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ORIGINAL

Creating educational audiovisuals with AI: a case study for teaching the life and work of Marta Abreu

Creación de audiovisuales educativos con IA: un estudio de caso para la enseñanza de la vida y obra de Marta Abreu

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ABSTRACT

This chapter documents a case study on the application of Artificial Intelligence (AI) in the creation of educational materials, using as a concrete example the development of a series of audiovisual pieces about the life and work of the Cuban patriot Marta Abreu. Starting from AI's potential to innovate in education and within a context of limited resources, this research aimed to evaluate the feasibility and impact of this technology on the production of effective teaching resources. The methodology and resources used in the creation process are described in detail. The most significant results demonstrate that the integration of AI significantly reduced production costs and time. Furthermore, the generated material successfully captured the students' attention and interest, proving that, even in resource-constrained environments, this technology can streamline the creation of pedagogical content. The main conclusion of this case study is that AI stands as a valuable tool for generating teaching materials adapted to local educational needs. The experience with the audiovisual about Marta Abreu is therefore presented as a model of innovative teaching practice that sets a precedent for the efficient application of these technologies in similar educational contexts.

Keywords: Artificial intelligence, history teaching, local history, educational audiovisual, case study.

RESUMEN

Este capítulo documenta un estudio de caso sobre la aplicación de la Inteligencia Artificial (IA) en la creación de materiales educativos, tomando como ejemplo concreto la realización de una serie de audiovisuales acerca de la vida y obra de la patriota cubana Marta Abreu. Partiendo del potencial de la IA para innovar en la educación y del contexto de recursos limitados, la investigación se propuso evaluar la viabilidad y el impacto de esta tecnología en la producción de recursos didácticos efectivos. Se describe en detalle la metodología y los recursos empleados en el proceso de creación. Los resultados más destacados demuestran que la integración de la IA redujo significativamente los costos y el tiempo de producción. Asimismo, el material generado logró captar la atención e interés de los estudiantes, evidenciando que, incluso en entornos con restricciones, esta tecnología puede dinamizar la creación de contenido pedagógico. La

principal conclusión de este estudio de caso es que la IA se erige como una herramienta valiosa para generar materiales de enseñanza adaptados a las necesidades educativas locales. La experiencia con el audiovisual sobre Marta Abreu se presenta, por tanto, como un modelo de práctica docente innovadora que sienta un precedente para la aplicación eficiente de estas tecnologías en contextos educativos similares.

Palabras Clave: Inteligencia artificial, enseñanza de la historia, historia local, audiovisual educativo, estudio de caso.

INTRODUCTION

Artificial Intelligence (AI) has emerged as a transformative force in the digital era, redefining economic and social sectors globally. As a discipline of computer science that aims to emulate human capabilities such as reasoning and creativity, AI enables machines to learn from past experiences and respond to situations not anticipated in their original design.[1] Technologies such as deep learning, based on neural networks and large datasets, have optimized processes in diverse areas, including healthcare, transportation, and energy.[2]

In the field of education, AI is a promising tool for transforming teaching methods. Among its applications, "intelligent conversational software" (chatbots).[3] stands out, serving as virtual assistants to answer student queries, provide additional resources, and perform automated assessments. These tools promote a student-centered educational model, allowing for personalized learning and individualized feedback.[4]

However, the use of AI in education also poses challenges. These include digital divides that limit access to these technologies, vulnerabilities in personal data protection, implicit biases in algorithms, and the risk of creating a "comfort bubble" that limits students' exposure to diverse and complex knowledge.

