
Designing Performative, Gamified Cultural Experiences for Groups

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ABSTRACT

Envisioning cultural institutions as “social places”, where the visitors can “create, share, and connect to each other around the cultural heritage content” (as defined by Nina Simon), we explore how to design cultural group experiences that combine personal moments of reflection to social encounter. In previous work we proposed a storytelling game where visitors conceive and narrate stories about the artworks, orchestrating group interactions according to the game phases.

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CHI'19 Extended Abstracts, May 4–9, 2019, Glasgow, Scotland UK

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ACM ISBN 978-1-4503-5971-9/19/05.

<https://doi.org/10.1145/3290607.3312855>

Playtesting with physical materials revealed promising potential, cultivating theatrical narrations, lively discussions and fruitful social interactions.

Here we present a mobile-based, group experience design for gamified cultural visits with performative elements, leveraging the trajectories HCI framework. We highlight the key role, interface and space transitions encountered in the experience and we elaborate on the adopted design choices, while we reflect on main challenges and future directions.

KEYWORDS

Cultural group experience; gamification; performative interactions; trajectories; storytelling; galleries



Figure 1: Fabric game board creates a shared attention area between the group members, in the middle of the gallery.

BACKGROUND WORK & MOTIVATION

Storytelling and games have been remarkably embraced in the cultural heritage domain, being the subjects of study in several research and commercial works. Cultural institutions frequently organize educational programs with game activities for children, in many cases including several forms of storytelling actions. Recent approaches are also exploring storytelling games for adult visitors. For instance, Museum Hack, who offer unconventional tours in popular cultural destinations in the U.S.A., include several gamified storytelling activities in the tours they offer.

In previous work [5, 6] we proposed a simple storytelling game, titled “Find the artwork behind the story!”. We performed a series of playtesting sessions with adult visitors, observing the evolution of the cultural experience and investigating its affordances and requirements in different environments and setups, ranging from large exhibitions at a high-profile cultural center, to informal contemporary collections at a cultural union. For the purposes of the study, physical materials were employed: fabric or magnetic boards served as shared attention areas depicting participants’ selections and scores, while printed cards or post-its and pens were employed as voting instruments (Figures 1, 2). Rich social interactions were observed throughout the sessions, including lively discussions, comments and debates, as well as frequent eye-contact, teases, jokes and laughter. Performativity was also a prominent aspect of the group experience; some participants narrated their stories in theatrical ways, moving their body while narrating, changing the tone of their voice, singing melodies in between, or even using exclusively body movements, describing their stories through pantomime. Overall, the participants enjoyed the game and the duration of the playtesting sessions varied from 1 to 2 hours. It is worth noting that the free visits in the galleries (preceding playtesting) lasted no more than 10 minutes, a point that was positively remarked by several participants: “*I would never imagine that I would have stayed in a gallery for so long, having so much fun!*”, commented one. At the same time, a few duration concerns were reported, mentioning noticeable delays by some group members and suggesting to set time limits in particular phases of the game, to keep it balanced and fine-tuned.

Here we present a mobile based group experience design to support storytelling games in cultural sites, guiding the group members over the different phases of the experience and synchronizing their actions through their personal devices. The mobile application enables to browse candidate artworks and vote for one, updating and displaying personal game scores.

CHALLENGES

Screen-based devices tend to monopolize the visitors’ attention, causing what is commonly referred to as the “heads down” phenomenon in museum studies with cultural heritage applications: the visitors’ focus is notably redirected from the physical artworks to the digital screen. In addition, mobile devices are often considered antithetical to social interactions between collocated users, privileging the personalized experience but hindering human-to-human connectivity. The design of mobile-based cultural experiences that efficiently promote “visitor-to-artefact” and “visitor-to-visitor” interaction is a challenging task [3].



Figure 2: Voting by placing post-its on the game board. Different colour is assigned to each player. Arrows on the left indicate storyteller's turn.

