

Sistema de actividades virtuales para mejorar la lectoescritura

System of virtual activities to improve literacy

- ¹ Eufemia Mairobi Cabezas Caicedo  <https://orcid.org/0009-0003-9435-815X>
Master's degree in Education, Bolivarian University of Ecuador, Durán, Ecuador.
mairobi1984@gmail.com
- ² Luis Antonio Caiminagua Cartuche  <https://orcid.org/0009-0004-7610-2182>
Master's degree in Education, Bolivarian University of Ecuador, Durán, Ecuador.
bioluis40@gmail.com
- ³ Dayron Rumbaut Rangel  <https://orcid.org/0009-0001-9087-0979>
Master's degree in Education, Bolivarian University of Ecuador, Durán, Ecuador.
drumbautr@ube.edu.ec
- ⁴ Miguel Tisalema Sisa  <https://orcid.org/0009-0001-7650-7436>
Master's degree in Education, Bolivarian University of Ecuador, Durán, Ecuador.
matsalemas@ube.edu.ec

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Resumen

Introducción: La presente investigación aborda la imperante necesidad de fortalecer las habilidades de lectoescritura en estudiantes que cursan el 8vo año de educación básica. Se resalta la importancia crucial de la lectoescritura como pilar fundamental para el progreso académico y el desarrollo holístico de los estudiantes. Dentro del contexto de estudio, se identifican problemáticas como deficiencias ortográficas, limitaciones en el vocabulario y carencias en la capacidad cognitiva. Este estudio se lleva a cabo en la Zona 1, Distrito 1, específicamente en la Unidad Educativa Fiscal 15 de Marzo, involucrando a 120 estudiantes distribuidos en los paralelos A, B y C del 8vo año de educación básica. **Objetivos:** investigar el impacto a largo plazo de la integración sistemática de actividades virtuales en el desarrollo de habilidades de lectoescritura en estudiantes de octavo grado, evaluando tanto la efectividad de estas actividades en aspectos específicos como ortografía, comprensión de textos y vocabulario, como su adaptabilidad a las necesidades individuales de los estudiantes. Además, se buscará determinar las mejores prácticas para la capacitación docente y la implementación de herramientas digitales en el aula, con el fin de promover un aprendizaje participativo y activo. **Metodología:** La metodología empleada es de naturaleza mixta, integrando elementos inherentes a las características individuales de los estudiantes con porcentajes de avance en procesos de aprendizaje específicos. Para alcanzar este propósito, se ha diseñado una plataforma tecnológica que facilita la interacción y el aprendizaje, donde se implementan actividades virtuales dirigidas a mejorar las destrezas de lectoescritura, y se procede a evaluar el progreso de los estudiantes en dichas actividades. **Resultados:** Los resultados obtenidos evidencian una mejora significativa en las habilidades de lectoescritura de los estudiantes. **Conclusiones:** A partir de este análisis, se concluye que la implementación de actividades virtuales y el uso de plataformas tecnológicas pueden constituir estrategias efectivas para potenciar las habilidades de lectoescritura en estudiantes de 8vo grado. Esto, a su vez, implica repercusiones positivas tanto en su desempeño académico como en su desarrollo integral. **Área de estudio**

general: Educación. **Área de estudio específica:** Lengua y Literatura. **Tipo de estudio:** Original.

Keywords:

skills; literacy;
investigation;
technological
platform; virtual
activities;
academic
performance