This technology also has great potential for teaching history. AI can streamline the processing of large historical data sets, systematize vast and complex information from various bibliographic sources, and develop a deeper understanding of past events. AI algorithms are capable of recognizing patterns and trends in historical data, revealing links between seemingly unrelated events and allowing students better to understand the causes and consequences of those events. In addition, the analysis of historical data with AI can help overcome limitations inherent in traditional historical narratives, as it allows for a descriptive study based on evidence, thereby achieving a greater appreciation for the complexity of history and avoiding simplified or stereotypical views of events.[5]

To motivate students' interest in topics that can be complex to understand, history teachers often rely on multiple teaching materials and media. AI can be used to automatically generate educational content and materials tailored to the specific characteristics of students and the learning objectives set by educators, allowing them to save time and effort in creating teaching resources for their classes. In this vein, AI utilizes advanced natural language processing and text generation algorithms to produce reports, presentations, concept maps, infographics, and audiovisual content tailored to students' profiles.

In addition to the risks mentioned above associated with this technology in the field of education, other challenges arise in the teaching of history:

- The automated creation of summaries, reports, and presentations may prevent students from developing specific, necessary research skills.
- The reduction of human interaction can diminish students' interpretive abilities and critical judgment of the topics under study. Teaching history is more than just transmitting information; it also involves interpretation, critical analysis, and the construction of

meaningful historical connections. In this context, AI can limit opportunities for debate, discussion, and deep understanding of historical events. For this reason, it is essential to strike a balance between the use of AI and the active participation of teachers and the group, ensuring an enriching educational experience for students.

- Machine learning models can be influenced by biases inherent in the training data, which can affect the interpretation and presentation of history.
- Most AI has been developed by private US companies that promote the system of production and reproduction of social life under the conditions dictated by the capitalist economy; it constitutes the premise and result of the prevailing mode of production. This implies that their interpretation of specific historical events will be biased from a hegemonic imperialist perspective.
- The AI platforms available on the internet were trained with content and data from universal history. However, their interpretation of national and local history is limited to very general topics, resulting in multiple errors in content and interpretation.

In contexts such as Cuba, where technological and economic limitations coexist with a growing interest in innovation, it is essential to explore AI applications that are adapted to local realities. An example of this is the increasing use of tools like ChatGPT among students, which necessitates a deliberate and strategic pedagogical response from educators.

This chapter presents a case study on the use of AI in creating historical educational materials for children. Through the production of an animated audiovisual presentation on the life of Marta Abreu de Estévez, an emblematic figure in Santa Clara's local history, a concrete example of technological integration in environments with limited resources is illustrated. The account details the methodology employed, the AI platforms used, the results obtained, and the pedagogical reflections derived from this process. The aim is to provide a replicable model for teachers and institutions interested in harnessing the potential of AI while maintaining a focus on its ethical and educational dimensions.

DEVELOPMENT

To examine the use of AI in the development of educational media and resources, we chose to create audiovisuals using this technology, as these are social media that allow knowledge to be transmitted; help make instruction dynamic, accurate, clear, and adapted to the specific characteristics of students; and facilitate understanding of the content developed in class.[6]

Studies have shown that through hearing, 20 % of the information that reaches the receiver is converted into knowledge, 70 % is converted through sight, and the remaining 10 % is converted through the other senses (taste, smell, and touch).[7] That is why this resource, by combining several of the senses, achieves faster and more effective learning, resulting in more solid and lasting knowledge over time.[8] In addition, audiovisual media capture the audience's attention and lighten the information they convey; in this way, the content becomes more engaging, thus facilitating the understanding and appropriation of the message by the intended recipient.

Various studies conducted on the educational applications of audiovisual media have shown that the appropriate use of such media can yield the following results:[9]

- Increasing the effectiveness of the teacher's explanations.
- Presenting a process in a sequential manner, as well as analyzing the relationship between the parts and the whole in a model or process.
- Help develop skills and attitudes because they require comprehensive processing of the information they contain.
- The use of images allows abstractions to be presented graphically, facilitating comparisons between different elements and helping to analyze different phases of complex processes in detail.

