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**Artículo de Investigación**
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# From Historical Facts to Historical Understanding: An ICT-Mediated Learning Design for Primary Social Studies Class

**Abstract**

This paper presents an educational innovation proposal that integrates Information and Communication Technologies (ICT) to promote Meaningful Learning in a Social Studies class. The project was developed in the context of a bilingual private school in Bogotá and is aimed at fourth- and fifth-grade students. The proposal responds to the pedagogical challenge of moving beyond traditional history teaching, based primarily on memorization towards learning experiences that foster critical thinking, contextual understanding, and an active student participation.

The instructional design mixes three technological resources—artificial intelligence, augmented reality, and educational podcasting—within a structured didactic sequence grounded in the principles of Meaningful Learning, the sociocultural approach, and the Technological Pedagogical Content Knowledge (TPACK) framework. Through collaborative activities, students analyze historical processes, explore digital representations of historical contexts, and produce their own narrative podcasts as a way of reconstructing historical events.

Formative assessment strategies accompany each phase of the learning sequence to monitor student progress and provide continuous feedback. The proposal also emphasizes the development of 21st-century skills, including critical thinking, communication, collaboration, and digital literacy.

The results of the pedagogical implementation suggest an increased student engagement with Social Studies and a deeper understanding of historical processes. Additionally, the use of teacher-created podcasts offers opportunities for differentiated instruction by allowing students to revisit content both in class and at home, supporting diverse learning needs. Overall, the study highlights the importance of purposeful ICT Integration to enrich historical learning and foster more inclusive and meaningful educational experiences.

**Keywords:** ICT Integration, Meaningful Learning, Social Studies teaching, Digital Storytelling, 21st-century skills.

**Resumen**

Este artículo presenta una propuesta de innovación educativa orientada a fortalecer el aprendizaje significativo en la enseñanza de las Ciencias Sociales en educación primaria mediante la integración de Tecnologías de la Información y la Comunicación (TIC). La experiencia se desarrolla en un colegio bilingüe privado de Bogotá con estudiantes de cuarto y quinto grado, y surge ante la necesidad de superar metodologías tradicionales centradas en la memorización de hechos históricos. En respuesta, se propone una secuencia didáctica que promueve el pensamiento crítico, la comprensión contextual y la participación de los estudiantes.

La propuesta incorpora inteligencia artificial, realidad aumentada y pódcast educativos, articulados desde los principios del aprendizaje significativo, el enfoque sociocultural y el modelo TPACK. A través de actividades colaborativas, los estudiantes analizan procesos históricos, exploran representaciones digitales y producen pódcast narrativos para reinterpretar acontecimientos históricos.

Asimismo, la evaluación formativa acompaña cada etapa del proceso para monitorear avances y ofrecer retroalimentación continua. Los resultados evidencian un mayor interés por las Ciencias Sociales y una comprensión más profunda de los procesos históricos. Además, el uso de pódcast favorece la educación diferenciada al permitir revisar contenidos dentro y fuera del aula, fortaleciendo experiencias educativas inclusivas, participativas y contextualizadas.

**Palabras clave:** Integración de TIC, Aprendizaje Significativo, Enseñanza de las Ciencias Sociales, Narrativa digital, Habilidades del siglo XXI.

## 1. Intruduction

The integration of Information and Communication Technologies (ICT) into educational processes is now a necessary pedagogical need, especially in school contexts that view students as active participants in the construction of their own knowledge (UNESCO, 2019). Despite its strong academic tradition, the teaching of Social Studies at the primary level continues to face a persistent pedagogical challenge: students often approach history as a set of isolated facts to memorize, rather than as interconnected processes requiring interpretation, contextualization, and critical analysis. This proposal emerges as a response to that gap, seeking to transform historical learning into a reflective and meaningful experience through the purposeful integration of ICT.

The institutional pedagogical approach of the Abraham Lincoln Bilingual School is grounded in Meaningful Learning, understood as an active process through which students construct knowledge, values, and attitudes based on the interaction between prior knowledge, new experiences, and intentional pedagogical mediation (Ausubelet, D. et. al. 1983) and (Coll, C. 1991). From this perspective, learning is not conceived as a passive reception of information, but rather as a continuous transformation of concepts that integrates cognitive, social, and attitudinal dimensions, in coherence with constructivist and sociocultural principles of learning.

Likewise, the school promotes active student participation, the construction of cognitive bridges between prior knowledge and new content, and the progressive development of thinking processes that go beyond learning through memorization alone. This approach aligns with the principles of the sociocultural perspective, which highlights pedagogical mediation and social interaction as central elements in cognitive development (Lev Vygotsky, 1978). The institutional curriculum also emphasizes the importance of values and attitudes, understood as guiding principles that enable students to act, make decisions, and relate to

others, fostering their value development through social interaction and school experience (Díaz-Barriga, F. 2002).