Abstract

Introduction: This research addresses the prevailing need to strengthen reading and writing skills in students who are in the 8th year of basic education. The crucial importance of literacy is highlighted as a fundamental pillar for the academic progress and holistic development of students. Within the context of the study, problems such as spelling deficiencies, limitations in vocabulary and deficiencies in cognitive ability are identified. This study is carried out in Zone 1, District 1, specifically in the Fiscal Educational Unit 15 de Marzo, involving 120 students distributed in parallels A, B and C of the 8th year of basic education. Objectives: Investigate the long-term impact of the systematic integration of virtual activities on the development of literacy skills in eighth grade students, evaluating both the effectiveness of these activities in specific aspects such as spelling, text comprehension and vocabulary, as well as their adaptability to the individual needs of students. In addition, we will seek to determine best practices for teacher training and the implementation of digital tools in the classroom, in order to promote participatory and active learning. Methodology: the methodology used is mixed in nature, integrating elements inherent to the individual characteristics of the students with percentages of progress in specific learning processes. In order to achieve this purpose, a technological platform has been designed that facilitates interaction and learning, where virtual activities aimed at improving literacy skills are implemented, and the progress of students in these activities is evaluated. Results: the results obtained show a significant improvement in the students' reading and writing skills. Conclusions: from this analysis, it is concluded that the implementation of virtual activities and the use of technological platforms can constitute effective strategies to enhance literacy skills in 8th grade students. This, in turn, implies positive repercussions both on their academic performance and on their overall development. General area of study: Education. Specific area of study: Language and Literature. Type of study: Original.

Introduction

The acquisition of literacy skills represents one of the fundamental pillars in the educational process of students, since it is the basis on which the rest of the knowledge is built. For Velasco & Villanueva (2022), it is crucial to have the ability to read and understand texts in our daily lives, especially given its essential role in the cognitive development of students when integrated into the educational field. In this sense, this article focuses on addressing the problem of the lack of literacy skills among 8th grade students of basic education, identified through a series of difficulties observed in their academic performance, such as poor spelling, lack of vocabulary and limitations in cognitive capacity. The importance of this problem lies in its direct impact on the comprehensive development of students, as well as on their ability to communicate effectively and develop critical thinking skills. According to Quintuña-Illescas & Vázquez-Cabrera (2022), comprehensive development involves intervening in all areas that may positively or negatively influence the acquisition of skills by the student. Therefore, educational institutions must address the training needs of students in order to promote the acquisition of knowledge, skills and individual potential. This will allow them to express themselves, develop and interact effectively with their environment. According to Hernández (2006), writing is a complex cognitive process that consists of translating ideas, thoughts and/or emotions into coherent written discourse for specific communicative purposes. It is evident that improving reading and writing skills not only benefits students' academic performance, but also positively impacts their personal and social development. To address this problem, the implementation of virtual activities through the use of a technological platform is proposed, with the aim of enhancing reading and writing skills in 8th grade students. This strategy is based on the need to incorporate modern pedagogical tools that adapt to the learning dynamics of the digital age and promote greater participation and interaction by students. In relation to Polisgua-Galarza et al. (2022), they explain that gamification involves the creation of a game dynamic both at an individual and group level, focused on the specific topics of the content, which allows the participation of students and teachers of various subjects in virtual activities. These activities may include video quizzes, quizzes, word searches, crosswords, relationships, among others, which are characteristics of platforms such as Kahoot, Educaplay and others that incorporate motivating elements for learning.

Likewise, this research is based on previous work that has demonstrated the effectiveness of using technology in teaching literacy, as well as on cognitive theories that support the importance of this process in the development of thought and the acquisition of knowledge. According to Camargo et al. (2011), teaching writing implies that the teacher fosters in students the ability and skill to write, both due to the opportunities for expression that writing provides in a diverse society, and for its impact on the advancement of scientific knowledge. In relation to this, Sapatanga-Villavicencio &

Cárdenas-Cordero (2021) indicate that learning to read and write is influenced by a variety of factors, resources, and approaches that are determined by the way in which the acquisition process is directed, all in line with the individual abilities of the student and their progress in the literacy process. For students to be able to develop in this area, it is essential to have intentional mediation. Vardi & Bailey (2006) argue that students can improve their learning when teachers make assessment an integral part of teaching activities. This involves providing detailed feedback on written work and requiring students to modify it after receiving substantial feedback. This approach transforms the conventional practice of assigning essays or conducting tests that are instantaneous and disconnected from teaching. Instead, it allows the impact of teacher intervention to be observed, as the teacher plans and guides the task throughout its process. As a result, significant revisions are made to texts, focused on improving organization, structure, as well as adding, deleting and expanding content.