- They have a strong motivational character. Audiovisual montages can produce an emotional impact that generates favorable feelings toward learning, stimulating the student's attention and receptivity.
- They can be used as a recreational resource where learning takes place in an enjoyable and entertaining way.
- Images provide experiences that would otherwise be completely inaccessible, helping to better understand the past or see realities that are not usually accessible.
- They introduce students to audiovisual technology, which is an important component of modern culture.
- They encourage participation, interest in a topic, and critical thinking in debates related to the audiovisual information presented.
- They facilitate discovery learning, as the use of images allows for comparisons and contrasts to be made in order to establish similarities and differences.
- They develop creativity, allowing students to practice the integrated use of materials and avoiding rote learning.
- They help students to better understand themselves and their environment, as the completion of an audiovisual project can be the starting point for analyzing some of the issues that concern students, as well as the relationship they establish with their social and natural environment.
- They can be a resource with evaluative functions. Through audiovisuals, students can be presented with specific situations and phenomena, which may be real or simulated, and through individual or collective discussion of what has been viewed, the students' knowledge, skills, and attitudes are evaluated.

However, audiovisuals have been a challenge for educators, as their production requires significant material and technological resources (sets, costumes, makeup, recording and sound equipment, computers for editing, among others), as well as qualified professionals in audiovisual production (scriptwriters, actors, announcers, editors, producers, sound engineers, etc.). This has an impact on the production cost. That is why, in most cases, the use of audiovisuals in education has been based on the viewing of films or documentaries made for cinema or television in class, taking advantage of the informative and educational potential that these resources can offer. Although production companies such as Cinesoft have dedicated themselves to producing educational audiovisuals, there are still few examples of materials of this type that meet the objectives set out in a teaching program.

AI has made the process of creating audiovisual materials more affordable, enabling the meeting of all requirements that previously required special conditions and various professionals, with minimal time and technological resources. Although the artistic results will not be the same, they can contribute significantly to teaching processes.

Selection of audiovisual themes

Marta de los Ángeles Abreu Arencibia was born in Santa Clara on November 13, 1845. During the 19th century, supported by her husband, Luis Estévez Romero, and her sisters, Rosa and Rosalía Abreu Arencibia, she undertook various social welfare projects aimed at the economic, social, and cultural development of the city of Santa Clara. Among the works carried out by this illustrious lady are: schools and a dispensary for poor children, four public laundries aimed at improving the quality of life of local women, the La Caridad theater, a power plant, an astronomical-meteorological observatory, among many others.

Marta Abreu also stood out for her patriotic work during the War of 1895. From exile, she contributed to fundraising for the Cuban Revolutionary Party, aided Cuban prisoners, helped deportees, and bribed Spanish ministry officials to obtain information that she communicated

to the Cuban delegation.

In order to test how AI can be used in the creation of educational audiovisuals, the figure of Marta Abreu de Estévez was chosen because she is a prominent personality in the local history of Santa Clara and also played a significant role during the War of 1895, so that through her story, aspects of both local and national history can be analyzed.

METHOD

The following steps were taken to produce the audiovisual materials:

1. Planning of the chapters by content, themes, events, and historical periods.
2. Writing the script for each chapter.
3. Selection of historical images, events, places, and figures described in each chapter, using sources from the documentary heritage.
4. Generation of cartoon images for each scene in the chapters, using AI based on the selected historical images.
5. Animation of the images generated with AI and historical images.
6. Generation of the narrator's voice and the characters' voices.
7. Composing lyrics to create songs that narrate the topics covered in each chapter.
8. Generation of songs and music for the audiovisual soundtrack using AI.
9. Editing of the episodes.