Within this context, the teaching of Social Studies faces the challenge of overcoming traditional methodologies focused solely on the transmission of historical facts, to give way to learning experiences that promote deep understanding, critical thinking, and citizenship education (Area, M. 2014). Therefore, the integration of technologies such as educational podcasting, artificial intelligence, and Augmented Reality can enhance learning processes, if they are implemented with clear pedagogical objectives and in response to students' educational needs (Mishra, P. et. al., 2006)

In this sense, the purpose of the present proposal is to design an innovative learning experience that integrates ICT in a meaningful way, aligned with the Institutional Educational Project of the Abraham Lincoln Bilingual School and with contemporary educational demands. To this end, the paper is structured into five sections: a theoretical foundation that supports the pedagogical integration of ICT, a detailed design of the didactic proposal, a description of the formative and summative assessment strategies, a pedagogical justification of the decisions adopted, and, finally, the conclusions and future projections of the project.

**Objectives**

- To design and implement an ICT-mediated didactic sequence aimed at strengthening historical understanding in fourth- and fifth-grade students.
- To evaluate students' ability to analyze causes, consequences, and perspectives of historical events through digital production tasks.
- To foster observable development of 21st-century skills, including critical thinking, collaboration, communication, and digital literacy.
- To assess the pedagogical coherence of integrating artificial intelligence, augmented reality, and podcasting within the Social Studies curriculum.

This study is framed as a design-based educational innovation proposal. It presents the theoretical justification, instructional design, and assessment structure of the intervention. While preliminary classroom observations inform the proposal, the present manuscript focuses primarily on the pedagogical design and its theoretical articulation rather than on reporting large-scale empirical results.

## 2. Theoretical framework

The use of Information and Communication Technologies (ICT) in education should focus primarily on their pedagogical and formative value, rather than on technology itself. Learning takes place when students engage meaningfully with content, context, and others, as proposed by the constructivist approach (Piaget, P. 1977 and Coll, C. 1991). From this perspective, ICT supports the representation, exploration, and construction of knowledge, if they are implemented with clear and intentional pedagogical objectives.

From a sociocultural perspective, Lev Vygotsky (1978) argues that learning is inherently a social process, mediated by cultural tools, on which language and technological resources play a central role. Hence, digital technologies, understood as contemporary cultural tools, enhance the Zone of Proximal Development by fostering interaction, collaboration, and the co-construction of knowledge. For this reason, in the field of Social Studies, ICT is particularly relevant, as it allows historical events to be analyzed as social constructions situated within specific cultural and temporary contexts.

Similarly, Meaningful Learning theory, as proposed by Ausubel, D. et. al., (1983) states that learning occurs when new information is genuinely connected to students' prior knowledge. ICT facilitates this process by creating cognitive bridges through multiple ways of presenting content, thus promoting deeper understanding and the reorganization of existing knowledge structures (Coll, C. 1991).

In addition, a widely recognized framework for guiding the pedagogical integration of ICT is the TPACK model (Technological Pedagogical Content

Knowledge), proposed by Mishra, P. and Koehler, M. (2006). This model suggests that educational innovation emerges from a balanced interaction along with three types of knowledge: conceptual knowledge, pedagogical knowledge, and technological knowledge. Because of this, in the context of Social Studies, TPACK enables the design of learning experiences in which technology is not incorporated in isolation but rather articulated with historical content and instructional strategies. Moreover, the model emphasizes informed pedagogical decision-making over purely technical choices, encouraging reflective and purposeful use of digital tools.

Along these lines, Digital Storytelling is considered an effective strategy for teaching Social Studies. According to Robin, B. (2008), Digital Storytelling combines the power of narrative with multimedia resources, fostering processes of analysis, synthesis, and communication that are essential in this area of study. Within this framework, the educational podcast, as a form of digital narrative, strengthens active listening, oral expression, and the organization of thought, allowing the students to reconstruct historical events from a critical and contextualized perspective (Area, M. 2014).

At the same time, the development of 21st-century skills represents another key component of this theoretical framework. International organizations such as UNESCO (2021) and OECD (2019) emphasize the need to teach students how they can communicate effectively, collaborate with others, solve problems, and engage critically in digital environments. When ICT is integrated through active methodologies, they provide authentic learning contexts for the development of these competencies, particularly in proposals that combine creativity, critical thinking, and digital literacy.

In this same line, the development of critical digital literacy becomes essential within ICT-mediated learning environments. Beyond technical skills, students are required to analyze information critically, identify potential biases in digital content, verifying the reliability of sources, and constructing informed perspectives that are diverse and inclusive. In this way, integrating these strategies within the teaching of Social Studies strengthens students' ability to navigate digital environments thoughtfully and supports the development of informed and responsible digital citizenship.