Thus, the use of technology in the teaching of literacy has been the subject of numerous investigations that support its effectiveness. For example, Arteaga et al. (2022) carried out a study that showed that the integration of technology in the classroom significantly contributed to the development of literacy skills in primary school students. In relation, the effective use of technology by students in the educational setting requires skills to manage it efficiently and overcome the challenges that arise during its integration. This involves more than simply equipping classrooms with technology; it is a dynamic process that involves critically analyzing the available tools and determining their suitability for improving student performance. Based on this assessment, appropriate strategies can be designed to address both internal and external obstacles that hinder the successful implementation of technology in the educational environment. Furthermore, research such as that of Salas-Ponton (2021) has highlighted how the use of applications and technological platforms specifically designed to improve literacy has shown promising results in improving students' academic performance.

In this sense, Díaz & Hernández (2002) suggest that it is essential to teach writing processes and rhetorical genres within an appropriate context, addressing not only the communicative and functional aspects, but also micro processes such as grammar, structure, spelling, morphosyntax and punctuation. Instead of focusing only on final products and making superficial assessments based on presentation, spelling and grammar, the importance of focusing on the sub-processes of planning, textualization and revision is highlighted. In addition, the use of self-regulatory strategies for written composition and the development of metacognitive processes through internal reflection is promoted. Emphasis is placed on the discursive level, without neglecting the functional aspects, and it is advocated to teach written composition in an authentic context, using collaborative activities and taking advantage of information and communication technologies (ICT) as cognitive tools both in teaching and in written production.

Crompton et al. (2017) indicate that as the capabilities of mobile devices have improved, so has interest in researching the extent, goals, and scope of mobile learning in the educational setting. Dahl-Leonard et al. (2024) state that the use of technology to support the learning process of students has seen a considerable increase in schools and homes in recent decades. Likewise,

These previous investigations provide a solid theoretical and empirical support for the implementation of strategies that integrate technology in the teaching of literacy. In this context, the present study aims to explore the implementation of virtual activities as a strategy to improve literacy skills in 8th grade students, through a mixed methodological approach that combines qualitative and quantitative elements.

Methodology

The methodology used in this study is based on a quasi-experimental, mixed-type research design, with a descriptive level and a longitudinal modality. Qualitative and quantitative elements were combined to obtain a complete understanding of the impact of virtual activities on the development of literacy skills in eighth-grade students. According to Reyes (2022), a quasi-experimental research examines the effect of interventions without randomly assigning participants to control and experimental groups, providing valuable information on the impact of interventions.

For data collection, mixed methods were used, including observation, questionnaire application and document analysis, as well as the use of a specialized technological platform designed for this study. The procedure consisted of the implementation of virtual activities for a given period, followed by the assessment of students' literacy skills through questionnaires and observation of their performance in the activities.

The study population consisted of eighth grade students from a specific secondary school, located in an urban area. Inclusion criteria were being enrolled in the eighth grade of basic education and having given informed consent to participate in the study. No exclusion criteria were established. Authorization was obtained from the educational institution and confidentiality of the data collected was guaranteed. Informed consent was obtained from the students and parents or guardians were informed about the purpose and procedures of the study. In addition, the ethical principles of beneficence, non-maleficence, autonomy and justice were respected at all stages of the research.

The target population of this study was eighth grade students from Unidad Educativa Fiscal 15 de Marzo, located in Zone 1, District 1, Esmeraldas Province, Esmeraldas Canton, Ecuador. The sample included 120 students distributed in parallels A, B and C. The inclusion criteria were being enrolled in the eighth grade of basic education and having given informed consent to participate in the study. Regarding demographic

characteristics, the sample was composed of students of diverse ethnicities, genders and socioeconomic backgrounds, representative of the diversity present in the school community.