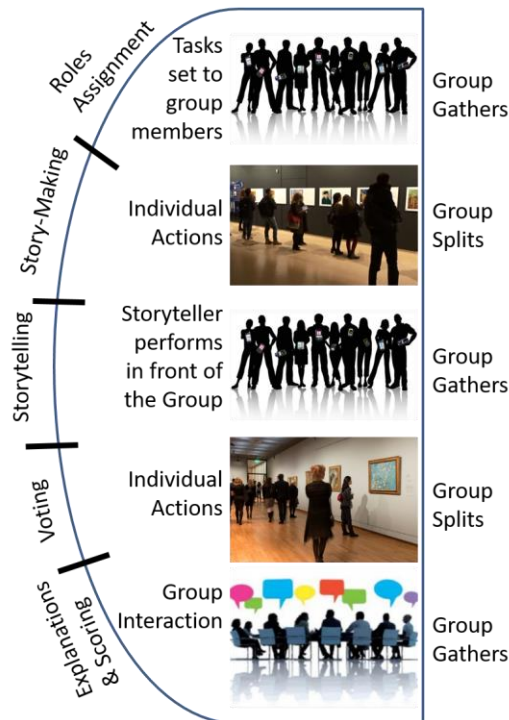


Figure 3: Key transitions between phases in each episode, interleaving personal moments to social encounter.

The proposed experience design pays special attention to the dangers entailed by the introduction of mobile devices in the particular use case scenario. Its main goal is to advance rather than replace the rich and fluid social interactions observed in the digital-free setting, such as face-to-face conversations, eye-contact and performativity. Here we leverage the HCI concept of trajectories to analyze the gamified, digital-free experiences in the playtesting sessions that we have conducted. Then we describe our attempt to proactively apply the trajectories concept to the prototype mobile-based design that is currently being implemented, thus addressing a wider HCI challenge of putting theory into practice [4], following the example of [2].

DESIGNING WITH TRAJECTORIES

The framework of concepts defined in [1] highlights that cultural user experiences may extend over multiple and hybrid roles, interfaces, timescales and spaces, defining three different trajectory types to express them. *Canonical* trajectories denote the designer's plan for the experience, identifying *key transitions* such *role*, *interface*, *access to physical resources*, *episodes*, and *seams* in the technical setup [2]. *Participant* trajectories reflect what each participant actually does, stressing the need to consider divergence and re-convergence to the designer's plan, as well as how they interleave through moments of personal *isolation*, *encounter* and *pacing*. Finally, *historic* trajectories express how the past is reviewed, including a selection of segments from the participant trajectories.

The gamified cultural experience that we are investigating targets to small groups of visitors. Technically (i.e. scoring-wise), the proposed game requires at least 3 players, but we assume that the optimal number of participants ranges from 5 to 10, so our design evolves accordingly (e.g. the groups' size in the playtesting sessions varied between 6 and 9). Obviously, the target group size has significant implications in the overall experience design. Different requirements and challenges are set when designing for dyads and triads, or even tetrads, than for larger small groups, where the orchestration of all participants' activities and physical routes becomes a critical design challenge.

Aiming to combine moments of personal reflection to social encounter, we define a global canonical trajectory in the environment of fine art galleries, orchestrating the participants' actions according to succeeding game phases (Figure 3). Some phases require that the group gathers in the same physical space in order to perform the corresponding activities. Other phases require private actions (such as voting), thus prompting the group members to split from the group and follow individual paths in the gallery's environment. Alternating between social and private phases, the trajectory explicitly accounts for private and social moments during the cultural experience.

In contrast to [2], our design does not take control of how participants interact with each artwork, thus local trajectories are not defined. For the moment, the proposed design focuses on synchronizing the participants' actions in the global level and carefully addresses time-based divergence, while also promoting "visitor to artwork" and "visitor-to-visitor" interactions.