The audiovisual series was planned for five capsules or chapters, each lasting between 5 and 6 minutes, organized as follows:

1. "The girl full of kindness": Period from 1845 to 1854, Marta Abreu's childhood, her birth, family ties, the sugar industry as a source of wealth for her family, local context.
2. "Love blossomed": Period from 1862 to 1882, Marta Abreu's youth, outbreak of the War of 1868, the family's move to Havana, romance and marriage to Luis Estévez Romero.
3. "The light of Santa Clara": Period from 1882 to 1895, Marta Abreu's charitable works in Santa Clara, outbreak of the War of 1895.
4. "Everything for the Revolution": Period from 1882 to 1898, Marta Abreu's patriotic work, the contribution of emigration, the Cuban Revolutionary Party, Weyler's reconcentration, the US intervention, and the Treaty of Paris.
5. "Validity": Period from 1899 to 1909, last years of Marta Abreu's life, establishment of the Neocolonial Republic, the Platt Amendment, Marta Abreu's legacy to Santa Clara.

To develop the scripts, information on the life and work of Marta Abreu was compiled for each of the stages outlined in the plan, using the following bibliographic sources:

- Camacho, P. D. (1947). Marta Abreu: Una mujer comprendida. Editorial Trópico.
- García Garofalo Mesa, M. (1925). Marta Abreu Arencibia y el Dr. Luis Estévez y Romero: Estudios biográficos. Imprenta La Moderna Poesía.
- Martínez, F. (1951). Marta Abreu y Arencibia: Biografía de una mujer excepcional. Editorial Lex.
- Ramos García, F. A. et al. (2019). Marta Abreu, Life and Legacy: Chronological Album. Editorial Capiro.
- Veitía Ferrer, A. (1947). Marta G. Abreu: The sublime Cuban woman. Lex Publishing House.

The ChatGPT platform was used to create the script, entering the following Prompt into the application:[1]

[1]Prompt se define como a una solicitud o estímulo diseñado para guiar la interacción entre un sistema de IA y un usuario durante un servicio de atención al cliente automatizado.

I am producing a series of audiovisuals dedicated to the life and work of Cuban patriot and benefactor Marta Abreu de Estévez. The videos will be cartoons and are intended for a children's audience. I am sending you the information needed to write the script for the episode (episode number) in a .txt file. Please use that information to write the script for the episode. Keep in mind that the narrator of the story is a child. The episode should last 5 minutes.

ChatGPT was asked to produce several versions of the script for each episode, which were then reviewed and revised to accurately reflect the historical content and human values that were intended to be conveyed.

The Shakker platform was used to generate the images for each scene. With this AI, combined with the Faces Wapper application, several historical figures were recreated in cartoons (see Appendices 1 and 2), including:

- Marta Abreu de Estévez.
- Pedro Nolasco González Abreu and Rosalía Arencibia Plana, parents of the protagonist.
- The sisters Rosa Beatriz and Rosalía Abreu Arencibia.
- Luis Estévez Romero, husband of Marta Abreu, lawyer, intellectual, Cuban patriot, and first vice president of the Neocolonial Republic.
- Julio Jover Anido, meteorologist and educator from Santa Clara.
- Ramón Emeterio Betances, Puerto Rican doctor and patriot, representative of the Cuban Revolutionary Party in France.
- Tomás Estrada Palma, delegate of the Cuban Revolutionary Party and first president of the Neocolonial Republic.
- Máximo Gómez Báez, Commander-in-Chief of the Cuban revolutionary troops in the War of 1895.

The PixVerse platform was used to animate the generated images, referencing the previously created images with Shakker and a prompt that outlined the guidelines and specifications desired for each animation. PixVerse provides 60 free credits per day to create videos from a reference image or text instructions.

To attract the attention of children, it was decided to use a child, a pioneer in grades 3 to 6, as the narrator of the story. To create the voice of the narrator and the characters in the audiovisuals, the TTSMaker platform was used, which allows text to be converted into speech. This application offers several styles of male and female voices, with different nuances and pronunciations, but it only provides adult voices. To create the impression of a child's voice for the narrator, it was necessary to alter the voice tone settings.

