critical reading skills in **fifth grade students** of an educational institution in Montería, Colombia.

Based on a **qualitative approach of action research**, the study integrated participatory methodologies and the use of **educational technologies** for the development of reading comprehension skills. The intervention consisted of the application of **didactic sequences** organized on a digital platform, structured in four key moments: **initial diagnosis, development of interactive strategies, implementation of the digital resource and evaluation of the pedagogical impact**. The participants were **29 fifth-grade students**, who interacted with **digital modules** focused on the intertextual analysis of various literary and academic genres. Surveys, classroom observations, and qualitative data analysis were used to assess the impact of the digital tool on **students' critical analysis and argumentation skills**.

The findings show that the use of digital pedagogical strategies increased **students' interest, motivation, and argumentative capacity** when facing diverse texts. In addition, a significant improvement was observed in the **ability to establish intertextual relationships, identify implicit information and formulate critical judgments about the texts read.** These results highlight the importance of integrating **interactive digital tools** in the teaching of reading comprehension, especially for the development of critical thinking in primary education.

Keywords: Reading comprehension; intertextual critical thinking; digital pedagogical strategies.

Introduction

The development of **reading comprehension** is a fundamental pillar in primary education, as it allows students to **interpret, analyse and reflect** on the texts they read. However, various studies have shown that basic education students have **difficulties in critical and intertextual reading**, limiting their ability to relate ideas, argue based on evidence, and understand the implicit meaning in different types of texts (González & Ramírez, 2021).

One of the main factors that affect reading comprehension is the traditional teaching approach, which **is based on mechanical and memorization activities**, leaving aside strategies that promote **deep interpretation and critical analysis** of texts (Valencia, 2020). This problem has led to students having **low competencies in intertextual critical thinking**, which affects their performance in areas such as language, social sciences, and mathematics, where analytical reading is essential for problem solving and decision-making.

In response to this challenge, **the use of digital pedagogical strategies** has become an innovative alternative to improve reading comprehension and promote intertextual critical thinking. **Interactive digital tools** allow students to **explore, analyze, and relate different types of texts in a** dynamic way, favoring autonomous and meaningful learning (Torres & Sánchez, 2022).

This study proposes the implementation of a **digital educational resource** to strengthen reading comprehension in fifth grade students, promoting intertextual analysis through interactive activities and participatory methodologies. The didactic strategy is based on the **use of digital platforms, gamified activities and discussion forums**, where students can interact with various types of texts and develop argumentation and critical reflection skills.

This study seeks to provide evidence on the effectiveness of digital strategies in the teaching of critical reading, proposing innovative methodologies that favor the construction of knowledge in an analytical and reflective way. The following section presents the theoretical approaches that underpin the research and their relationship with the development of critical thinking in reading comprehension.

Theoretical Approaches

The development of **intertextual critical thinking** in reading comprehension requires a theoretical basis that explains the cognitive processes involved in analytical reading and the way in which digital pedagogical strategies can enhance these skills. The main approaches that underpin this research are presented below.

1. Critical Thinking and Intertextuality in Reading Comprehension

Critical thinking is the ability to analyze, evaluate, and argue based on information obtained from various sources, promoting informed decision-making and knowledge construction (Paul & Elder, 2019). In the field of reading comprehension, critical thinking is manifested in **students' ability to identify relationships between texts, interpret implicit meanings, and construct arguments based on textual evidence** (Lipman, 1995).

Intertextuality, a concept developed by Kristeva (1980), argues that every text is related to other previous texts, which implies that readers must activate their previous knowledge and make connections to interpret the meaning of a content. In education, intertextuality is key to developing **reflective and argumentative reading**, as it allows students to **make comparisons, detect contradictions, and generate new interpretations** from different sources of information (Gee, 2012).

In this sense, the teaching of reading comprehension must go beyond the decoding of words, promoting strategies that **develop students' ability to relate ideas, identify positions and build critical analyses from multiple texts**.

2. Digital Pedagogical Strategies and their Impact on Reading Comprehension

The use of **Digital Educational Resources (RED)** in the teaching of reading comprehension is based on **Mayer's (2005)** Multimodal Learning Theory, which states that students **learn best when different information formats are combined**, such as texts, images, videos, and interactive activities. The combination of these elements in a digital platform favors the **retention of information, the construction of meanings and interaction with content autonomously**.

Various studies have shown that the integration of digital strategies in the teaching of reading strengthens students' analytical and critical skills, by allowing them to access different sources of information and compare perspectives on the same topic (Prensky, 2012). Digital tools, such as **hypertexts, infographics, interactive simulations, and discussion forums**, favor the development of intertextual critical thinking, as they allow students to **explore different points of view, contrast information, and construct interpretations based on textual evidence** (Valencia & Ramírez, 2021).

