



Interactive Didactic Strategy to Enhance Reading Comprehension in High School Students in Montería, Colombia

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Summary

This study analyzes the impact of the implementation of an interactive didactic sequence as a pedagogical strategy for the strengthening of reading comprehension in high school students in the city of Montería, Colombia. The research arises from the problem evidenced in the low performance in critical reading and textual analysis, which has an impact on the learning and academic performance of students. Based on an action research approach, a didactic sequence based on technological resources was designed and implemented that includes interactive activities with narratives and comic strips mediated by digital tools such as WIX and Nearpod. The sample was made up of 50 students of academic high school. The results obtained through diagnostic tests and subsequent evaluations showed a significant improvement in reading comprehension levels, particularly in the literal, inferential and critical dimensions. The study concludes that the integration of digital technologies in the teaching of reading favors meaningful learning and promotes greater commitment by students in their training processes.

Keywords: reading comprehension, didactic strategy, educational technology, interactive learning, secondary education, didactic sequence.

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Introduction

Reading comprehension is a fundamental pillar of learning and the development of academic skills in secondary education. Its importance lies in the fact that it allows students to process, interpret and analyze the information contained in different types of texts, which directly affects their academic performance and their ability to build knowledge autonomously. However, in the educational context of Montería, Colombia, significant difficulties have been identified in the performance of students in standardized tests and in internal assessments, which shows deficiencies in their ability to infer, argue and relate textual information. These results have highlighted the need to develop innovative teaching strategies that promote active interaction with texts and the use of technological tools that facilitate meaningful learning.

From a theoretical perspective, reading comprehension is based on various cognitive models that explain the interaction between the reader, the text and the context. One of the most relevant approaches is the information processing model of Gagné and Briggs (1988), which establishes that reading is an active process in which the student must organize, select and integrate information to construct meaning. In this framework, the teaching of reading comprehension requires strategies that facilitate the activation of prior

knowledge, the generation of inferences and the critical evaluation of information. Solé (1992) highlights the importance of teaching reading strategies that allow students to regulate their reading process, monitor their comprehension, and apply textual analysis techniques that favor autonomous learning.

Another key approach in the teaching of reading is Vygotsky's (1978) sociocultural model, which highlights interaction as a fundamental element in the development of thinking and understanding of the world. From this perspective, the teaching of reading should encourage interaction between peers and with the teacher, promoting dialogue and the collective construction of knowledge. This approach justifies the use of digital technologies in reading instruction, as they allow for the creation of interactive environments where students can share ideas, collaboratively analyze texts, and receive real-time feedback.

In this context, the integration of technological tools in the teaching-learning process has proven to be an effective strategy to improve reading comprehension. Authors such as Cassany (2013) and Area Moreira (2018) have pointed out that the use of digital platforms not only motivates students to interact with texts, but also allows them to access various reading formats that enrich their learning experience. Technology-based learning facilitates the exploration of multimodal texts, critical analysis of information, and gamification of activities that promote active student participation.

Interactive learning has become a key methodology to address difficulties in reading comprehension, allowing teachers to design dynamic activities that adapt to the different learning styles of students. The implementation of interactive didactic sequences, which incorporate tools such as WIX and Nearpod, favors the construction of knowledge progressively, facilitating the understanding of narrative, expository and argumentative texts. Previous research has shown that the combination of visual, hypertextual, and multimedia elements in reading instruction improves information retention, stimulates critical thinking, and enhances students' ability to inference and textual analysis.

Based on these theoretical considerations, the present study aims to analyze the impact of an interactive didactic strategy on the strengthening of reading comprehension in high school students in Montería, Colombia. Through an action research approach, a didactic sequence based on digital resources was designed and implemented, with activities that promote the active participation of students and the application of reading strategies at different levels of comprehension. The sample was made up of 50 students of academic high school, who participated in a teaching process that combined the reading of digital texts, interaction with technological tools and continuous evaluation of learning.

