Revista Española de Pedagogía

Revista Española de Pedagogía (REP)
ISSN: 0034-9461
e-ISSN: 2174-0909

Proposed Didactic Model Using Genially and Kahoot Interactive Software for Critical Reading Comprehension in Primary School Students

Propuesta de modelo didáctico con software interactivo Genially y Kahoot para la comprensión lectora crítica para estudiantes de educación primaria

Dr. Eleodoro HUAMÁN-BALDEÓN (hhuamanbal@ucvvirtual.edu.pe)
Dr. Oscar LÓPEZ-REGALADO (olopez@gmail.com)

Abstract:

In the current context of primary education, where the digital divide represents a significant challenge, a didactic model based on the use of interactive software—specifically Genially and Kahoot—was proposed to enhance critical reading comprehension. The main aim was to develop a proposal that leverages digital tools to enhance students' literal, inferential, and critical reading skills. To this end, prospective descriptive research was conducted, with a non-experimental approach, which included the development and validation of instruments to measure the usability of the software and the reading comprehension of the students. The execution of the model was structured in three phases: design and analysis of content, development of interactive materials, and organisation and application of activities through digital platforms. The findings revealed that the selected resources fostered active participation and critical thinking, combining pedagogical strategies such as pre-reading activities, guided readings, and gamified assessments. Expert validation reflected a high appraisal of the proposed model, highlighting its flexibility and adaptability to diverse educational contexts. The discussion underscored the importance of pedagogical mediation and teacher training to maximize the impact of the use of Genially and Kahoot, while also pointing out the limitations posed by reliance on technology and the need to ensure equitable access. It is concluded that the didactic model designed represents an innovative alternative for improving critical reading comprehension in primary school students, provided that it is accompanied by balanced pedagogical strategies and adequate training, with particular focus on overcoming any technological and contextual barriers that may arise.

Keywords: learning, basic education, teaching, reading instruction, teaching materials, educational technology.

Fecha de recepción del original: 01/05/2025.
Fecha de aprobación: 01/06/2025.
Cómo citar este artículo: Huamán Baldeón, E. y López-Regalado, O. (2025). Propuesta de modelo didáctico con software interactivo Genially y Kahoot para la comprensión lectora crítica para estudiantes de educación primaria [Didactic model with interactive software Genially and Kahoot for critical reading comprehension for primary education students]. *Revista Española de Pedagogía*, *83*(292), 629-642 https://doi.org/10.9781/rep.2025.385

Resumen:

En el contexto actual de la educación primaria, donde la brecha digital representa un desafío significativo, se propuso un modelo didáctico basado en el uso de software interactivo, específicamente Genially y Kahoot, para potenciar la comprensión lectora crítica. El objetivo principal fue diseñar una propuesta que, a través de herramientas digitales, promoviera el desarrollo de habilidades lectoras en sus niveles literal, inferencial y crítico. Para ello, se realizó una investigación descriptiva prospectiva, con un enfoque no experimental, que incluyó la elaboración y validación de instrumentos para medir la usabilidad del *software* y la comprensión lectora de los estudiantes. La ejecución del modelo se estructuró en tres fases: diseño y análisis de contenidos, elaboración de materiales interactivos y organización y aplicación de actividades mediante las plataformas digitales. Los resultados indicaron que los recursos seleccionados fomentaron la participación activa y el pensamiento crítico, integrando estrategias didácticas como actividades de prelectura, lecturas guiadas y evaluaciones gamificadas. La validación de expertos reflejó una alta valoración del modelo propuesto, destacando su flexibilidad y adaptabilidad para diversos contextos educativos. La discusión subrayó la importancia de la mediación pedagógica y la capacitación docente para maximizar el impacto del uso de Genially y Kahoot, señalando además las limitaciones asociadas a la dependencia tecnológica y la necesidad de garantizar la equidad en el acceso. Se concluye que el modelo didáctico diseñado representa una alternativa innovadora para mejorar la comprensión lectora crítica en estudiantes de educación primaria, siempre que se acompañe de estrategias pedagógicas equilibradas y capacitación adecuada, con especial atención a superar las barreras tecnológicas y contextuales que puedan presentarse.

Palabras clave: aprendizaje, educación básica, enseñanza, enseñanza de la lectura, material didáctico, tecnología educacional

1. Introduction

Digital technologies and other online learning resources have become indispensable and present an opportunity in education due to their mediation between teaching and learning (Huntington et al., 2023). Similarly, a didactic model—a theoretical-formal construct—aims to interpret the school reality using these technologies and guide it toward specific educational goals; that is to say, a simplified representation of the educational reality that serves to plan and guide the teaching-learning processes (Romero and Moncada, 2007).

Since the pandemic, the use of gamification through digitalisation has had a significant impact on reading comprehension, supporting teaching and learning processes (Calderón et al., 2022). This strategy promotes motivation, concentration, problem solving and content recall, giving the student a leading role in their own learning (Mauri-Medrano et al., 2024).