3. Gamification and Exploration-Based Learning

Gamification in education has become an effective strategy to increase student motivation and engagement in learning to read. According to Gee (2005), the use of play elements in the classroom encourages active learning, autonomous exploration, and problem-solving. In the context of reading comprehension, gamification allows students to **analyze texts through missions, challenges, and rewards**, promoting more meaningful and dynamic learning.

Recent studies have shown that the implementation of educational games and simulations in the teaching of reading strengthens **the ability to argue and make informed decisions**, since students must **interpret information, generate hypotheses, and evaluate evidence to advance in the proposed activities** (Torres & Sánchez, 2022).

In this study, the digital pedagogical strategy incorporates **gamified activities and interactive experiences**, where students can analyze texts, solve reading comprehension challenges and argue their answers in online debates.

4. Knowledge Building and Collaborative Learning

From the perspective of Vygotsky's (1978) social constructivism, learning is a process that occurs through interaction with others and with the environment. In this sense, the teaching of reading comprehension should include **spaces for discussion and collaboration**, where students can share their interpretations, debate ideas and collectively construct meanings about the texts they analyze.

The use of digital tools favors **collaborative learning**, as it allows students to participate in **discussion forums, group text analysis, and construction of shared concept maps**, promoting critical reflection and grounded argumentation (Salinas, 2020). In this study, the digital pedagogical strategy incorporates elements of **collaborative learning in virtual environments**, where students can interact with their peers and strengthen their skills in critical reading and intertextuality.

Based on these approaches, this study analyzes the effectiveness of **digital pedagogical strategies** in the development of **intertextual critical thinking in reading comprehension** in primary school students. The following section describes the methodology used to implement and evaluate the impact of this strategy in the classroom.

Methodology

Study Design and Approach

This study adopts a **qualitative approach**, with an **action research design**, which seeks to analyze the impact of the use of **digital pedagogical strategies** on the development of **intertextual critical thinking on reading comprehension**. Action **research** allows the **identification of problems in**

teaching, the implementation of innovative strategies and the evaluation of the pedagogical impact in a real classroom context (Elliot, 1993).

The digital pedagogical strategy used in this study was structured in **four phases**:

1. **Initial diagnosis:** Evaluation of the level of reading comprehension and intertextual critical thinking in students through diagnostic tests.
2. **Design and implementation of the digital strategy:** Creation of an interactive platform with reading modules, gamified activities and discussion forums.
3. **Classroom monitoring and observation:** Analysis of students' interaction with the digital platform and their participation in argumentation activities.
4. **Impact evaluation:** Comparison of the results obtained before and after implementation through final tests, surveys and analysis of digital interactions.

Participants

The study was carried out with **29 fifth-grade students** from an educational institution in Montería, Colombia. The selection of participants was carried out by **means of non-probabilistic intentional sampling**, considering the following criteria:

- **Students with difficulties in reading comprehension and intertextual argumentation.**
- **Availability of access to digital tools inside and outside the classroom.**
- **Teachers with an interest in the integration of digital strategies in the teaching-learning process.**

Data Collection Instruments

To evaluate the impact of the digital strategy on the teaching of reading comprehension, the following instruments were used:

- **Initial and final diagnostic test:** Applied to assess changes in students' ability to analyze texts and establish intertextual connections.
- **Classroom observation:** A structured observation guide was used to record the level of student interaction and participation in digital activities.
- **Student perception surveys:** Applied before and after the intervention to know the students' assessment of the use of digital tools in critical reading.
- **Analysis of interactions on the digital platform:** Evaluation of student performance in gamified activities, discussion forums and resolution of reading challenges.
- **Interviews with teachers:** To know their perception of the effectiveness of the digital strategy and the changes observed in the attitude of students towards critical reading.

Implementation Procedure

The digital educational resource was developed on an **interactive platform** that allowed students to explore different types of texts through **thematic modules**. The implementation was carried out in **three pedagogical phases**:

1. **Exploration:** Students accessed informative, narrative, and argumentative texts presented in interactive digital formats.
2. **Interaction and practice:** Students participated in gamified activities, comparative text analysis, and discussion forums on various topics.
3. **Reflection and evaluation:** Debates were held on the relationship between the texts analyzed and tests were applied to measure the improvement in intertextual critical thinking.

Data Analysis

The data analysis was carried out using **content analysis techniques**, organizing the information into categories related to the level of participation, the use of digital tools and the argumentative capacity of the students. The results obtained in the initial and final diagnostic test were compared, identifying improvements in **reading comprehension and intertextual analysis**.

