Echo of Ancient Mosaics

Gesamtkunstwerk

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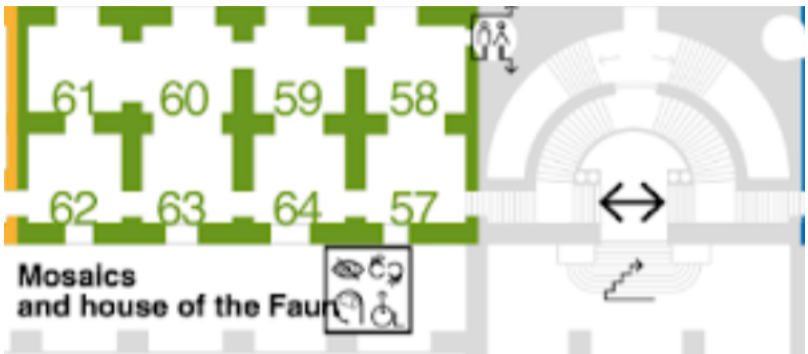
1. The Context

The museum and its content / collections

The National Archaeological Museum of Naples (MANN) is considered to have one of the richest collections of ancient art in the world. The Museum has one of the richest collections in Southern Italy. Particular attention is paid to artefacts from Pompeii, Herculaneum and other cities destroyed by the eruption of Vesuvius in 79. The exhibits include mosaics, frescoes, sculptures, household objects and inscriptions, providing a unique insight into the daily life of ancient Romans, as well as Egyptian and Greek, numismatics and epigraphy collections. The museum covers everyday life, mythology and ancient culture. Among its most outstanding holdings is the well-preserved mosaic collection, which is the centre of our project.

The location and its map/plan

The museum is located in a historic 17th-century building of the former university in the center of Naples, and can be easily accessed by visitors on foot and by transport. The interior is organized by themes and historical eras, the collections are arranged by halls (Farnese, Egyptian, Mosaics, etc.), while the courtyard can be used for temporary exhibitions and events. The museum has detailed maps and signs to help visitors navigate inside. The mosaic collection is located on the first floor, to the right of the stairs, and marked in green on the museum map[1].



Institutional Goal

The institutional goal of our project is **to increase international reach.**
An analysis of the mosaics section on the website of the Naples Archaeological Museum revealed that didactic materials about the works are available only in the Italian version of the site and exclusively in the Italian language [ссылка]. As a result, users who do not know Italian and are looking for a reliable source of information about the mosaics are currently unable to access such content, as no descriptions are provided in English.

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[1] https://museoarcheologiconapoli.it/wp-content/uploads/2021/08/mappa-EN_per-visita.pdf

Considering that reading long descriptions about mosaics can often be tiring and may reduce users' motivation to continue engaging with the extensive collection, our team proposes the use of a game format. This solution not only addresses the lack of English-language content but also enhances visitors' experience by making the process of familiarization with the mosaics more engaging and interactive. A mini-game, to be implemented on tablets and located in the mosaic gallery, will present information in an entertaining format, making it accessible to English-speaking visitors. In the future, additional languages should be included, which will further expand accessibility and foster a more inclusive and international museum environment.

Addressing the institutional mission of the the Naples Archaeological Museum that is articulated in Article 2 ("Mission") of its official statute, it can be found:

— "The Museum guarantees the protection, enhancement, and **accessibility** of the cultural heritage under its responsibility, ensuring and supporting its conservation, **promoting its knowledge among the public and the scientific community, and encouraging its collective fruition**"
— "the organization of exhibitions, the promotion of coordinated scientific research and the communication of such activities to the public, **pursuing an active participation of the scientific community and citizens**" (Museoarcheologiconapoli.it, 2025).

By providing an interactive and multilingual approach to engaging with the museum's mosaic collections, our project corresponds to the museum's mission; it contributes to enhancing public access, participation and educational impact.