One of these technologies is Genially, a digital platform or tool useful for game-based learning, which also features an attractive visual interface. It enables creative, interactive, animated and integrated content to be designed, thus improving reading skills (Cabrera-Solano, 2022). Kahoot, meanwhile, is an educational platform that integrates gamification, useful for reviewing learning and conducting online formative assessments. It can also help improve the understanding of concepts and learning experiences, in addition to designing quizzes, tracking response metrics for assessment, and using adaptable formats for tests, surveys or challenges (Balaskas et al., 2023).

In terms of reading comprehension, models such as the Reading Rope support the instructional approach, highlighting decoding and reading fluency to develop efficient reading skills (Kambach & Mesmer, 2024). Meanwhile, for the layered approach to reading, there are multiple levels, starting with initial interpretation and fluency and advancing toward inference

and critical analysis. The strong relationship between reader and text is emphasised in the transactional model, where comprehension emerges from personal experience, knowledge and emotions (Rosenblatt, 1978).

This study seeks to contribute to the use of digital and communication technologies (ICT) and the achievement of meaningful learning through the use of educational software to support reading comprehension, understood as a cross-cutting competency for social inclusion (Misari, 2023).

In this context, software, multimedia resources or online applications are tools for learning, assessment and feedback; their structure, content and quality for pedagogical use must be rigorously evaluated to create smart classrooms (Masneri et al., 2022). Therefore, computer-assisted reading has emerged as one of the key technologies for enhancing reading efficiency, comprehension and fluency (Nurmahanani, 2023).

Its innovative nature increases considerably once this technology is used in daily teaching practice, not as merely another resource, but as a critical resource for changing the way the classroom works (Escobar-Teran et al., 2025). With the help of tools such as Genially or Kahoot, teachers are able to shape the teaching-learning process more flexibly and in accordance with the requirements of each class group. In this way, they manage interactivity, creativity and critical thinking—key elements for the development of 21st-century skills (Castillo-Cuesta et al., 2024).

It should be noted that there is currently significant tension between digital and traditional reading, which has become a critical issue requiring in-depth analysis due to its implications for education. On the one hand, digital reading offers advantages such as interactivity, immediate access to a wide variety of resources and adaptability to different learning styles, which can increase motivation and personalise the learning experience (Wolf, 2018). However, traditional reading remains essential in education, since it fosters a more direct connection with the text, promotes concentration and is not dependent on technology, an aspect that is particularly relevant in contexts with a digital divide (Çoban et al., 2024). Despite these differences, there are still very few studies that systematically explore how digital and physical environments affect the reading experience and the development of critical comprehension skills.

In this sense, it is essential to consider the digital divide when addressing research on accessible and effective educational software, as its impact can be decisive in terms of equal opportunities. Thus, the study's main research question emerges: What would be the proposed didactic model, based on the use of interactive software such as Genially and Kahoot, to enhance critical reading comprehension in primary school students?

The aims of this research are, in general, to propose a didactic model with interactive software for critical reading comprehension in primary school students; and as specific objectives: to describe the validity and reliability of the instruments of the interactive software and critical reading comprehension; to assess the level of use of the interactive software and critical reading comprehension; and to validate the proposed didactic model with interactive software for critical reading comprehension.

2. Methodology

This research is classified at a descriptive-prospective level, since its main objective is to propose a didactic model based on the use of interactive software—specifically Genially and Kahoot—for the development of critical reading comprehension in primary school students. This indicates that it seeks not only to describe or analyse, but also to offer a concrete solution that contributes to improving educational processes (Lesko et al., 2022). Moreover, it is considered non-experimental, given that the study design does not involve the manipulation of variables, rather it is based on the observation of phenomena as they occur in their natural context (Arias et al., 2022).

Therefore, these characteristics allow for a comprehensive approach that combines objective analysis with the proposal of practical solutions in the field of education. The variables proposed were the interactive software platforms Genially and Kahoot, and critical reading comprehension. It should be noted that this model was developed in three phases:

The first phase was to define a proposal related to a didactic and interactive model, such as Genially or Kahoot, to which end an orderly process was followed to ensure the quality and proper functioning of the material to be used. First of all, an analysis and design stage was required in which the topics, competences and learning outcomes to be achieved were established. The most appropriate resources and interactive formats (presentations, infographics, games, quizzes) were then chosen and structured in the form of modules. The connection and sequencing of the content was also planned, determining its order in a non-linear way (in the form of modules, each with differentiated content) as well as its links. The necessary actions were developed to enable learners to participate actively and collaboratively in the learning process, incorporating multimedia resources and gamified challenges from reliable information sources to expand the available materials.

The second phase entailed the production of interactive content. The texts were edited and adapted so that they were clear, concise and suitable for viewing on screen, taking into account that digital reading takes longer and requires a lot of synthesis, thus images, videos, audios and interactive links were included in Genially to make the learning experience more dynamic, and quizzes, challenges and games were designed on Kahoot to assess learning in an engaging and motivating way. Furthermore, scripts were developed to ensure consistency and clarity in terms of navigation and interaction.