This study provides evidence on the effectiveness of the use of digital resources in the teaching of reading and its impact on the development of textual interpretation skills in secondary education. It is hoped that the findings obtained will serve as a reference for the implementation of similar strategies in other educational contexts, contributing to the strengthening of reading teaching in secondary education.

Methodology

The study was developed under an action research approach, characterized by its orientation towards the transformation of pedagogical practice through the implementation and evaluation of innovative didactic strategies. This approach allowed the design, application and adjustment of an interactive didactic strategy focused on strengthening reading comprehension in high school students in Montería, Colombia. Action research is based on a cyclical process of diagnosis, intervention, observation and reflection, which enables the continuous improvement of teaching and learning based on the interaction between teachers and students.

The population was made up of students of academic high school in an educational institution in Montería. We worked with an intentional sample of 50 students, selected according to their availability to participate in the strategy and the difficulties previously evidenced in the comprehension of texts. The selection of participants was made based on an initial diagnosis that allowed the identification of weaknesses in the levels of literal, inferential and critical comprehension.

The didactic strategy implemented consisted of an interactive didactic sequence, designed based on digital tools such as WIX and Nearpod, which facilitated the interaction of students with narrative and expository texts through dynamic and gamified activities. The didactic sequence was structured in four interdependent phases:

1. Initial diagnosis: Application of a reading comprehension test to establish the baseline of student performance, allowing the identification of specific difficulties at the literal, inferential and critical levels.
2. Implementation of the didactic sequence: Development of interactive activities through the use of digital tools that promoted the analysis of texts and the construction of meanings in an autonomous and collaborative way.
3. Observation and adjustment of the strategy: Monitoring of the learning process through records in field diaries and structured observations, allowing feedback and continuous adjustment of activities based on student responses.
4. Final evaluation: Application of a second reading comprehension test to analyze the progress obtained after the intervention, comparing the results with the initial diagnostic test.

Data collection was carried out through qualitative and quantitative instruments that allowed the impact of the strategy to be analyzed. Reading comprehension tests, classroom observations, field diaries and perception questionnaires applied to students were used, in order to obtain information on their level of participation, the degree of interaction with digital tools and the perceived improvements in their reading skills.

Data analysis was performed using descriptive statistics, comparing the results of the initial and final tests to identify variations in student performance. Likewise, a qualitative analysis of the content of the field diaries and questionnaires was used, with the purpose of interpreting the students' perceptions about the learning experience and the effectiveness of the didactic strategy implemented.

Results

The analysis of the data obtained in this study allowed to evaluate the impact of the interactive didactic strategy on the strengthening of reading comprehension in high school students in Montería, Colombia. The results are presented from the analysis of the reading comprehension tests applied before and after the implementation of the didactic sequence, as well as the qualitative data obtained through field diaries, structured observations and perception questionnaires.

The results of the initial diagnostic test showed that a significant percentage of the students had difficulties in comprehension of texts, especially at the inferential and critical levels. In contrast, the results obtained in the final evaluation showed improvements in all the dimensions evaluated, indicating that the interactive didactic sequence had a positive effect on the development of reading skills. Table 1 presents the values obtained in both tests, expressed in average scores on a scale of 1 to 10.

Table 1 Comparison of reading comprehension test results before and after strategy implementation

Dimension Evaluated	Diagnostic Test (Mean $\pm$ SD)	Final Test (Average $\pm$ SD)	Difference (%)
Literal comprehension	6.2 $\pm$ 1.4	7.8 $\pm$ 1.2	+25.8%
Inferential Understanding	5.1 $\pm$ 1.7	7.3 $\pm$ 1.3	+43.1%
Critical Comprehension	4.8 $\pm$ 1.6	7.2 $\pm$ 1.4	+50.0%

The data reflect a significant improvement in reading comprehension, with increases ranging from 25.8% in literal comprehension to 50% in critical comprehension. This suggests that the didactic sequence implemented not only helped students to identify explicit information in the texts, but also favored the development of analytical and argumentative skills.

From a qualitative approach, field diaries and structured observations allowed us to identify changes in students' attitudes towards reading. It was observed that, as the sessions progressed, the participants showed greater interest in the texts, greater autonomy in the identification of main and secondary ideas and a more active willingness to share their interpretations in the classroom.