Cognitive Goals

One of the main cognitive goals of the project is **Concentration & Distraction**, which means maintaining visitors' attention on one subject for a certain period of time. Today, museum fatigue is very wide-spread among ordinary people, as the numbers of the objects displayed is high, and they are usually displayed in a monotonous way. Besides, texts that describe the exhibits are long and hard to understand, so they provoke informational overload. (Bitgood, 2009)

The project also serves as a guide for the mosaic collection. The studies show that visitors using the guide tend to stay in the museum longer, view a larger percentage of artworks, and do not show viewing time decreases. (Robinson, 1928)

Therefore, implementing this digital project will help visitors to distract from the monotony of the museum exhibitions and raise their ability to concentrate after completing all the tasks due to switching activities. To keep participants' attention, we included tasks with clear explanations,

rewards, audio files, game-like design, and physical movements tasks (such as walking up to a certain exhibit). All these features will help to keep visitors' attention on both, participation in the project, and exploring the exhibition. We believe keeping visitors' attention on the mosaics for a certain period of time while completing the tasks will solve the problem of satiation, which is a decrease in attention. Satiation can be noticed by analysing viewing time or percentage of stops to view. Our goal is to increase both indicators by making visitors interact with the exhibits.

Another cognitive goal of the project is **Authenticity**, as our goal is to create an experience that feels emotionally engaging and personally meaningful for visitors. For example, we let visitors interact with real historical content, such as ancient mosaics. These elements trigger prior knowledge and develop a sense of familiarity.

By combining digital features with the space of Pompeii, the project creates emotional presence and a more convincing atmosphere. The historical setting adds gravity and authenticity to the interaction. Being aware of the setting and relying on real objects, makes visitors feel comfortable and secure, giving them an opportunity to use their knowledge, memory and recall, which leads to better understanding of the project.

Besides, the interface of the project and main character's appearance can remind people of online personality quizzes or interactive story games, which destroy barriers and support emotional bonding with the experience. The atmosphere is achieved by means of visual and audio effects, the project is implemented in the same style, with integrated vintage-style pictures and light, calm colours. The main character of the project, whom visitors are invited to help, triggers empathy and creates a sense of shared experience. Watching the character react to visitors' choices, can stimulate emotional responses.

Curiosity is also one of the key cognitive goals in our project. Considering the theoretical basis that curiosity manifests as a desire for knowledge, a search for sensory experience, and corresponding exploratory behaviour (Berlyne, 1978), we embedded these elements into the game narrative and its implementation.

From the very beginning, the game's plot involves the user into a story (a kind of interactive visual novel) with the presence of the main character, who needs help, asks to complete tasks, to explore the museum rooms and understand what will happen after completing all the tasks. Thus, there is a knowledge gap that the user is motivated to close, to reveal what it will all lead to.

This motivation is sustained by a forward state of curiosity: as a trigger during the game the user has an extent of uncertainty trying to solve all the puzzles reducing this uncertainty, coping with the intrigue at each of the next appearing game steps.

Immediately after a successful solution of a task, the player receives a reward (according to the plot it is a unique glowing tessera) together with a brief piece of contextual explanation. Thus, there is a positive reward loop that reinforces information seeking behaviour with getting knowledge and applying it to the gap (Murayama, 2022).

The game also includes curiosity triggers such as novelty (the task and reward are new every time), unexpected elements (the atmosphere of the game can keep in suspense in combination with light

and audio effects), usefulness (according to the plot, the player knows that he is helping the main character; the player uses own knowledge and skills and feels the effectiveness of the actions).

PACT framework

Summarising the goals and idea formation, it is worth mentioning that the project is based on the PACT framework (People, Activities, Context, Technologies).

Elaborating the '**People**' aspect, the target audience is thought out with a focus on international reach and the adaptation of the game to a flexible age range, now in English, which is an international language, but in the future with access to other languages. Several cognitive goals are also considered to maintain balance and not to make the experience overwhelming.