Finally, in the third phase, the content was organised. In Genially, the content was visually organised in the most attractive and accessible way possible, ensuring ease of navigation and interactivity. Additionally, in Kahoot, activities were set up to define rules, times and automatic feedback. Once the sequence of activities was complete, links to interactive resources were shared with students and teachers, ensuring access and availability on different devices. Finally, feedback from users was collected for future reviews or updates of the material.

MY READING / The best tales and stories for you! / Workshop 1 -2-3-4

It is worth noting that this study also involved the development of two response validity rubrics (see Table 1): the first instrument consists of 22 items measuring the usability (questions 1 to 9), functionality (10 to 17) and gamification (18 to 22) of the applications Genially and Kahoot. The purpose of this rubric is to observe and record students' performance and ability to use Genially and Kahoot to assess the feasibility of designing a reading comprehension programme using this interactive software. This rubric gives instructions and verifies the action requested of the students, which was applied in a computer room or pedagogical innovation classroom, by means of tablets or computers with internet access.

TABLE 1. Response validity rubric: provide the instruction and verify whether each student (S) performs it (1) or does not perform it (0).

Item	S1	S2	S3	S4	S5
1. Easily turns on the computer, tablet or laptop.					
2. Performs or executes prompts on the desktop.					
3. Views the main elements of the desktop.					
4. Opens the browser (Chrome) with ease.					
5. Copies the link into the browser.					
6. Locates and opens Genially.					
7. Knows their way around Genially.					
8. Locates and opens Kahoot.					
9. Enters the pin for Kahoot.					
10. Does some exploratory work.					
11. Shows that they can send and receive messages via WhatsApp or another application.					
12. Sends a message by e-mail.					
13. Uses the keyboard or mouse to move around Genially.					
14. Uses the keyboard or mouse to move around Kahoot.					
15. Answers questions on Kahoot.					
16. Answer multiple-choice questions on Kahoot.					
17. Reviews feedback on Kahoot.					
18. Does the student understand that they can personalise their participation on Kahoot?					
19. Does the student understand that correct answers are awarded points?					
20. Does the student notice that each question has a time limit for answering?					
21. Does the student understand that those who answer more questions get higher scores?					
22. Expresses motivation when working on Genially and Kahoot.					

The second instrument was to measure reading comprehension. For this purpose, a standardised and validated test was used, adapted from Sánchez & Reyes (2015). This instrument—specifically content A—consists of 20 items and is designed to assess the level of reading comprehension in primary school students. It is structured in three dimensions: literal (4 questions), inferential (14 questions) and critical (2 questions). In turn, this test consists of

2 to 4 reading passages that have been selected from short stories and works by Peruvian book authors, appropriate for the students' level of studies (supplementary material). The test contains 5 questions that are answered using four possible answers (A, B, C or D): the student must mark the letter preceding the answer they consider to be correct. The total expected score is 20 points and the minimum is 0.

Both instruments were tested for validity and reliability. In terms of the validity of the first instrument, an expert evaluation was carried out. The analysis was conducted using Aiken's V, which yielded an average consolidated value of 0.81.

The second instrument showed a good factor loading, with the exception of items 12 and 16, which correspond to the inferential level. This implies that the instrument may work better without these two questions. Regarding the literal level, all indicators obtained a statistically significant correlation with the factor ($p < 0.001$), while the estimators range from 0.107 to 0.208, which suggests that they positively support reading comprehension at this level. At the inferential level, the indicators are significantly correlated with the respective factor ($p < 0.001$), except for Q12 ($p = 0.045$) and Q16 ($p = 0.115$). At the critical level, the indicators also showed positive and significant correlations with the respective factor ($p < 0.001$), scoring 0.193 and 0.149 in the estimators.

Table 2. Confirmatory factor analysis (CFA): factor loadings at each level

Factor	Indicator	Estimator	Standard error	Z-statistic	p-value
Literal	Q2	0,1068	0,0291	3,67	<0,001
	Q3	0,2075	0,0325	6,38	<0,001
	Q4	0,1072	0,0178	6,01	<0,001
	Q17	0,1906	0,0275	6,92	<0,001
Critical	Q15	0,193	0,0501	3,85	<0,001
	Q8	0,1488	0,0393	3,79	<0,001
Inferential	Q1	0,1275	0,0302	4,22	<0,001
	Q5	0,1808	0,0263	6,88	<0,001
	Q6	0,141	0,0281	5,02	<0,001
	Q7	0,1555	0,0184	8,47	<0,001
	Q9	0,1863	0,0212	8,8	<0,001
	Q10	0,1883	0,023	8,18	<0,001
	Q11	0,1731	0,0293	5,9	<0,001
	Q12	0,0615	0,0306	2,01	0,045
	Q13	0,2622	0,0256	10,25	<0,001
	Q14	0,202	0,0182	11,08	<0,001
	Q16	0,0476	0,0302	1,57	0,115
	Q18	0,21	0,025	8,4	<0,001
	Q19	0,1197	0,0303	3,95	<0,001
	Q20	0,1926	0,0265	7,27	<0,001

Table 3 sets out the model quality indicators (goodness-of-fit), which make up the maximum likelihood model. The comparative fit index (CFI) and the Tucker-Lewis index (TLI) both score below 0.9, meaning that the three-dimensional model does not adequately fit the behaviour of the data. Meanwhile, the Standardized Root Mean Squared Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA) were below 0.05, indicating accuracy in the behaviour of the construct as a whole. Therefore, despite the aforementioned statistical values, the model can be considered to have an acceptable degree of fit.