For the audiovisuals, we decided to employ a teaching strategy that involves repeating information to encourage viewers to memorize key elements. To achieve this, we had to find formulas that were appealing to children, while not compromising the duration and dynamism required in the audiovisual content. That is why two different resources were used. On the one hand, subtitles were used to highlight dates mentioned in the narration or to provide additional information that was not reflected in the narrative. Another resource used for this purpose was the creation of songs for each chapter. These songs summarize the main elements covered in the audiovisual narration in a way that is attractive to children and are included in the credits section.

The ChatGPT platform was used to write the lyrics for the songs, entering the following *prompt*:

Based on the following text, I want you to compose the lyrics for a children's song dedicated to highlighting the life and work of Marta Abreu de Estévez. (Information).

Once the lyrics were obtained, the Brev.ai platform was used to generate the music with the sung voice. This application was also used to generate the soundtrack and different audio

effects that complement the audiovisuals.

Once all the necessary elements had been generated using different AI platforms, the final editing and assembly of each chapter was carried out using Adobe Premiere software. In this regard, there are AI platforms that enable automatic video editing, which is much simpler than the one used in this case. However, these platforms require a large amount of bandwidth for the internet connection when uploading all the resources created with AI and downloading the videos once processing is complete. As the required bandwidth was not available, Adobe Premiere was selected, which does not require internet access to operate, but does require basic video editing skills.

RESULTS AND DISCUSSION

As a result, a series of five episodes on the life and work of Marta Abreu was produced. The audiovisuals convey elements of Santa Clara's local history, including the charitable works carried out by Marta Abreu, the uprising of San Gil on February 6, 1869, the impact on the city of Weyler's reconcentration, and the work of the Hermanas de Juan Bruno Zayas Revolutionary Club. Based on these particular elements of the history of this figure, the audiovisuals also present general elements of national history, such as: sugar production as the main economic activity during the colonial period, slavery, the wars of 1868 and 1895, social class differences in the 19th century, the role of emigration, the North Americ n intervention, the Treaty of Paris, the Platt Amendment, and the establishment of the Neocolonial Republic. These audiovisuals also highlight local heritage values by presenting the viewer with visual elements, monuments dedicated to Marta Abreu, as well as the city's built heritage linked to the life and work of this historical figure.

To assess their educational impact, an activity was held on February 27, 2025, at the Provincial Museum of Villa Clara, in which a total of 62 sixth-grade students participated: 20 from the "13 de Marzo" school, 28 from the "Fabio Fuente" school, and 14 from the "Hurtado de Mendoza" school (see Annex 3).

Once the students had watched the videos, a survey was conducted through a group discussion to evaluate the educational results of the audiovisuals.

All the students surveyed stated that they liked the videos and found the cartoons to be fun and easy to understand. Eighty-five percent said they learned new things about Marta Abreu and the history of Cuba.

When asked, "What did you learn?", 100 % responded that they learned about the life of Marta Abreu, 88 % about slavery in the colonial period, 90 % about the wars of independence, 98 % about Marta Abreu's social work, and 88 % about the US intervention. All said that the videos helped them better understand Cuban history and that they would like to see more videos like these at school.

When asked, "What values do you think the videos teach?", 100 % responded with patriotism and respect for diversity, 90 % mentioned solidarity, and 66 % emphasized heritage protection. Some mentioned other values such as humanism, compassion, solidarity, love of family, and camaraderie.

One hundred percent said they would recommend these videos to other children. When asked what they liked most about the videos, 100 % mentioned the story of Marta Abreu and learning about Cuban history, and 90 % said the cartoons. Some also mentioned the songs and characters.

When asked what they would improve in the videos, some students mentioned the narrator's voice, the animation of certain characters' gestures in specific scenes, and the synchronization of the narrator's lips with their voice.

Similarly, written surveys were administered to seven teachers from these schools. All consider the videos to be a valuable tool for teaching history to children, all believe that the

videos captured the students' attention, and they also stated that the students showed interest in the historical topics presented in the videos. All teachers also believe that the videos help reinforce values such as patriotism, solidarity, and respect for heritage. All consider the videos to be appropriate for the students' level of understanding.