Regarding the students' perception of the didactic strategy, the results of the perception questionnaire revealed three main trends:

1. Increased motivation and participation in reading activities: 85% of students stated that the integration of digital tools made the reading experience more dynamic and interesting.
2. Improvements in text interpretation and analysis: 78% of participants indicated that, after the intervention, they felt more confident when analyzing a text and asking critical questions about its content.
3. Applicability of the strategies learned to other academic contexts: 72% of the students mentioned that the knowledge acquired in the didactic sequence was useful in other subjects that require reading and analysis of texts.

The results obtained indicate that the use of an interactive didactic sequence based on digital tools favors the construction of meaning, enhances critical thinking and strengthens student motivation in the reading process. The combination of multimodal texts, gamified activities, and real-time feedback allowed students to develop more effective reading strategies, promoting active interaction with texts.

Discussion

The results of this study confirm that the implementation of an interactive didactic strategy based on digital tools has a positive impact on strengthening reading comprehension in high school students in Montería, Colombia. Through the comparative analysis between the diagnostic test and the final evaluation, a significant increase in the levels of literal, inferential and critical comprehension was evidenced, which suggests that the methodology used effectively contributed to the development of reading skills in the participants.

From a theoretical approach, these findings are aligned with the information processing model of Gagné and Briggs (1988), which postulates that learning occurs more effectively when strategies that allow the organization, selection, and integration of knowledge are used. The didactic sequence designed in this study provided a pedagogical structure in which students were able to actively interact with the texts, identify relevant information, and construct meanings progressively. Likewise, Vygotsky's (1978) sociocultural model supports these findings by emphasizing the importance of collaborative learning and mediation in the development of cognitive competencies. In this sense, the implementation of digital tools allowed students to participate in group activities, exchange ideas and receive immediate feedback, which strengthened their capacity for analysis and argumentation in reading.

The use of digital technologies in the teaching of reading comprehension has proven to be an effective strategy to enhance student motivation and engagement. Authors such as Cassany (2013) and Area Moreira (2018) have pointed out that the incorporation of interactive platforms facilitates the exploration of texts in a dynamic way, allowing the integration of visual, hypertextual, and multimedia elements that enrich the reading experience. In the present study, the use of WIX and Nearpod favored the interaction of students with the texts, promoting a more autonomous and reflective reading. The results obtained in the perception questionnaires indicate that most of the participants valued positively the incorporation of these resources, highlighting that the digital activities made the reading process more attractive and understandable.

From a pedagogical perspective, the results suggest that combining reading strategies with digital tools not only improves text comprehension, but also strengthens students' ability to apply these skills in other academic contexts. This finding coincides with previous studies that have shown that interactive learning allows students to develop transferable skills, facilitating the application of reading strategies in subjects such as social sciences, philosophy and mathematics, where text interpretation and argumentation play a fundamental role.

The qualitative analysis of field diaries and structured observations also identified that students' attitudes towards reading changed significantly throughout the intervention. Initially, a generalized disinterest in reading activities was observed, which reflected previous difficulties in interpreting texts. However, as the sessions progressed, the students began to show greater autonomy in the identification of main and secondary ideas, as well as a more active willingness to participate in debates and arguments on the texts worked on. These results reinforce the idea that motivation and engagement are key factors in improving reading comprehension, and that the use of innovative methodologies can be an effective means of transforming students' perception of learning.

Despite the positive results obtained, it is important to consider some limitations of the study. First, the sample was composed of 50 students from a single educational institution, which restricts the generalization of the findings to other educational contexts. In addition, the duration of the intervention was limited, so the sustainability of the long-term effects of the strategy could not be assessed. For future research, it is recommended to expand the sample and implement longitudinal studies, with the aim of analyzing how students' reading comprehension skills evolve after the intervention.