TABLE 3. Model fit indicators.

				CI: 90% RMSEA	
CFI	**TLI**	**SRMR**	**RMSEA**	**Lower**	**Upper**
0,802	0,775	0,055	0,051	0,042	0,059

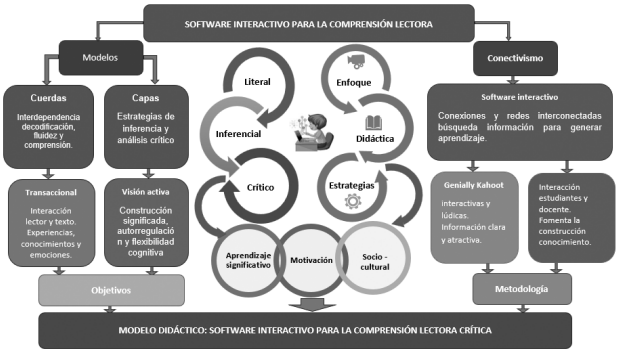
Regarding reliability, the full instrument, that is, the reading comprehension test, achieved a Cronbach's alpha of 0.73, an indicator of homogeneity suitable for measurement with this type of instrument. This indicates that the full instrument is more accurate and appropriate as a general measure of reading comprehension, enabling comparison of its scores between pre-test and post-test. Informed consent and the criteria set out in the Research Code of Ethics of Universidad César Vallejo were considered in this research.

3. Results

3.1. Proposed didactic model

For the didactic model, reading comprehension is defined as an essential skill to be developed at the primary stage of the educational process. The main objective of the proposal was to develop comprehensive reading competence in students through active, participatory and reflective teaching strategies, using Genially and Kahoot. In this way, skills at the literal, inferential and critical levels are enhanced, the capacity for inference is developed, and critical thinking and the identification of arguments are promoted by encouraging students to establish connections with their own knowledge and experience.

According to all of the above, by using Genially and Kahoot we sought to create interactive presentations that use images, videos and animations to explain concepts and stimulate interest, and also to carry out reading comprehension tests in a fun and competitive way, thereby assessing the understanding of the text. The proposed didactic model "interactive software for critical reading comprehension" can be found in full at the following link: https://view.genially.com/66f7945728333c3145d762d9/interactive-content-mi-lectura



After defining the learning objectives, we then select the texts chosen for the level of comprehension of the students, taking into account the genre and complexity. Next, the didactic sequence is designed and activities are planned for the pre-reading, reading and post-reading stages; and finally, the interactive tools are integrated, considering the characteristics of the features of Genially and Kahoot.

Pre-reading is used to activate prior knowledge through Genially, which enables the creation of interactive presentations that connect with students' experiences; regarding reading, guided and collaborative readings are implemented through interactive tools that facilitate interaction with the text; in post-reading, Kahoot can be used to create quizzes that assess the comprehension of the text, including questions of different levels of difficulty. Genially also facilitates the design of reflective and applied learning activities, allowing students to connect the content of the text with their own experiences, establish links with other texts or topics, and apply the knowledge gained to real-world situations. The methodology of the didactic model is flexible and adaptable, structured into reading workshop modules that include instruction on the use and functionality of these tools, along with a post-reading comprehension test.

Didactic strategies at the literal comprehension level seek to develop the ability to identify explicit information in texts. These strategies include the use of direct questions about the text, identification of key words, use of diagrams or summaries of the texts read, among others. This level encompasses students in the low- and mid-performing groups, who demonstrate lower achievement.

With regard to inferential comprehension, the aim was to improve students' ability to make inferences and deduce implicit information in texts. The strategy of inferential comprehension includes reading with open-ended questions that invite students to interpret situations or deduce non-explicit meanings, complemented by exercises in prediction and analysis of causes and consequences. This level encompasses all students, with a special emphasis on the low- and mid-performing groups, who have difficulties in this dimension.

In terms of critical comprehension, the aim was to foster the ability to analyse and evaluate texts. To this end, strategies such as debates and discussions on the content of texts were proposed, along with argumentation activities to present and defend points of view, or to analyse the author's intention. Its target group consisted of the lowest levels of the three groups to work with all students, however those in the high-performing group can be given more complex and challenging activities to further develop their critical skills.

The strategies proposed for assessment included systematic observation of the use of the platform, the application of pre- and post-intervention tests to measure improvement in reading comprehension, satisfaction surveys to assess students' perception of the model, analysis of participation data in Genially and Kahoot activities, and further interviews with students and teachers to obtain qualitative information about the learning experience.