However, the literature also prevents the bare use of technology does not guaranteeing improvements in learning outcomes (Area, M. 2014). The effectiveness of ICT depends on the coherence between learning objectives, pedagogical strategies, and selected tools. For this reason, the present proposal is grounded in the articulation of Meaningful Learning principles, the Sociocultural Approach, and the TPACK model. The integration of such technologies like Artificial Intelligence, Augmented Reality, and Educational Podcasting with a clearly defined pedagogical purpose, brings to life the connection between theory and practice. Consequently, it allows technology to support historical learning and students' holistic development, rather than limiting or overshadowing them.

Moreover, several studies caution against techno-centric approaches that prioritize digital tools over pedagogical intentionality. Without structured guidance and cognitive scaffolding, ICT may generate superficial engagement rather than deep learning. Therefore, the effectiveness of this proposal depends not on technological novelty, but on deliberate instructional design, teacher mediation, and alignment between objectives, content, and assessment.

## 3. Design of the proposal

The intervention is designed to be implemented over a four-week instructional period, with two weekly sessions of 60 minutes each. The target population consists of approximately 50 students distributed across two grade levels (fourth and fifth grade). Teachers involved in the implementation receive prior orientation on the pedagogical use of Artificial Intelligence and Augmented Reality tools to ensure methodological coherence and fidelity.

### 3.1 Tools selection

The selection of the following technological tools responds to the necessity to promote active and

Meaningful Learning, aligned with the development of digital competencies of teaching History. First, generative Artificial Intelligence is incorporated through tools such as ChatGPT and Copilot, which are used as support resources for organizing ideas, developing historical scripts, and reviewing textual coherence. This type of tool strengthens key competencies like Information Management, Critical Thinking, and Digital Communication. Also, the objective is not to delegate cognitive processes to the tool, but to enhance skills such as critical thinking, information management, and metacognitive reflection. This intentional integration of these tools ensures alignment with the TPACK model, where technology is meaningfully connected to both content and pedagogy, avoiding superficial or purely instrumental use.

Second, Augmented Reality is integrated through applications such as Merge EDU, Google Arts & Culture, and AR Makr. These applications allow students to visualize historical maps, settings, and characters in three dimensions. Their use promotes spatial and contextual understanding, as well as digital content creation skills and the critical interpretation of visual sources.

Finally, the educational podcast, produced using tools such as Anchor, Audacity, and Spotify for Podcasters, is used as a means of expression and dissemination of historical knowledge. These tools are integrated articulately within the didactic sequence, not as an end by themselves, but as mediators of learning and of the development of 21st-century skills.

### 3.2 Sequence of Activities

The sequence of activities, as seen in chart 1, is structured into four progressive phases that are coherent with one another and aligned with the learning objectives, appropriately integrating technology and promoting the development of 21st-century skills.

Consequently, the integration of ICT in each phase of the sequence enables the progressive development of digital competencies such as information searching and evaluation, digital content creation, responsible communication, and problem-solving through technological tools. In this way, the use of Artificial Intelligence, Augmented Reality, and Podcasting is directly linked to disciplinary learning and to the formation of critical and responsible digital citizens.

Chart 1
*ICT Integration*

| Phase | Description of the Activity | Estimated Time | Key Instruction | Learning Evidence |
|---|---|---|---|---|
| **Phase 1. Activation of Prior Knowledge and Motivation** | The sequence begins with guided listening to an episode of the podcast *History Tales with Miss* Val related to the historical process under study. During the listening activity, students identify key ideas and respond to guiding questions posed by the teacher. | 30 minutes | *"Listen carefully to the episode and identify the most important eveants, the characters involved, and one question that arises about the historical event."* | Written record of key ideas and initial questions. Oral participation during whole-class discussion. |
| **Phase 2. Exploration and Analysis through Augmented Reality** | Students, organized in collaborative teams, use Augmented Reality applications to explore historical maps, settings, and characters related to the topic. They analyze cause-and-effect relationships and contrast this information with what was previously presented in the podcast. | 45 minutes | *"Explore the assigned historical setting and identify at least three elements that help explain how and why the events occurred."* | Group analysis worksheet with relevant information. Concept map or visual organizer created by the team. |

*Note. Own work, 2021.*

### 3.4 Learning Assessment

The assessment integrates both monitoring and closure processes to understand learning in a comprehensive way. The criteria are aligned with the learning objectives and 21st-century skills, prioritizing historical understanding, pedagogical use of technology, and collaborative work.

At this stage, assessment evidence is primarily qualitative and formative in nature, including student artifacts, teacher observation records, and reflective feedback sessions. In these exercises, the following criteria were used:

**Assessment Criteria**

- Understanding and contextualization of the historical event.
- Appropriate and responsible use of technological tools.
- Ability to work collaboratively.
- Clarity, coherence, and creativity in podcast production.