In terms of '**Activities**', there were several things to focus:
- Scope & Goal: the project aims to turn passive viewing into an active game, where education and engagement are interconnected.
- Time: each game task should not take a lot of time so as not to let the visitor be tired or bored.
- Co-operation: designed for one tablet per person but participants can discuss the ideas during the process, there are no very strict competitive restrictions.
- Complexity: there are clicks and steps in game design with some contextual hints.
- Security: no personal data or devices needed; progress stored locally, synced anonymously on museum Wi-Fi.
- Reward: every task assumes internal game reward and educational interesting facts; final resolution and bonus content in the end.

As for the '**Context**': the physical aspect assumes that the experience is restricted in clear thematic space: only particular Mosaic Hall on the 1st floor; thematic effects as low lighting, light and sound for the atmosphere; as for the social context: free visitor flow; curators; and the organisational perspective: museum aims to broaden international reach and spotlight mosaics.

The Technology is mainly realised with the Twine program for the game development and tablets for its usage; there are some additional instruments as light and sound equipment.

Star Assets
As our goal is to focus on the mosaics, there is a must-see exhibit in the collection of the museum. The most famous mosaic of the museum is Mosaico di Alessandro, a floor mosaic, discovered in the House of the Faun in Pompeii, one of the largest and most luxurious residences in the ancient city. The mosaic depicts the famous Battle of Issus (333 BCE) between Alexander the Great and Darius III of Persia. The artist portrayed Alexander on horseback, while Darius is shown reaching out for him in desperation.

2. The audience

The target audience for this project is foreign visitors/tourists, as that is closely connected to our major goal, increasing international reach. For this reason, our project provides a user-friendly experience for those who do not fluently speak Italian. Naples and the nearest area are popular among international tourists because of the history behind and many archeological artefacts found in Pompeii.

However, a major part of the content on the museum website is available only through the Italian version and in Italian only. This creates a huge problem for the people eager to learn more about the mosaics stored at the museum. Therefore, out goal is to break down this language barrier and let the audience to have a full and equal experience while visiting the exhibition.

Motivations

As for the motivations, the project focuses on the tourists moved by **Curiosity** and interest for **Time Travelling**. For the majority of the audience the visit to the museum might be an ordinary experience, as they do not expect to see anything in particular. Therefore, this project may come as a pleasant surprise, which can help make thor experience more interesting and exciting. Instead of simply looking at the artefacts, the audience now will be able to establish a deeper connetion with mosaics and learn more about them in a less energy-consuming way.

As the museum is widely known for its Pompeii collection, one can assume that tourists are interested in this historical event and look forward to learning more about it. Therefore, the visitors might enjoy a time travelling experience, which would let them use their imagination and make the visit more intriguing.

Barriers

The most evident potential limitaion of the project might be **Accessibility**, **Educational Disadvantage** of some visitors, and **Low Self Esteem**.

Firstly, not all visitors may be able to interact with the project in the same way due to some physical impairments. The project is primarily visual and auditory, as it uses illustrations, animations, drag-and-drop interactions, and such sound elements as music clips. While this approach creates an immersive experience, it can have potential barriers for others.

Secondly, the project relies heavily on cultural, historical, and geographical references, rooted in Roman and Greek mythology and history. Therefore, it can be less enjoyable for visitors with limited background knowledge of the subject. However, we tried to make the tasks rather easy and accessible to everyone by giving hints and additional explanation.

Another problem might me Low Self Esteem, as the museum might be too crowded for some visitors. Some might also avoid interacting with tasks, as they fear they will make too many mistakes and feel embarrassed. To provide a more comforting experience, we chose not to give scores to the participants and give people as many tries to solve the tasks as they might need.

Capabilities

To take the most out of the experience with the project, the visitors might need to be familiar with **Computer Gaming**, and using **Websites and Mobile Apps**.