The emerging concept of the proposed didactic model, based on the use of interactive software such as Genially or Kahoot, has proven to have significant pedagogical potential for the development of critical reading comprehension in primary school students. Its practical application, which aims to develop reading comprehension through a set of skills related to literal, inferential, and critical understanding, responds to a real need in classrooms: for students to not only read, but to read with comprehension, reflect, and generate their own thinking based on what they read.

This model responds to an active, participatory, reflective methodology that breaks with traditional didactic formats in the field of the teaching of reading. Thanks to visual resources, animations, interactive presentations, gamified assessments, and so on, students become the protagonists of their teaching-learning process. The use of Genially makes it possible to design immersive learning experiences that, starting from pre-reading, connect the content of the text with the students' previous experiences, thus activating their mental schemas and motivating engagement with the text.

The most interesting feature of this model is its structure based on levels of understanding. Regarding the literal level, strategies aimed at identifying explicit information are used: direct

questions, searching for key words, producing diagrams or summaries, etc. These activities are especially aimed at students who, due to their low performance, require reinforcement in basic skills. Regarding the inferential level, the aim is to consider non-explicit information, through open questions and exercises to predict or to determine causes and consequences. Therefore, it is possible to work across the board with all students and, in particular, those with lower proficiency in this skill. Finally, the critical level aims to develop students' analytical and evaluative abilities through debates, argumentation, and exploration of the author's intent, while always providing challenges tailored to the abilities of higher-performing students or to specific working groups.

3.2. Validation of the proposed didactic model

Table 4 shows the averages for each aspect obtained using Aiken's V, with an overall average of 0.956 for the proposed model. The averages for each aspect are as follows: the highest score was 0.96 for the general aspects, the content achieved an average of 0.955, and the lowest average, 0.952, was for the final score of the proposed didactic model.

TABLE 4. Expert judgement: validity of the proposed didactic model.

Aspects	No. of items	Averages
General aspects	05	0,96
Content	15	0,955
Final score	04	0,952
Average		0,956

4. Discussion

The development of comprehensive reading skills through active, participatory and reflective teaching strategies, using Genially and Kahoot, has made it possible to establish a methodological proposal with high pedagogical potential within the framework of a prospective descriptive study. This intervention was designed to address a clear educational need: to improve reading comprehension using an approach that not only stimulates the acquisition of information, but also promotes critical thinking and self-regulation of learning in primary school students.

The findings obtained confirm that the proposed model is characterised by its flexibility and adaptability, conditions that make it a replicable tool at different educational levels and in different school contexts. Thanks to its modular design, it can be implemented even in classrooms with a low level of technological integration, due to the ease of use of the chosen platforms. In this sense, technology does not act as an end in itself, but rather as a means that favours a learner-centred pedagogy, oriented towards the development of autonomous thinking, argumentation and the ability to relate what is read to one's own experiences and realities.

This approach is in line with Sanchez and Pascual (2022), who state that computer-assisted reading has positive effects on reading skills, although they stress the importance of familiarity with digital platforms to achieve optimal results. In turn, Serrano-Mendizábal et al. (2023) highlight the relevance of human mediation and metacognitive skills for achieving meaningful digital learning. Both approaches reinforce the idea that the effectiveness of virtual learning environments depends not only on their interactive design, but also on pedagogical support and on the student's ability to self-regulate their learning process.

The literature available shows diverse perspectives on preferences between digital and print. Some studies (Onieva et al., 2021; Tabernero et al., 2020) warn about certain limitations of the digital environment, while others (Roth et al., 2020; Pérez and Ricardo, 2022) report positive perceptions of the use of virtual platforms, provided they are accompanied by appropriate

pedagogical strategies. This shows that, regardless of the platform or format, the key aspect is the didactic intention with which the technology is used.

Recent studies (Segers et al., 2023; Nurmahanani, 2023) have shown that familiarity with digital materials acts as a facilitator of reading performance by promoting a more active relationship with texts and facilitating comprehension through visual and dynamic resources. This is in addition to the contribution of Yirssie et al. (2023), who insist that explicit vocabulary instruction is crucial for strengthening comprehension, especially for students with difficulties at the inferential and critical levels. Similarly, Gutiérrez (2022) stresses the importance of deep cognitive operations to achieve comprehension of expository texts, which aligns with the objectives of this model.

The evidence gathered also confirms that a significant proportion of students are below average in their reading literacy, a situation which validates the need to implement specific intervention programmes. In this regard, the ideas of Calderón et al. (2022) are relevant, as they indicate that teaching and learning can be enhanced through gamification and the use of digital technologies, provided that a critical and strategic view of the process is maintained.

Other authors (Nurwahidah et al., 2023; Segers et al., 2023; Roth et al., 2020) likewise acknowledge the potential value of digital platforms for enhancing reading skills. Nevertheless, it is imperative to carefully monitor the pedagogical quality of the content, as well as its alignment with the diagnosis of the target group (Gnambs and Lenhard, 2024). In this same vein, the proposed didactic model includes resources such as Genially and Kahoot to foster active mediation, as argued by Mauri-Medrano et al. (2024), who point out that these tools increase student motivation and engagement, two decisive factors in achieving meaningful learning.

