

LINGUISTIC ADVENTURE IN BUCARAMANGA COLOMBIA

A videogame to discover and learn English while exploring our city

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ABSTRACT

Creative Cities is a rapidly growing global concept that promotes cities that embrace creativity as a key factor in their sustainable urban development. In these cities, culture is not merely a decoration, but a driver of innovation, social inclusion, and economic growth.

One example is this adventure video game project set in a historic city, where players solve puzzles and complete missions to advance the story. As they explore the city and interact with local characters, they learn English vocabulary and grammar. The project is aimed at first-semester students at the Technological Units of Santander, who reinforce their language skills in a safe environment, guided by a narrative aligned with the course's subject matter.

Preliminary results show a positive response: students appreciate practicing English in a fun and motivating way. The project demonstrates how Creative Cities drive educational innovation through emerging technologies.

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1. Introduction

The discussion about implementing video games in educational settings has gained relevance, revealing their potential as versatile tools for addressing learning deficiencies. In this context, we propose creating a video game that reinforces English learning, especially considering the difficulties students face when they reach the first university level. This video game would offer a safe environment in which to practice the language, guiding students through a story related to the course units.

For efficient development, a mixed research approach was used, combining qualitative and quantitative methods. A survey was applied to collect data on the students' knowledge, and these data were analyzed in order to improve the video game and address the gaps identified. The SCRUM methodology was implemented to ensure agile and effective development, creating a video game that is both engaging and useful for the classroom. Finally, students from the Technological Units of Santander in Bucaramanga, Colombia were surveyed to assess their satisfaction with and reception of the project, underscoring the importance of the video game as an educational tool for teaching English against the cultural backdrop of the creative city.

2. Development

The project was carried out through mixed research, combining qualitative and quantitative methods and using surveys to collect data on the phenomenon studied and its target audience. During the implementation of the video game, data on the effectiveness of the mechanics and on student satisfaction were analyzed. The agile Scrum methodology was applied to manage development in a collaborative and iterative way, dividing the project into four four-week stages, with continuous deliveries to ensure steady progress.

This video game for learning English, which incorporates the history of the city with a background linked to creative cities, is especially valuable from both an educational and a cultural standpoint. This approach offers an immersive experience that not only facilitates language learning but also promotes knowledge of history and cultural heritage, which is crucial for creative cities.

3. Sprint 1: Diagnosis

In the first sprint, first-level A2 English students from the Technological Units of Santander were assessed through a 13-question survey aligned with the framework of the Language Department. The aim was to identify their level of English comprehension before taking the subject, revealing that approximately 57% of the students answered incorrectly, which confirmed the problem raised regarding the students' initial level.

Learning English within the context of a creative city not only improves knowledge of the language but also fosters an appreciation of cultural diversity. Players discover how creativity, innovation, and art are intertwined with a city's identity, which broadens their global perspective.

4. Sprint 2: Design

In the second sprint, work focused on the design and development of the 2D video game's resources. The main concept, the pixel-art visual style, the narrative, the methods to be used, and the topics to be introduced were defined, ensuring that they were aligned with the curriculum in order to foster effective learning. Tests and research were also carried out to assess the feasibility of the proposed mechanics, with the guidance of a teacher. It was decided to implement quiz-type questions, sentence-ordering exercises, and a memory game to practice vocabulary.

The design stage makes it possible to integrate content that fits the English curriculum, ensuring that the video game is an effective tool for learning the language. The game

mechanics can include exercises to improve English vocabulary, grammar, and comprehension, using the city's historical and creative context as a framework for learning.

Figure 1. Video Game Design Kit



Source: Own elaboration, 2026.

5. Sprint 3: Development

In the third sprint, the video game's code was developed, including player movement and the creation of scenarios, obstacles, and enemies, following the mechanics approved in the previous sprint. Basic functions such as controls, scene changes, animations, and level mapping were programmed.

In addition, quizzes were implemented as in-game challenges, and a system of lives and points was designed to motivate students to improve their performance. Tests were carried out to ensure that the video game worked correctly in terms of performance, playability, and dynamism.

At this stage, the immersive experience that facilitates learning through active practice is developed. Users interact with the environment, characters, and challenges in English, which reinforces their ability to understand and produce the language in real situations.

Figure 2. Video Game Level Design.



Source: Own elaboration, 2026.