As the project involves interactive tasks, drag-and-drop activities, and other features that resemble gaming structures, visitors who have prior experience with digital games will be more comfortable with the format.

Some tasks in the project may require looking up additional context to understand historical or mythological references, or solve ciphers. Therefore, visitors with experience of browsing websites will be able to easily find all the information needed and solve the tasks faster than others.

The project is designed for tablets that visitors will receive inside the museum. Although the app will be already downloaded to devices, familiarity with apps interface will help users move between sections faster, easily activate interactive content, and access additional resources needed.

Devices

The central idea of the project is to give everyone an opportunity to get a full experience while visiting the museum. For that reason, museum workers will distribute tablets among the visitors to participate in the project. This will help to solve many problems, that may appear if visitors will be using their own devices: unstable Internet connection, limited access to the Internet due to visiting another country, using a device that might not support the interface, etc.

3. Concept

Problems we are facing with the project

The main obstacle in carrying out this project is meeting logistical and budget requirements.

First of all, it is necessary to obtain the museum’s formal agreement to introduce additional equipment, such as tablets, earphones, light and sound engineering. This might contradict with the perspective of the museum officials. Another major factor is budget considerations, as the implementation of the project requires purchasing or renting devices (tablets/earphones), setting up charging stations and technical support, as well as potential software licensing and maintenance costs, along with hiring additional staff.

Another key issue is rising visitor engagement. The project might seem time-consuming, especially during a short museum visit. Some visitors might assume the project is designed for children and not intended for them. On the other hand, others may find tasks too challenging, particularly if they are unfamiliar with Roman culture.

How the project will face the problems

To introduce the project via a powerful presentation with the idea pitch that should be organised with the museum representatives. The presentation and introduction should cover aspects of the presence of language access problems, advantages of game format; budget calculations and benefits from the implementation; ideas for sponsorships. Arguments of usage of tablets for other projects can be used.

Project well-thought announce and advertisement activities help to stress right opinion about the duration of the experience, its complexity and age perceptions, as for example, showing that different people may cope with it in a flexible way and time amount; with a help of assistance; or with the idea that tasks and emotions have no age limits and even adults may be allowed to have fun or to focus more on curious solutions of puzzles.

Museological approach

The project is framed in 'Hybrid museum experiences' that is inspired by New Museology, as it shows how museum experiences can be done in an interactive way combining physical presence at the museum and usage of tablets with the game on the bases of physical museum objects, with the attention and balanced elaboration in the categories of people, context, activities and technologies (PACT framework).

Human Centred Design features are used in the core of the project with the attention to the cognitive goals during the interaction with the software of the game that is done with hints, intuitive understanding and pleasant colors and pictures, making the process of interaction user-friendly and accessible to even with minimal skills.

Specific themes and topics you have selected as case study for your PW

For our project, we decided to focus on one specific museum collection — the mosaic collection. This choice was made because the mosaics at the National Archaeological Museum of Naples are not only among the most iconic and visually striking artifacts from ancient Pompeii and Herculaneum, but they also offer rich storytelling potential. These works preserve scenes of mythology, daily life, and historical events in extraordinary detail, allowing visitors to connect directly with the ancient world through vibrant imagery and craftsmanship.

Besides, during the preparation to the project, the official website page with digital projects of MANN was analysed and helped to reveal such key ideas for our project as: game format, video with elements of cartoon/imaginary details, story/novel plot format . These various formats of digital activities about other collections helped us to find a way to present a mosaic collection

without repetition of the same ideas but with elements that were already appreciated by museums' visitors in the past.[2]

4. Requirements

The project has a number of requirements set to achieve all the goals, chosen with the help of MoSCoW method.