The model also contemplates formative assessment through Kahoot, which allows teachers to access the results in real time and adjust their intervention based on the reading performance of each student, following Corbett and Spinello's (2020) approach on the importance of feedback in the educational process. However, it is necessary to recognise that one of the model's weaknesses lies in its dependence on technology, which can create barriers in contexts with limited connectivity or a shortage of devices.

Although the proposal is in line with innovative trends in education, its sustainability requires an investment in teacher training regarding digital skills, as the success of these tools depends on the pedagogical management of the teacher. As Balaskas et al. (2023) and Cabrera-Solano (2022) point out, Genially offers a visually appealing environment, while Kahoot promotes participation and information retention through play. Nonetheless, excessive or misguided use of gamification can shift the focus away from deep learning, as Duke and Cartwright (2021) warn. This is a latent risk that must be avoided through conscious planning, balancing game-based motivation with the actual development of reading skills.

It is also necessary to consider the structural factors that affect equity of access to this model. Al-Mutairi and Bin (2021) point out that the digital divide, especially in terms of connectivity and school resources, represents a barrier that can limit the impact of the model on vulnerable populations. This is compounded by the potential inadequacy of the model in addressing diverse learning needs in a differentiated manner, which requires additional adjustments and cultural and social contextualisation of the content. From a connectivist perspective, such as that proposed by Joshi et al. (2024), learning is a social process that must incorporate and value the student's personal experiences as part of the act of understanding.

5. Conclusions

The study achieved its general aim by proposing a didactic model based on the use of interactive software for critical reading comprehension in sixth grade primary school students. This approach, developed with Genially and Kahoot, is grounded in an innovative framework that combines various pedagogical strategies, such as interactivity, gamification and formative assessment. These elements aim not only to stimulate students' interest, but also to promote a significant improvement in critical reading skills, a key aspect of autonomous learning and

analytical thinking. However, it should be emphasised that, although these platforms are useful tools, their effectiveness depends on the appropriate design of the accompanying pedagogical activities and on teacher training focused on digital competencies. This highlights the need to implement specific actions to familiarise students with digital environments, thus ensuring the accessibility and functionality of these tools for all involved. Moreover, the socio-economic context plays a crucial role in this regard, since limitations related to technological resources and connectivity disproportionately affect the most vulnerable sectors (Al-Mutairi and Bin, 2021).

The proposed didactic model with Genially and Kahoot is underpinned by key pillars, namely interactivity, gamification, personalisation, and formative assessment. For example, Kahoot allows teachers to see results in real time, which facilitates immediate adjustments in the teaching process. Nevertheless, it is important to note some critical aspects. Technological dependence can become a barrier, particularly in contexts marked by unequal access to resources, and an excessive focus on technology may divert attention from critical reading comprehension, which is the primary objective of the model (Duke and Cartwright, 2021). It is therefore imperative to accompany the implementation of these tools with balanced pedagogical strategies that prioritise deep learning over the mere acquisition of digital skills.

Sánchez (2020) researched the usefulness of technological tools for teaching mathematics by conducting a review in databases such as EBSCO, Scopus and Google Scholar. The findings highlight that teachers' digital competencies are essential to ensure appropriate use of technology platforms. According to the study, these tools are particularly useful for combining synchronous and asynchronous methodologies, thus fostering not only teaching, but also the autonomous learning of the students, who can practise the subjects studied at their own pace.

In turn, Bonilla et al. (2023) analysed how technological innovation contributes to the improvement of mathematics learning through a literature review. This study highlights that technology, through games and interactive activities, stimulates students' attention and participation. By fostering a collaborative and engaging environment, these tools not only enhance learning, but also promote greater interest in the subjects, thus creating a meaningful connection with students.

Finally, Cáceres (2021) underscores the many technological innovations available in virtual programmes and environments that allow students to access workshops, activities and forums. These tools not only reinforce learning, but also encourage students to create and share resources, thereby enriching their learning experience. This approach, beyond facilitating the acquisition of knowledge, promotes active interaction that enhances meaningful learning.

In conclusion, while technology tools such as Genially and Kahoot have great potential to transform the educational landscape, their effective implementation requires a critical analysis of their strengths and limitations. Teacher training, equitable access to technology and the design of pedagogical strategies that prioritise critical learning are essential elements to maximise their impact and ensure inclusive and quality education.

Author contributions

Eleodoro Huaman Baldeón: conceptualisation, data processing, drafting, formal analysis, methodology and validation.

Oscar López Regalado: visualisation, validation, conceptualisation and supervision.