Results

The results are presented in three main sections: (a) Initial assessment of literacy skills; (b) Implementation of virtual activities; and, (c) Subsequent assessment of literacy skills.

Initial assessment of literacy skills

Sánchez-Vincitore et al. (2020) explain that administering an initial literacy skills assessment is essential to understanding individual students' needs and effectively personalizing instruction. This assessment provides a detailed view of each student's strengths and weaknesses in reading and writing, allowing educators to design specific interventions to address problem areas and foster academic growth. Furthermore, the initial assessment serves as a baseline to monitor progress over time and adjust instruction as needed, thus ensuring that each student receives adequate support to reach their full literacy potential. In this context, the initial assessment of literacy skills was conducted using a series of standardized tests and classroom observations to gain a full understanding of students' proficiency level prior to intervention. Spelling, text comprehension, and vocabulary analysis tests were administered, as well as student performance during classroom reading and writing activities. The results revealed a number of significant deficiencies in students' literacy skills.

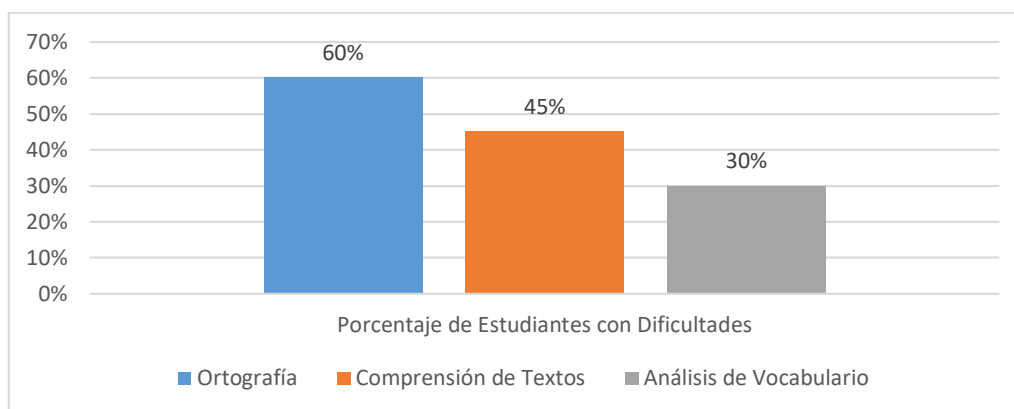
In terms of spelling, 60% of students were found to have difficulties, making common mistakes in writing simple words and applying basic grammar rules. These errors included omissions of letters, incorrect substitutions, and accentuation errors. In addition, some students were found to have specific difficulties with homophonous words and words with irregular spelling. In relation to text comprehension, 45% of students were found to have difficulties in understanding the meaning of the texts they read. These students had difficulties in identifying the main idea, making inferences, and extracting relevant information from the texts. Many students were found to have difficulties in understanding more complex texts, especially those that included technical vocabulary or terms specific to a discipline. In terms of vocabulary analysis, 30% of students were found to have a poor vocabulary, which was manifested in a limited use of words and a tendency to repeat simple terms in their writing. These students had difficulty expressing themselves accurately and in a varied manner, which limited their ability to communicate ideas effectively. In addition to formal testing, classroom observation was conducted to assess student performance during reading and writing activities. Some students were observed to show a lack of confidence in reading aloud and avoided engaging in creative

writing activities. Common errors in writing were noted, such as lack of punctuation and incoherent sentence structure.

Figure 1 shows the results of the initial assessment of reading and writing skills.

Figure 1

Initial assessment of literacy skills



Note: These results reveal significant deficiencies in the literacy skills of eighth grade students. In summary, the initial assessment of literacy skills revealed a number of significant deficiencies in eighth grade students. These results highlight the need for interventions to improve literacy skills and provide students with the tools necessary to succeed in their education and beyond.