Future research phases will incorporate structured rubrics and quantitative performance indicators to measure impact more systematically.

### 4. Pedagogical justification

The integration of the selected educational technologies responds to a clearly identified pedagogical need: to transform the teaching of history into an active, reflective, and Meaningful Learning experience, centered on the student as a constructor of knowledge. From this perspective, technology does not replace the teacher or disciplinary knowledge; instead, it expands the didactic possibilities and strengthens pedagogical mediation, supporting deep, contextualized learning processes aligned with the principles of Meaningful Learning and constructivism (Coll, C. 1991 and Ausubel, D. 2002). In addition, this proposal goes beyond the mere integration of digital tools, by intentionally guiding students toward a more conscious and critical use of technology. Also, rather than positioning ICT as neutral instruments, the intervention seeks to regulate, orient, and re-significate their use within the learning process. Therefore, students are encouraged to engage with digital environments in a balanced and purposeful way, developing awareness of how they consume, interpret, and produce information. In this sense, technology becomes not only a medium for learning, but also an object of reflection, fostering responsible, critical, and constructive digital practices.

Within this framework, Artificial Intelligence functions as a cognitive supporting tool that facilitates the organization of ideas, the formulation of guiding questions, and the framework for the construction of historical narratives, therefore promoting critical thinking and metacognitive processes (Mishra, P et. al. 2006). Augmented reality contributes to contextual and spatio-temporal understanding of historical events by enabling interactive visualization of settings and processes, thus strengthening the connection between curricular content and students lived experiences (Radianti, J. et al., 2020). Likewise, the educational podcast enhances listening, attention, and the appropriation of historical knowledge, characteristics of Digital Storytelling, and Project-based Learning (Robin, B. 2008).

Among the expected benefits of this proposal, it increased student motivation, improved historical understanding, and the development of 21st-century skills such as critical thinking, effective communication, collaboration, and digital competence (OECD, 2019). In addition, the proposal encourages active student participation and the strengthening of learner autonomy, in alignment with the institutional pedagogical approach of the Abraham Lincoln Bilingual School.

At the same time, several challenges are identified, including effective classroom time management, the need for continuous teacher professional development, and the ethical use of artificial intelligence. These challenges can be addressed through careful pedagogical planning, ongoing teacher guidance, and the set-up for clear guidelines that promote responsible, reflective, and pedagogically grounded use of technology, ensuring its meaningful integration

into the teaching and learning process. To prevent overreliance on generative AI, it is positioned strictly as a cognitive support tool rather than as an autonomous content producer.

Finally, the use of selected technologies is framed within principles of responsibility, ethics, and digital safety. Clear guidelines are established for data protection, appropriate use of digital platforms, and respectful communication in virtual environments, fostering the development of conscious digital citizenship aligned with institutional values (UNESCO, 2021). Altogether, this approach ensures that technology integration is not only pedagogically meaningful, but also ethically grounded and critically informed, preparing students to engage with digital environments in a reflective, responsible, and transformative way.

## 5. Conclusions

The proposal demonstrates strong pedagogical coherence with its stated objectives and presents a structured model for promoting active, meaningful, and contextualized learning in the Social Studies classroom. As a consequence, the pedagogical use of Artificial Intelligence, Augmented Reality, and Educational Podcasting contributed to strengthening students' historical understanding, critical thinking, communication, and collaboration skills. In addition, clear progress was observed in the development of 21st-century competencies. Therefore, continuous teacher mediation and the use of formative assessment further supported students' self-regulation of learning and conscious appropriation of content, in alignment with the institutional pedagogical approach and the curricular framework.

Furthermore, throughout the implementation of the proposal, students demonstrated increased interest and engagement in Social Studies. The learning experiences helped them understand that history is not limited to memorizing dates or isolated facts, but rather involves analyzing causes and consequences, interpreting multiple perspectives, and understanding historical processes within their social and cultural contexts. This shift in approach did promote deeper critical thinking, encouraged students to ask meaningful questions, and supported the development of a more reflective and analytical understanding of historical events.

Beyond these general outcomes, the use of the podcast as a teaching and learning tool offers an additional and highly valuable contribution. In other words, providing students with the opportunity to listen to class content delivered by the teacher in podcast format supports differentiated education, particularly for learners who experience learning difficulties. This format allows students to revisit explanations at their own pace, repeat information as needed, and engage with content through auditory channels, both in the classroom and at home. As a result, learning becomes more inclusive and flexible, extending beyond the physical classroom and responding more effectively to diverse learning needs.

Nevertheless, several limitations must be acknowledged. Beyond dependence on internet connectivity and equitable access to devices, variability in teacher digital competence and the potential for cognitive overload among students represent additional challenges. These factors require ongoing professional development, gradual technological integration, and careful instructional scaffolding to ensure that digital tools enhance rather than hinder learning processes.

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