6. References

Al-Mutairi, N. M., & Bin, H. F. (2021). Connectivism Learning Theory to Enhance Higher Education in the Context of COVID-19 Pandemic. *International Journal of Educational Sciences, 35*(1-3), 29-39. https://doi.org/10.31901/24566322.2021/35.1-3.1197

Balaskas, S., Zotos, C., Koutroumani, M., & Rigou, M. (2023). Effectiveness of GBL in the Engagement, Motivation, and Satisfaction of 6th Grade Pupils: A Kahoot! Approach. *Education Sciences, 13*(12), 1-13.

https://doi.org/10.3390/educsci13121214

Cabrera-Solano, P. (2022). Game-Based Learning in Higher Education: The Pedagogical Effect of Genially Games in English as a Foreign Language Instruction. *International Journal of Educational Methodology, 8*(4), 719-729. https://doi.org/10.12973/ijem.8.4.719

Calderón, M. Y., Flores, G. S., Ruiz, A., & Castillo, S. E. (2022). Gamificación en la compresión lectora de los estudiantes en tiempos de pandemia en Perú. *Revista de Ciencias Sociales, 28*(Especial 5), 63-74. https://doi.org/10.31876/rcs.v28i.38145

Castillo-Cuesta, L., Cabrera-Solano, P. & Ochoa-Cueva, C. (2024). Using Genially and Kahoot for Implementing CLIL in EFL Higher Education. International Journal of Learning, Teaching and Educational Research. *Teaching and Educational Research, 23*(7), 340-354. https://doi.org/10.26803/ijlter.23.7.13

Çoban, M., Topuz, A., Karabulut, A., & Chiu, T. (2024). Comparing Realities: A Study on the Impact of Virtual Reality versus Paper-Based Reading on Higher Education Students' Comprehension Skills. *Participatory Educational Research, 11* (4, 19). https://doi.org/10.17275/per.24.47.11.4

Corbett, F., & Spinello, E. (2020). Connectivism and leadership: harnessing a learning theory for the digital age to redefine leadership in the twenty-first century. *Heliyon, 6*(1), 1-9. https://doi.org/10.1016/j.heliyon.2020.e03250

Duke, N. K., & Cartwright, K. B. (2021). The Science of Reading Progresses: Communicating Advances Beyond the Simple View of Reading. *Reading Research Quarterly, 56*(S1), S25-S44. https://doi.org/10.1002/rrq.411

Escobar-Teran, F., Zapata, J., Briones, F., Rosero, M. & Portilla, J. (2025). Use of ICTs to confront climate change: analysis and perspectives. *Frontiers in Climate, 7*. https://doi.org/10.3389/fclim.2025.1436616.

Gnambs, T., & Lenhard, W. (2024). Remote Testing of Reading Comprehension in 8-Year-Old Children: Mode and Setting Effects. *Assessment, 31*(2), 248-262. https://doi.org/10.1177/10731911231159369

Gutiérrez, R. (2022). Influence of Cognitive Reading Strategies for Improving Comprehension Skills in Primary Education Students. *Investigaciones Sobre Lectura, 17*(2), 77–92. https://doi.org/10.24310/isl.vi18.15140

Huntington, B., Goulding, J., & Pitchford, N. J. (2023). Pedagogical features of interactive apps for effective learning of foundational skills. *British Journal of Educational Technology, 54*(5), 1273-1291. https://doi.org/10.1111/bjet.13317

Joshi, D. R., Khadka, J., Khanal, B., & Adhikari, K. P. (2024). Learners' Expectations towards Virtual Learning and its Effect on Mathematics Performance. *International Journal of Instruction, 17*(1), 733-754. https://doi.org/10.29333/iji.2024.17138a

Kambach, A. E., & Mesmer, H. A. (2024). Comprehension for Emergent Readers: Revisiting the Reading Rope. *Reading Teacher, 77*(6), 888-898. https://doi.org/10.1002/trtr.2315

Lesko, C., Fox, M. & Edwards, J. (2022). A framework for descriptive epidemiology. *American Journal of Epidemiology, 191*(12). https://doi.org/10.1093/aje/kwac115

Masneri, S., Domínguez, A., Zorrilla, M., Larrañaga, M., & Arruarte, A. (2022). Interactive, Collaborative and Multi-user Augmented Reality Applications in Primary and Secondary Education. *A Systematic Review. Journal of Universal Computer Science, 28*(6), 564-590. https://doi.org/10.3897/jucs.76535

Mauri-Medrano, M., González-Yubero, S., Falcón-Linares, C., & Cardoso-Moreno, M. J. (2024). Gamifying the university classroom: a comparative analysis of game dimensions through

educational Escape Room and a digital board game. *Frontiers in Education, 9*, 1-9. https://doi.org/10.3389/feduc.2024.1354674

Misari, A. (2023). Comprensión lectora y su relación con los niveles de competencia comunicativa. *Lengua y Sociedad, 22*(1), 535-555. https://doi.org/10.15381/lengsoc.v22i1.23664

Nurmahanani, I. (2023). Effectiveness of a Mixed Methods-Based Literacy Program in Improving Reading Comprehension, Vocabulary Mastery, and Reading Fluency Skills of Early Grade Students. *International Journal of Learning, Teaching and Educational Research, 22*(7), 324-343. https://doi.org/10.26803/ijlter.22.7.17

Nurwahidah, N., Sulfasyah, S., & Rukli, R. (2023). Investigating Grade Five Teachers' Integration of Technology in Teaching Reading Comprehension Using the TPACK Framework. *Journal of Language Teaching and Research, 14*(4), 927-932. https://doi.org/10.17507/jltr.1404.09