When asked, "What aspects of the videos do you consider most valuable for teaching history?", 100 % of the teachers surveyed mentioned the historical information presented, 71 % mentioned the connection with local history, 57 % mentioned the cartoon format, and the same percentage mentioned the values conveyed. Additionally, one respondent mentioned the use of new information and communication technologies.

When asked: What aspects do you think could be improved in the videos? 42 % mentioned the depth of historical information, and 28 % said the length of the videos.

All consider that the videos can be a practical complementary resource for the history subject, and some suggested that this format could be used to address other topics, such as local history, the indigenous presence, the wars of independence, and the Battle of Santa Clara.

The production of these five episodes demonstrated that, using AI platforms, it is possible to produce educational audiovisuals of high quality and complexity. The history of a historical figure was successfully brought to life in a cartoon format, which, in its traditional form, would require a large number of film professionals, complex material, and extensive technological resources, necessitating a lengthy production and post-production process. However, with only two people with basic computer skills, a computer, and an internet connection, they were able to produce five episodes of this type of video in a short period of time. This demonstrates that AI can lower the cost of audiovisual production, which can be a valuable strategy for creating educational materials.

The assessments of the students and teachers surveyed indicate that the videos successfully captured the students' attention and motivated them to learn about the topics covered in the audiovisuals, thereby fulfilling the educational objectives set out in their production. The main shortcomings pointed out by the respondents are not related to the information conveyed or the way the video was structured, but rather to technical elements in the animation of the characters, the robotized voice of the narrator, and the synchronization in the editing process. These aspects are related to the limitations that AI still faces in performing certain activities that require human creativity. However, this did not impact the educational objectives outlined in this project.

CONCLUSIONS

This case study on the creation of educational audiovisual content using artificial intelligence has provided valuable lessons for teaching practice in contexts with limited resources. Experience shows that AI can become a strategic ally for educators, particularly in teaching historical content that requires creative and accessible approaches for young audiences.

The process of developing the five chapters on Marta Abreu revealed that the AI tools currently available make it possible to produce educational materials of remarkable technical and pedagogical quality with a fraction of the resources required for conventional production. What would traditionally require a multidisciplinary team and specialized equipment was accomplished with two people, a standard computer, and an internet connection, validating the potential of these technologies to reduce gaps in access to innovative educational resources.

The results of the implementation at the Provincial Museum of Villa Clara confirm that AI-generated materials can achieve high pedagogical effectiveness. The acceptance among students was remarkable, not only in terms of attention and engagement, but also in the acquisition of historical knowledge and civic values. Notably, 85 % of students reported learning new content, while teachers highlighted the videos' ability to connect national history with local context.

The limitations identified—especially in the naturalness of the voices and animations—point

to areas for technical improvement, but did not compromise the core educational objectives/. These observations are valuable for future implementations, suggesting the advisability of combining the strengths of AI with human pedagogical judgment in the post-production phase.

This specific experience suggests that the true potential of AI in education lies not in replacing teachers, but in amplifying their abilities to create personalized and contextualized materials. The case of the audiovisual materials dedicated to Marta Abreu illustrates how these technologies can help preserve and transmit local historical heritage, which is often neglected in standardized educational materials.

As a final lesson, this case study reinforces the need for educators to develop digital skills that enable them to critically integrate these tools into their professional practice, maximizing their benefits while mitigating risks such as algorithmic biases or technological dependence. AI thus reveals itself not as a magic solution, but as a promising resource when used with a clear pedagogical purpose and an awareness of its limitations.