6. Sprint 4: In-depth Analysis and Outreach

In this sprint, an outreach session was held with young students about the game and its creation, covering the different aspects that come together in its implementation in class. It was presented as a tool to support vocabulary learning and to reinforce the topics normally addressed in class, teaching students the various mechanics so that they could start playing

and providing them with context about the story presented within the game. Likewise, after the young people tested the video game, a satisfaction survey was conducted in order to gather their opinions on how useful or motivating the game had been for their learning.

As a result of the analysis, it was found that the students felt motivated by the music, the sounds, and the intuitive interface, expressing this with phrases such as “It is quite a different and fun methodology for learning.” This was reflected in the statistics obtained: playability, for example, achieved a 93.3% approval rating, with students considering it very useful for their learning.

Figure 3. User Testing of the Educational Video Game.



Source: Own elaboration, 2026.

7. Results

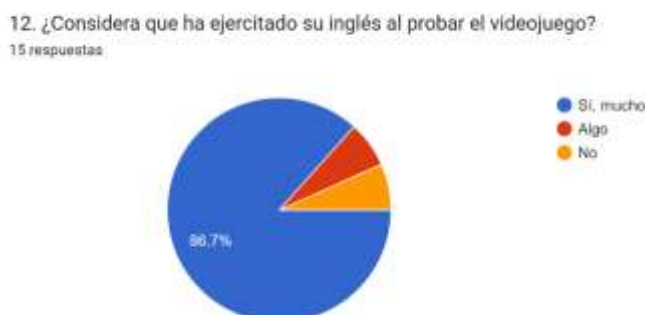
Thanks to conducting continuous tests to ensure that the game mechanics and the educational content were effective, we were able to show that the video game is not only entertaining but also a useful resource for learning English in a dynamic, fun, and relevant way.

The project's results show that the main objectives were achieved, providing a practical and effective tool for educating young students. The video game reinforced English learning, as evidenced by the research instruments. A survey revealed that 57% of the students answered incorrectly, highlighting the problem in their initial level of English.

The video game was developed as an innovative methodology that offers an alternative to traditional forms of learning.

Through an outreach session with students, possible errors that might occur were tested and checked, all of which the video game passed successfully. When the students tried the game and its mechanics, they were asked to complete a satisfaction survey about the game, in which a significant percentage—approximately 86.7%—considered it useful for practicing their English while using it, as shown in the following illustration.

Figure 4. Survey Results.



Source: Own elaboration, 2026.

8. Conclusions

The development of the 2D pixel-art video game was approached as a teaching resource to improve the pace of classes and to facilitate learning, as well as the retention of concepts, among students taking English for the first time at the Technological Units of Santander. After conducting a diagnostic survey of the young students, it became clear that they face difficulties in understanding and answering questions in English. This confirms the need to improve their command of vocabulary and grammatical structures, since 57% of respondents obtained poor results. More practice and greater clarity regarding the language's grammatical structures are therefore required.

Based on these results, the areas of greatest weakness were identified. To address them, key questions and exercises were created that allow young learners to improve their understanding of the language while practicing what they have covered in class. These resources align with the subject's curriculum and are accompanied by the proper support of a trained teacher. In addition, a video game was developed that encourages the acquisition of knowledge through entertaining mechanics and striking illustrations, providing an enriching experience for the end user. Likewise, relevant tests were carried out for each of the functions implemented in the video game, ensuring that they are effective and of high quality and managing to catch as many errors and setbacks as possible that might otherwise compromise its execution; these tests were performed periodically with each update and yielded positive results.

After presenting the video game to the young students, they were instructed on the different challenges they would encounter in the game, as well as on the units it covers, contributing to their learning process. They were also shown how to navigate the different levels, use the tools, and meet the requirements to enjoy a satisfying gaming experience. The results were positive, with good performance in the game and notable enthusiasm for trying it.

Likewise, a satisfaction survey was conducted, in which the students expressed "It is quite a different and fun methodology for learning," reflected in the 100% of respondents who rated the gaming experience as excellent. It also achieved a high rating for its playability mechanics, at 93.3%, showing that the video game was deemed intuitive by 100% of respondents and that, likewise, 93.3% considered it relevant to their learning.

The video game has proven to be a useful tool in the learning of university students in their initial English stage. The collection and analysis of data from the first survey support its effectiveness. Moreover, overcoming the technical challenges lays the groundwork for future research on the implementation of video games in classrooms as indispensable tools.

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