Onieva, J. L., Morales, A. F., Maqueda, E., & García, M. A. (2021). E-Textbooks vs. Print textbooks: A neuroscientific study on reading and completing exercises in primary school students. *Investigaciones Sobre Lectura, 16*, 1-31. https://doi.org/10.24310/isl.vi16.13683

Pérez, W. E., & Ricardo, C. T. (2022). Factores que afectan la comprensión lectora en estudiantes de educación básica y su relación con las TIC. *Ikala, 27*(2), 332-354. https://doi.org/10.17533/udea.ikala.v27n2a03

Ramírez, C. C., & Fernández-Reina, M. (2022). Niveles de comprensión lectora en estudiantes de tercer grado de primaria de una institución educativa en Colombia. *Ikala, 27*(2), 484-502. https://doi.org/10.17533/udea.ikala.v27n2a12

Romero, N., & Moncada, J. (2007). Modelo didáctico para la enseñanza de la educación ambiental en la Educación Superior Venezolana. *Revista de pedagogía, 28*(83), 443-476. https://ve.scielo.org/pdf/p/v28n83/art05.pdf

Rosenblatt, L. M. (1978). El modelo transaccional: La teoría transaccional de la lectura y la escritura. *New York University*, 1-62.

https://lecturayescrituraunrn.wordpress.com/wp-content/uploads/2013/08/unidad-1-complementaria-rosemblatt.pdf

Roth, C. I., Valenzuela, F., y Orellana, P. (2020). Experience in the Use of a Digital Platform for the Practice of Reading Comprehension and Vocabulary: Perception of Elementary School Students. *Investigaciones Sobre Lectura, 14*. https://doi.org/10.37132/isl.v0i14.314

Sánchez, H., y Reyes, C. (2015). *Prueba de Comprensión Lectora*. In Universidad Ricardo Palma. Universidad Ricardo Palma. https://hdl.handle.net/20.500.14138/1081

Sánchez, S., y Pascual, M. Á. (2022). Effectiveness of a Digital Serious Game in Improving Reading Comprehension and Academic Performance. *Investigaciones Sobre Lectura, 17*(1), 40-66. https://doi.org/10.24310/isl.vi17.14325

Segers, E., In 't Zandt, M., Stoep, J., Daniels, L., Roelofs, J., y Gubbels, J. (2023). Differential effects and success stories of distance education in Covid-19 lockdowns on the development of reading comprehension in primary schools. *Reading and Writing, 36*(2), 377-400. https://doi.org/10.1007/s11145-022-10369-0

Seifert, S., y Paleczek, L. (2022). Comparing tablet and print mode of a german reading comprehension test in grade 3: Influence of test order, gender and language. *International Journal of Educational Research, 113*(October 2021), 101948. https://doi.org/10.1016/j.ijer.2022.101948

Serrano-Mendizabal, M., Villalón, R., Melero, Á., e Izquierdo-Magaldi, B. (2023). Effects of two computer-based interventions on reading comprehension: Does strategy instruction matter? *Computers & Education, 196*(January), 104727. https://doi.org/10.1016/j.compedu.2023.104727

Tabernero, R., Álvarez, E., y Heredia, H. (2020). Reading habits and information consumption of adolescents in the digital environment. *Investigaciones Sobre Lectura, 13*, 72-89. https://doi.org/10.37132/isl.v0i13.302

Yirssie, S. D., Mezegebu, Y., y Admasu, S. (2023). Effects of Explicit Language Instruction on Students' Vocabulary Retention and Reading Comprehension Skills. *Ethiopian Renaissance Journal of Social Sciences and Humanities, 10*(2), 17-37. https://doi.org/10.4314/erjssh.v10i2.2

Author Biographies

Eleodoro Huaman Baldeón. Primary-Level Basic Education Teacher; Director of Basic Education Institutions; Innovation Classroom Teacher; Director of Educational Networks; recognised with awards from the Peruvian Ministry of Education (MINEDU) for Pedagogical and Institutional Innovation Projects. Master's Degree in Educational Administration, PhD in Education, completed Master's Degree in Strategic Process Management, Bachelor's Degree in Administration, specialisation in Human Talent Management.

https://orcid.org/0000-0001-9175-6687

Oscar López Regalado. Former postgraduate lecturer at the Universidad César Vallejo; lecturer at the Faculty of Historical and Social Sciences and Education at the Universidad Nacional Pedro Ruiz Gallo, Universidad Católica Santo Toribio de Mogrovejo and Universidad Señor de Sipán; former specialist in Science and Technology Education at the Regional Office of Education of Lambayeque. PhD in Educational Research and Innovation from the University of Malaga (Spain); Master's Degree in Cognitive Psychopedagogy, completed studies in Educational Psychology, second specialisation in Educational Technology and Innovation, and School Management with Pedagogical Leadership; Bachelor's Degree in Natural Sciences; Bachelor's Degree in Law; Secondary Education teacher and Professional Technical Degree in Computing and Informatics; research faculty member, author of several articles and books, RENACYT ID: P0004644 - Level VI.

https://orcid.org/0000-0002-8256-1519