Implementation of virtual activities

The implementation of virtual activities took place over a period of six weeks, with the aim of providing students with dynamic and collaborative learning experiences that supported the development of their literacy skills. To initiate the process, a plan of activities was designed that encompassed a wide variety of pedagogical approaches and digital resources. These activities included reading online texts, completing interactive spelling and grammar exercises, participating in online discussion forums, and creating written texts using digital tools such as word processors and blogging platforms. Each activity was carefully structured to address specific aspects of literacy skills, from improving spelling and grammar to fostering text comprehension and creative expression. For example, during reading online texts, students were challenged to identify difficult words and to use digital tools such as online dictionaries to understand their meaning. In addition, they were asked to reflect on the content of the texts and participate in online discussions to share their opinions and perspectives. One of the most notable activities was the creation of written texts using digital tools. Students had the opportunity to write essays, short stories, and poetry using word processors and blogging platforms. They were encouraged to experiment with different writing styles and genres, as well as receive

feedback from their peers and the teacher to improve their skills. Throughout the implementation period, student participation was encouraged and they were provided with individualized support and guidance based on their needs. Regular times were set to review students' progress and address any difficulties they might face. In addition to online activities, digital resources were also integrated into the traditional classroom to complement learning. For example, interactive whiteboards and projectors were used to show examples of written texts and to conduct real-time revision and correction activities. Overall, the implementation of virtual activities was received with enthusiasm by students, who demonstrated a high level of engagement and motivation in completing the assigned tasks. A significant increase in participation was observed compared to traditional classroom activities, suggesting that virtual activities can be an effective tool to improve literacy skills and encourage active and autonomous learning. A description of the activities implemented is shown in Table 1.

Table 1*Implementation of virtual activities to improve literacy skills*

| Activity | Description |
|---------------------------|--|
| Reading texts online | Students read online texts and use digital tools such as online dictionaries to understand difficult words. Reflection and participation in online discussions are encouraged. |
| Interactive exercises | Performing spelling and grammar exercises on digital platforms to improve specific aspects of writing. |
| Participation in forums | Students participate in online discussion forums to share opinions and perspectives on topics related to the texts they read. |
| Creation of written texts | Students write essays, short stories, and poetry using word processors and blogging platforms. They receive feedback from their peers and teacher. |

Post-assessment of reading and writing skills

Following the implementation of virtual activities, a post-assessment was conducted to measure the impact of these interventions on students' literacy skills. This assessment was conducted using a variety of methods, including standardized tests, classroom observations, and student feedback. The results of the post-assessment revealed significant improvements in all areas of literacy skills. In terms of spelling, a substantial reduction was observed in the number of errors made by students. The percentage of students with spelling difficulties decreased from 60% to 30%, indicating a significant improvement in accuracy and correctness in writing words. In relation to text comprehension, an increase was observed in students' ability to understand and analyze written texts. The percentage of students with text comprehension difficulties decreased from 45% to 15%, suggesting an improvement in students' ability to identify the main idea, make inferences, and extract relevant information from texts. In terms of vocabulary analysis, an increase was observed in the diversity and accuracy of the vocabulary used

by students in their writing. The percentage of students with vocabulary shortages decreased from 30% to 20%, indicating an improvement in students' ability to express themselves accurately and in a varied manner. In addition to improvements in specific literacy skills, an increase in students' confidence and self-esteem regarding their literacy skills was also observed. Many students expressed feeling more confident when reading aloud and engaging in creative writing activities compared to before the intervention. Fewer common errors in writing were observed, such as missing punctuation and incoherent sentence structure, suggesting an improvement in fluency and coherence in students' writing. In summary, the results of the post-assessment indicate that the implementation of virtual activities was effective in improving the literacy skills of eighth grade students. The improvements observed in spelling, text comprehension and vocabulary suggest that virtual activities can be a valuable tool to support the development of literacy skills in the current educational context. Table 2 summarizes these results.