Must:

— Implement an interactive storytelling system with user choices;
— Provide an English-language interface, with potential multilingual expansion;
— Ensure mobile accessibility (tablet-based experience), provide gadgets to visitors;
— Include historically accurate content and visuals from Pompeii (mosaics, 3D models);
— Align with museum permissions, ensuring low disruption;

Should:

— Feature a central character whose emotions and reactions respond to user decisions;
— Align visual identity with formats familiar to visitors, such as interactive story game aesthetics;
— Include progress saving in case of interruption, being able to return to previous steps;
— Ensure the experience can be finished in 15–30 minutes;

Could:

— Enable multiplayer interaction for small groups or families;
— Offer a personalization feature (name input, choosing avatar/character);
— Be accessible to people with physical impairments;
— Feature a bonus digital reward, such as a virtual postcard or screenshot of their achievement/ score;
— Be accessible through visitors' personal devices, allowing them to continue their journey after the visit;

Won't:

— Require constant live internet connection throughout the experience;
— Include complex tasks or difficult gameplay that could frustrate casual users;
— Present content only in Italian, as the project aims to increase international reach;
— Require user registration or login to access experience;
— Require continuous supervision from museum staff.

5. Ideation

Experience

This digital experience is a multimedia quest through the collection of mosaics of the National Archaeological Museum of Naples, for which visitors will receive tablets and headphones.

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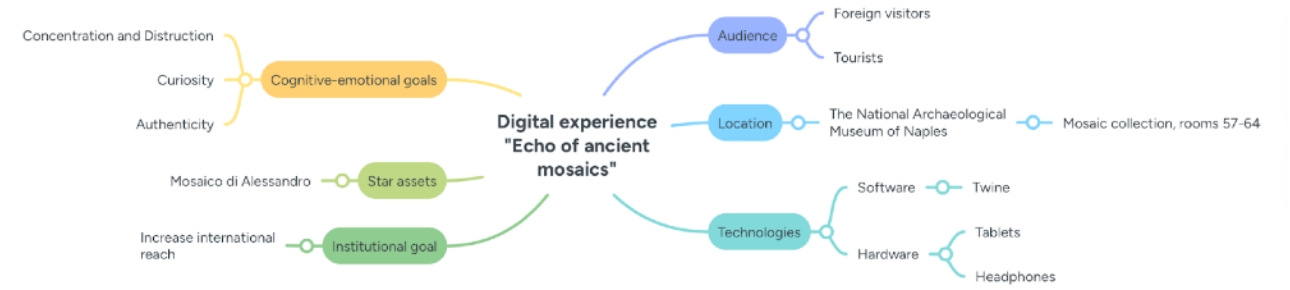
[2] https://museoarcheologiconapoli.it/itinerari-digitali/

According to the plot of the game, visitors will meet the spirit of an ancient Roman youth, who, due to mystical circumstances, is stuck between worlds. To help the character, players must, moving from exhibit to exhibit, solve various puzzles and other tasks. For this, they receive virtual rewards - mosaic fragments, magical tesserae, which will help them in the final.

To avoid tiring the audience and keeping them from getting bored, the experience includes a variety of task types: intelligence tests, work with maps, quizzes with audio, etc. The game also provides for different levels of immersion in the mosaic theme. After each stage, the visitor can either simply continue moving along the plot, or be distracted by studying detailed information about a particular exhibit that interests them.

Conceptual map



The story

https://github.com/romashovar/echo_of_ancient_mosaics/blob/main/ECHO%20OF%20ANCIENT%20MOSAICS.html

https://github.com/romashovar/echo_of_ancient_mosaics/blob/main/ECHO%20OF%20ANCIENT%20MOSAICS.twee

Description of the interaction between the application and the users

The multimedia quest unfolds simultaneously in the virtual space and in the real halls of the museum. Visitors are given tablets and headphones. As they progress through the story, visitors also move from hall to hall, from mosaic to mosaic. To solve problems, they also often need to study real exhibits in search of an answer. They follow the story, receive tasks and enter answers to them on personal tablets. During the game, they will also have to interact with multimedia elements on the tablet: look at pictures, listen to audio, study a 3D model, etc.