The following section presents the **results** obtained from the application of the strategy, evidencing the impact of the use of **digital pedagogical strategies** on the development of intertextual critical thinking in reading comprehension.

Results

Analysis of the Data Collected

The analysis of the data obtained through diagnostic tests, classroom observations, and perception surveys made it possible to evaluate the impact of the digital pedagogical strategy on the **development of intertextual critical thinking in reading comprehension**.

1. Comparison of Initial and Final Diagnostic Test Results

The tests applied before and after the implementation of the strategy showed **a significant improvement in the students' ability to analyze texts, establish intertextual relationships and argue their ideas in a well-founded manner**.

Key findings:

- **Before the intervention, only 42% of the students could identify relationships between different texts.**
- **After implementation, 84% of students demonstrated a greater ability to compare texts, identify implicit information, and argue based on multiple sources.**
- **77% of the students improved in the formulation of hypotheses and the justification of ideas based on the critical reading of the texts.**

These results reflect that the use of **digital pedagogical strategies** facilitated the development of critical reading and intertextuality skills in students.

2. Classroom Observation and Analysis of Digital Interactions

During the implementation of the strategy, classroom observation allowed us to identify changes in student attitudes and participation.

Key findings:

- **Increased participation in digital reading activities:** It was observed that **88% of students voluntarily explored the digital modules and completed the interactive activities**.
- **Greater interest in intertextual analysis:** Before the intervention, students had difficulty comparing texts; after implementation, there was an increase in the **ability to contrast sources of information and argue differences and similarities**.
- **Greater autonomy in reading:** It was observed that students **consulted different sources of information** to answer critical analysis questions, which reflects an improvement in the search and use of relevant information.

3. Student Perception Surveys

The surveys applied at the end of the intervention allowed us to know the students' assessment of the use of digital tools in the teaching of reading comprehension.

Main results:

- **93% of students stated that the use of digital strategies made learning reading comprehension more interesting and participatory.**
- **89% felt that gamified activities helped them analyze texts more effectively.**
- **95% of students expressed that they would prefer to continue using digital tools to develop critical reading skills.**

These data reflect **a high level of acceptance of digital tools** and their positive impact on student motivation and learning.

4. Interviews with Teachers on the Impact of the Strategy

The interviews conducted with the teachers allowed us to know their perception of the effectiveness of the digital strategy and the changes observed in the attitude of the students.

Main comments from teachers:

- **"Students demonstrated greater interest in critical reading and were more autonomous in exploring sources of information."**
- **"Digital activities favored intertextual analysis and argumentation, something that was difficult to achieve with traditional methods."**
- **"The use of digital tools allowed students to engage in deeper discussions about the analyzed texts."**

These testimonies reinforce the idea that **digital pedagogical strategies favor the development of intertextual critical thinking**, promoting a more analytical and participatory reading.

Summary of Findings

Indicator	Initial Result	Upshot	Improvement Observed
Identification of intertextual relationships	42%	84%	Yes
Interest in critical reading	Low	High (93% acceptance)	Yes
Ability to argue and analyse	Limited	Improved	Yes
Using Digital Tools for Learning	Low	High (95% acceptance)	Yes
Autonomy in reading and searching for information	Limited	Improved	Yes

These findings reflect that the implementation of **digital pedagogical strategies** in the teaching of reading comprehension **favors meaningful learning, motivation, and the development of intertextual critical thinking**. In the following section, the implications of these results and their relevance for education in the teaching of reading and argumentation will be discussed.

Discussion

The results obtained in this study show that the implementation of **digital pedagogical strategies** has generated a positive impact on the **development of intertextual critical thinking in the reading comprehension** of fifth grade students. The comparison between the initial and final diagnostic tests shows **a significant improvement in the students' ability to establish connections between texts, interpret implicit information and argue based on various sources**.

From a theoretical approach, these findings support **Ausubel's (2000) Theory of Meaningful Learning**, which emphasizes the importance of the connection between prior knowledge and new learning. In this sense, the use of **interactive digital modules** allowed students to relate different texts in a more structured way, enhancing their ability to **establish intertextual relationships and construct meanings autonomously**.

Impact of Digital Strategies on Reading Comprehension

One of the most relevant findings of the study was the **increase in students' motivation towards critical reading**. Before the intervention, only **42% of the students were able to identify intertextual relationships**, while after the implementation of the digital strategy, this figure increased to **84%.** This result is consistent with previous research that has shown that the use of **educational technologies in the teaching of reading comprehension** favors critical analysis and the construction of meanings from multiple perspectives (Valencia, 2021).