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DECLARATION OF CONFLICTS OF INTEREST

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AUTHORSHIP CONTRIBUTION

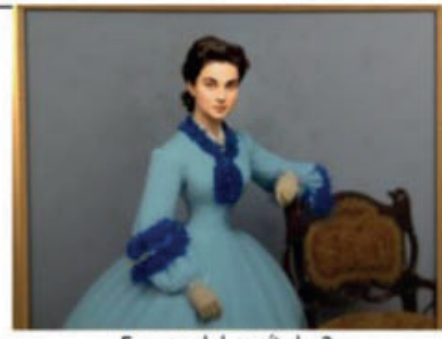
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Writing - original draft: Judiel Reyes Aguilar and Hedy Hermina Águila Zamora.
Writing - correction and editing: Judiel Reyes Aguilar and Hedy Hermina Águila Zamora.

USE OF ARTIFICIAL INTELLIGENCE

To carry out this research, the AI platforms mentioned in the paper were used to produce five audiovisuals on the life and work of Marta Abreu in order to assess the viability and impact of this technology in the production of effective teaching resources.

APPENDICES

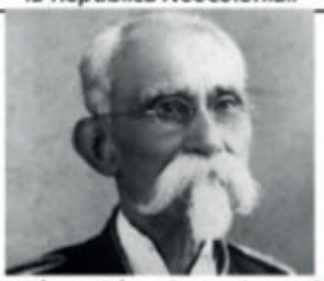
Appendix 1. AI-animated recreation of the different stages of Marta Abreu's life Marta Abreu

Fotografías originales	Escenas recreadas por IA
 Marta Abreu niña. Fotografía perteneciente a la Fototeca del Archivo Nacional de Cuba.	 Escena del capítulo 1.
 Retrato de Marta Abreu en su juventud. Fotografía de la Colección Marta Abreu Arencibia de Estévez, Sala Cubana, de la Biblioteca Nacional José Martí.	 Escena del capítulo 2.
 Foto de Marta Abreu en su juventud, publicada en el libro *Marta Abreu Arencibia y el Dr. Luis Estévez y Romero* de Manuel García Garófalo Mesa en 1925.	 Escena del capítulo 2.
 Retrato de Marta Abreu adulta.	 Escena del capítulo 4.

Appendix 2. AI-animated recreation of different historical figures

Fotografías originales	Personajes recreados por IA
 Rosalía Arenciba, madre de Marta Abreu. Foto publicada en *Homenaje de Villaclara a Marta Abreu de Estévez* en 1895.	
 Pedro Nolasco González-Abreu, padre de Marta Abreu. Foto publicada en *Homenaje de Villaclara a Marta Abreu de Estévez* en 1895.	
 Rosa Beatriz Abreu Arencibia, hermana mayor de Marta. Retrato publicado en *El Mosaico* el 29 de octubre de 1893.	
 Rosalía Abreu Arencibia, hermana menor de Marta. Foto publicada en «Homenaje de Villaclara a Marta Abreu de Estévez» en 1895.	

Fotografías originales	Personajes recreados por IA
 Luis Estévez Romero, esposo de Marta Abreu. Foto publicada en *Homenaje de Villaclara a Marta Abreu de Estévez* en 1895.	
 Pedro N. Estévez Abreu, hijo de Marta Abreu y Luis Estévez. Foto publicada en *Homenaje de Villaclara a Marta Abreu de Estévez* en 1895.	
 Catalina Laza, primera esposa de Pedro N. Estévez Abreu.	
 Julio Jover Anido, meteorólogo santaclareño.	

Fotografías originales	Personajes recreados por IA
 Ramón Emeterio Betances, revolucionario puertorriqueño, representante del Partido Revolucionario Cubano en Francia.	
 Tomas Estrada Palma, delegado del Partido Revolucionario Cubano y primer presidente de la República Neocolonial.	
 Máximo Gómez Báez, General en Jefe de las tropas revolucionarias cubanas en la Guerra de 1895.	

Appendix 3. Video debate held on February 27, 2025, at the Provincial Museum of Villa Clara with students from the "13 de Marzo," "Fabio Fuente," and "Hurtado de Mendoza" schools in Santa Clara