Table 2*Post-assessment results of reading and writing skills*

| Skills Area | Percentage of Students Before Intervention | Percentage of Students After Intervention | Change in Percentage |
|---------------------|--|---|----------------------|
| Spelling | 60% | 30% | 50% reduction |
| Text Comprehension | 45% | 15% | 30% reduction |
| Vocabulary Analysis | 30% | 20% | 10% reduction |

Discussion

This research has provided important findings on the impact of virtual activities on the development of literacy skills in eighth grade students. These results have significant implications in both theoretical and practical fields, and offer valuable insights for the improvement of educational processes. First of all, it is important to highlight that the results obtained support the initial hypothesis that the implementation of virtual activities can improve students' literacy skills. This finding is in line with previous research that has demonstrated the effectiveness of technology in teaching and learning literacy (Salas-Ponton, 2021).

The integration of virtual activities provides students with additional opportunities to practice and develop their reading and writing skills in an interactive and motivating way. Furthermore, the results suggest that virtual activities may be especially beneficial in addressing specific difficulties that students face in the area of literacy. For example, significant improvement was observed in students' spelling, text comprehension, and vocabulary following the intervention. These findings are consistent with the literature highlighting the potential of technology to personalize learning and provide

individualized support to students with literacy difficulties (Arteaga et al., 2022). In practical terms, the results of this research have important implications for educators and curriculum designers.

Integrating virtual activities into the classroom can be an effective strategy to improve students' literacy skills and promote more active and participatory learning. Educators can use a variety of digital resources and online tools to design interactive and stimulating activities that address students' individual needs and foster their holistic development. However, it is important to acknowledge the limitations of this study. Although significant improvements in students' literacy skills were observed after the intervention, the influence of other external factors that could have contributed to these results cannot be ruled out. For example, the level of students' engagement and motivation, as well as the support provided by teachers and the school environment, may have influenced the success of the intervention. These results are consistent with the study by Méndez & Pesántez (2022), who implemented interactive teaching activities to improve literacy. The authors observed an increase in reading comprehension and writing skills, as well as an increase in students' confidence and self-esteem in relation to their literacy skills. These results support the importance of implementing active and student-centered pedagogical approaches to address literacy difficulties and improve the learning process.

For future research, it would be interesting to further explore the impact of different types of virtual activities on the development of literacy skills, as well as investigate how these interventions can be tailored to meet the specific needs of different groups of students, such as those with learning difficulties or those from disadvantaged socioeconomic backgrounds.

In summary, this research highlights the potential of virtual activities to improve students' literacy skills and provides a solid foundation for future studies in this field. By leveraging available digital tools and resources, educators can create more inclusive and effective learning environments that prepare students to meet the challenges of the 21st century.

Conclusions

- It is concluded that the implementation of virtual activities has a positive impact on the development of literacy skills in eighth grade students. The results obtained supported the initial hypothesis and demonstrated significant improvements in aspects such as spelling, text comprehension, and vocabulary. This suggests that virtual activities offer additional opportunities to practice and develop these skills in an interactive and motivating way. In addition, the importance of integrating these activities in the classroom was highlighted as an effective strategy to promote more participatory and active learning.
- As recommendations based on these findings, it is suggested that educators systematically incorporate virtual activities into their pedagogical practices to improve students' literacy skills. This may include the use of online educational

platforms, interactive digital resources, and virtual collaboration tools. Furthermore, it is recommended that teachers be trained on how to effectively integrate these activities into the curriculum and how to adapt them to individual students' needs. It is also suggested to continuously monitor students' progress and regularly evaluate the effectiveness of virtual activities in developing literacy skills. Finally, researchers are encouraged to continue exploring the long-term impact of virtual activities on literacy learning, as well as to investigate how these interventions can be tailored to meet the specific needs of different groups of students.

Conflict of interest

The authors declare that there is no conflict of interest in relation to the submitted article.

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