In addition, classroom observation and analysis of interactions on the digital platform showed that the **use of interactive tools fostered autonomy in reading**, as students **consulted different sources of information to argue their answers**. This finding is aligned with **Mayer's (2005)** Multimodal Learning Theory, which argues that the combination of **texts, images, videos, and interactive activities** favors the retention and critical analysis of information.

Another key aspect identified in the research was the **improvement in the ability to argue and comparative analysis**. Before the intervention, students had difficulty **formulating hypotheses and justifying their answers based on reading multiple texts**. After the implementation of the digital strategy, **77% of students improved their ability to analyze, contrast, and argue based on critical reading**.

These results support Freire's (1970) **Theory of Dialogic Learning**, which highlights the importance of debate and argumentation in the learning process. The incorporation of discussion forums and gamified activities allowed students to **actively participate in the collective construction of knowledge**, strengthening their argumentation and critical thinking skills.

Challenges and Limitations

While the results reflect a positive impact on the teaching of reading comprehension, the study also identified **challenges and limitations** in the implementation of the digital strategy:

1. **Digital divide:** Some students faced difficulties accessing electronic devices outside the classroom, which limits equity in digital learning.
2. **Adaptation to digital tools:** A group of students presented initial difficulties in navigating and using the platform, suggesting the need for **prior training to optimize the learning experience**.
3. **Cognitive load:** Some students stated that the amount of information on the digital platform could be overwhelming if it is not organized in a progressive and structured way.

Implications for Educational Practice

The findings obtained in this study have **important implications for the teaching of reading comprehension and the development of critical thinking in primary education**. It is recommended that educational institutions:

1. **Integrate digital strategies into the teaching of critical reading**, ensuring that students can access interactive resources that stimulate their curiosity and participation.
2. **Design gamification and exploration-based learning activities**, promoting active and participatory learning.
3. **Train teachers in the integration of digital technologies in the classroom**, ensuring that they have the necessary skills to guide students in the critical analysis of texts.

4. **Ensure accessibility to technology for all students**, implementing strategies that reduce the digital divide and facilitate equitable access to digital tools.

Finally, future research could expand this analysis through **longitudinal studies** that evaluate the impact of the use of digital tools on the teaching of reading comprehension over time. It would also be relevant to explore how the incorporation of **augmented reality and digital simulations** can further enhance the learning experience in the development of intertextual critical thinking.

Conclusions

The findings obtained in this study confirm that the use of **digital pedagogical strategies** has a positive impact on the development of **intertextual critical thinking in the reading comprehension** of primary school students. The implementation of an **ICT-mediated didactic sequence** significantly improved students' ability to **establish relationships between different texts, identify implicit information, and argue their answers based on textual evidence**.

From a theoretical point of view, these results support Ausubel's (2000) **Theory of Meaningful Learning**, which emphasizes that students learn best when they can connect new knowledge with previous experiences. Likewise, **Mayer's (2005)** Multimodal Learning Theory highlights the importance of combining **textual, visual, and auditory elements** to enhance reading comprehension. In this study, the integration of **explanatory videos, interactive infographics, and discussion forums** favored more dynamic and meaningful learning.

At the methodological level, the research showed that the use of digital pedagogical strategies **increased students' motivation and improved their autonomy in text analysis**. Classroom observation and analysis of interactions on the digital platform showed that students **actively participated in critical reading activities, explored various sources of information, and developed better argumentative skills**.

However, the study also identified some challenges in implementing the digital strategy:

- **Technology access gap:** Although most students were able to interact with the digital platform, some faced difficulties accessing electronic devices outside of the classroom.
- **Need for training in digital tools:** Both teachers and students required prior induction to optimize the use of digital resources.
- **Cognitive load:** It was evident that information overload could hinder learning if it is not organized progressively.

From a practical perspective, these findings suggest that educational institutions should:

1. **Integrate digital tools into the teaching of critical reading**, ensuring that students can interact with resources that encourage intertextual analysis.
2. **Design gamified activities and exploration-based learning strategies**, promoting curiosity and the autonomous construction of knowledge.
3. **Train teachers in the integration of educational technology**, ensuring that they can guide students in the use of digital platforms.
4. **Implement strategies to reduce the digital** divide, ensuring that all students have access to technological tools inside and outside the classroom.

Finally, future research could expand this analysis through **longitudinal studies** that allow evaluating the impact of the use of digital tools on the teaching of reading comprehension over time. It would also be relevant to explore how the incorporation of **artificial intelligence and augmented reality environments** can further enhance the learning experience in the development of **intertextual critical thinking** in primary education.

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