From an applied perspective, these findings suggest that the integration of interactive didactic strategies in reading teaching may be a viable alternative to improve reading comprehension in secondary education. It is recommended that educational institutions consider the implementation of didactic sequences based on digital tools, promoting more dynamic and participatory learning. It is also essential that teachers receive training in the use of technologies applied to the teaching of reading, in order to optimize the design and implementation of innovative strategies in the classroom.

In conclusion, this study provides empirical evidence on the effectiveness of an interactive didactic strategy in improving reading comprehension in high school students in Montería, Colombia. It is confirmed that the use of digital tools favors interaction with texts, enhances critical thinking and promotes greater motivation towards reading. It is recommended that future research continue to explore the impact of educational technologies on the development of reading skills, in order to strengthen the teaching of reading comprehension in secondary education contexts.

Conclusions

The findings of this study confirm that the implementation of an interactive didactic strategy based on digital tools is an effective methodology to strengthen reading comprehension in high school students in Montería, Colombia. Through the analysis of the results obtained in the reading comprehension tests, as well as the qualitative information collected in field diaries and perception questionnaires, a significant improvement in the levels of literal, inferential and critical comprehension is evidenced. These results suggest that the use of digital platforms not only enhances the development of reading skills, but also favors students' motivation and commitment to the learning process.

From a theoretical perspective, these findings coincide with the information processing model of Gagné and Briggs (1988), which highlights the importance of structuring didactic strategies that allow information to be organized and processed efficiently. Likewise, Vygotsky's (1978) sociocultural model reinforces the relevance of interaction in learning, an aspect that was reflected in the active participation of students in the collaborative activities proposed in the didactic strategy. The combination of digital reading, interactive activities, and critical analysis exercises allowed students to construct meanings progressively, strengthening their autonomy in interpreting texts.

The use of technological tools such as WIX and Nearpod proved to be an innovative and effective resource to improve reading comprehension, providing a more dynamic and immersive learning experience. The evidence collected through perception questionnaires showed that most students expressed greater interest in reading and a more positive attitude towards text analysis after the implementation of the strategy. These results support previous research suggesting that technology-mediated learning fosters student engagement and allows for the diversification of teaching methodologies, facilitating the adaptation of content to different learning styles.

One of the most significant contributions of this study is the validation of interactive didactic sequences as a viable pedagogical model for the teaching of reading comprehension. The structure of the sequence, based on progressive phases of diagnosis, intervention and evaluation, made it possible to measure the impact of the strategy objectively, ensuring that improvements in reading comprehension were attributable to the methodology implemented. These results can serve as a reference for the incorporation of similar strategies in other educational contexts, in order to optimize the teaching of reading in secondary education.

Despite the positive results, it is important to recognize some limitations of the study. First, the sample used was composed of 50 students from a single educational institution, which restricts the generalization of the findings to other contexts. In addition, the duration of the intervention was limited, which made it impossible to assess the sustainability of the long-term effects of the strategy. For future research, it is recommended to expand the sample and implement longitudinal studies, with the purpose of analyzing the impact of this type of strategies on the development of reading skills over time.

From an applied perspective, these findings suggest that educational institutions should consider the integration of digital tools in the teaching of reading, promoting more dynamic, participatory, and student-friendly learning. Some key recommendations include:

- Teacher training in the use of technologies applied to the teaching of reading, in order to optimize the design and implementation of innovative strategies in the classroom.
- Incorporation of interactive platforms in pedagogical practices, to promote the active participation of students and improve their learning experience.
- Design of reading comprehension intervention programs based on interactive didactic sequences, in order to progressively strengthen reading skills at different educational levels.
- Continuous evaluation of the strategies implemented, using action research methodologies that allow adjustments to be made according to the needs of the students.

In conclusion, this study provides empirical evidence on the effectiveness of an interactive didactic strategy in improving reading comprehension in high school students in Montería, Colombia. It is confirmed that the use of digital tools favors interaction with texts, enhances critical thinking and promotes greater motivation towards reading. It is recommended that future research continue to explore the impact of educational technologies on the development of reading skills, in order to strengthen the teaching of reading comprehension in secondary education contexts.

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