START

Visitors enter the room where the experience begins and receive tablets and headphones

The digital experience begins on tablets: visitors are introduced to the plot's premise and drawn into the game

During the digital quest, visitors move through the museum halls from exhibit to exhibit and complete tasks, interacting with both the application and real objects.

After all the steps, the audience will see the denouement of the story: having collected all the intermediate "rewards", they will help the main character of the game solve his problem.

At the end, participants hand over their equipment to the curators, after which they can return to the exhibits that interested them or complete their visit to the collection.

END

Foreseen workflow

The development of the digital experience prototype included:

1. **Initial analysis of the collection.** Compiling a list of mosaics suitable for inclusion in the route.
2. **Defining the target audience.** Analysis of age, language, and behavioral characteristics of museum visitors. Deciding who the final project will be focused on.
3. **Historical and scientific preparation.** Collecting and structuring content: description of mosaic plots, origin, style, context.
4. **Developing a narrative.** Creating a script (including goals, motivation, dialogues), thinking through the reward system and the finale.
5. **Creating interactive tasks.** Detailed description of quizzes, logic puzzles, mini-games, etc.
6. **Prototype design.** Developing a prototype of the application and its visual identity, creating a prototype of the story in Twine, collecting and producing the necessary multimedia content (images, video, audio, etc.).
7. **Testing and revision.**

When implementing it in a museum in practice, the following will also be needed:

8. On-site testing.
9. Preparation of staff and exhibits.
10. Pilot launch.
11. Official launch.
12. Further monitoring, analysis and development. Content update if necessary.

Set-up

1. **Hardware**: visitors are provided with tablets and headphones.
2. **Software**: digital quest prototype runs on Twine, an open-source tool for creating interactive, nonlinear stories, often used for games, storytelling, and educational experiences without requiring coding knowledge.
3. **Media**: high-quality images of mosaics, pictures of the main character of the game, other graphics and design elements for tasks, audio, 3D models.

Further development and maintenance issues

1. **Updating content.** New exhibits or temporary exhibitions may require adapting the script or route.
2. **Maintaining user interest.** Perhaps, for repeat visits and attracting new audiences, it is desirable to create new quests, levels, storylines, and expand the game.

6. Disruption

1. **Technical support for equipment.** Tablets and headphones require regular maintenance, charging, software updates. There may also be problems with Wi-Fi, breakdowns or loss of devices. Assistance of curators may be needed.

2. **Financial issues.** It is necessary to provide a budget for support (technical staff, content, licenses), and also look for sponsors or grants for growth.

7. Teams roles and work

Originally, the work on the project was supposed to be divided between all the authors in accordance with the following plan:
The storyteller - Polina Khromtcova;
The UX designer - Arina Samylova;
The prototype designer - Artem Romashov.

However, as the project progressed, we decided to collaborate more closely and learn from each other. Therefore, all the participants shared the tasks to gain a full experience, learn and explore as many aspects of interactive design as possible. As a result, we coordinated all the steps of work together, discussing every change and detail of the project.

The storyline was co-written and co-edited by all the members, while Artem Romashov was the one to start working on the production of design. Lantern however, he was joined by Arina Samylova and Polina Khromtcova, and by the end of working on the design, every member of the group contributed equally to each stage of the project, from narrative development to working with Twine and testing, while constantly exchanging ideas along the way.

8. UX Scenario

https://github.com/romashovar/echo_of_ancient_mosaics/blob/main/ECHO%20OF%20ANCIENT%20MOSAICS.html

https://github.com/romashovar/echo_of_ancient_mosaics/blob/main/ECHO%20OF%20ANCIENT%20MOSAICS.twee

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https://virtuale.unibo.it/pluginfile.php/2565924/mod_resource/content/0/IMD-06-Interaction-storytelling.pdf