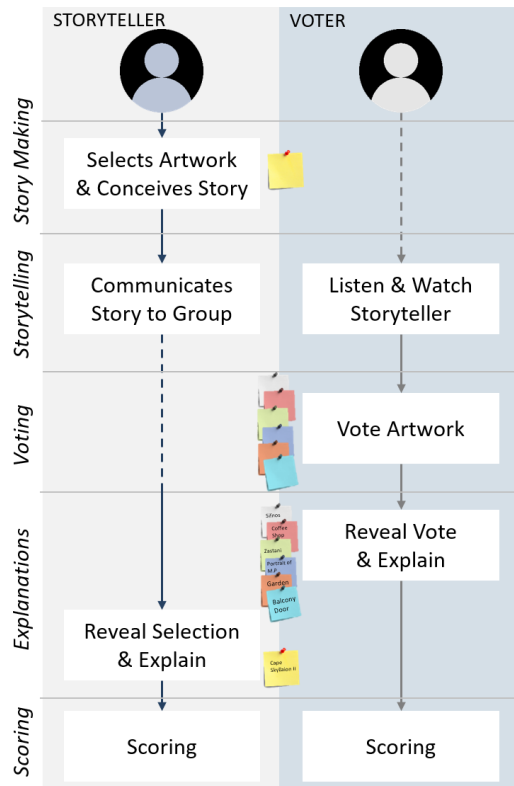


Figure 4: Flow of phases and participant activities for the two main roles: Storyteller on the left, Voters on the right. “Free-time” is indicated with dashed lines.



Figure 5: Sample digital souvenir sent to each participant a few days after playtesting, depicting the artwork behind the story for each group member.

In the following section we analyze the key transitions between the different phases (although a critical part of the overall design, *beginnings* and *endings* are not covered here due to space constraints). We also report key results from the participant trajectories monitored during playtesting, informing the design of the mobile-based experience.

KEY TRANSITIONS IN “FIND THE ARTWORK BEHIND THE STORY!”

The game defines two main participant roles, “Storyteller” and “Voter”. It evolves in “Storyteller turns”: one player is the Storyteller and the rest are the Voters. The Storyteller secretly chooses one artwork and makes a story about it. The story may be anything; from a single word to quotes, facts, song lyrics, melodies, body movements, or even fictional stories with characters and plot. The Storyteller narrates or/and enacts the story to the group and then the Voters try to find the artwork that the story is referring to. Successful Voters score points and the Storyteller gets points for each successful vote. But, if all Voters find the artwork behind the story the Storyteller gets no points. So the story needs to somehow indicate the artwork, yet not in an obvious way.

Each Storyteller turn constitutes an episode in the global trajectory: the participants disengage at the end of the turn and then engage in a new one, having a fresh task and potentially under a different role. During each episode participant activities are structured in successive phases, described in Figure 4. The first phase is “*Story Making*”: the Storyteller chooses one of the artworks displayed in the gallery and drafts a story about it. The Storyteller notes down the selected artwork identifier, covers it so that it remains hidden, and places it on a shared physical game board located inside the gallery (Figures 1, 2). So when entering this phase, the Storyteller encounters an important interface transition, being required to utilize the graphical materials in order to declare the chosen artwork. When post-its and pens were employed during playtesting, a few participants also used them to keep short notes while drafting the story. On the other hand, the Voters do not have a specific task during Story Making; they simply wait for the Storyteller to make the story and it is up to them to decide how to spend this “free time” (from the game perspective). The participant trajectories during playtesting revealed varying behaviors, such as walking in the gallery and observing the artworks, reading the accompanying gallery labels, or remaining seated around the scoring board. Some participants commented that they used this time to develop their own storytelling strategy. Most of the time they did so individually, but in some cases the participants formed small groups in the way, discussing and commenting on the artworks or engaging in casual small talk.

When the Storyteller is ready to announce the story, Voters need to be somehow notified. This task was easily accomplished when the Storyteller had physical access to the Voters, i.e. when all group members were located in the same, uncrowded gallery hall. The Storyteller simply announced “Ready” and the Voters grouped around him/her (space transition). However, playtesting verified that crowding and space syntax are very important factors in this transition between phases. The lack of physical access between the group members complicates synchronization, requiring further actions from the participants and causing delays. When the halls were crowded, the playtesting facilitator intervened to speed up this process.

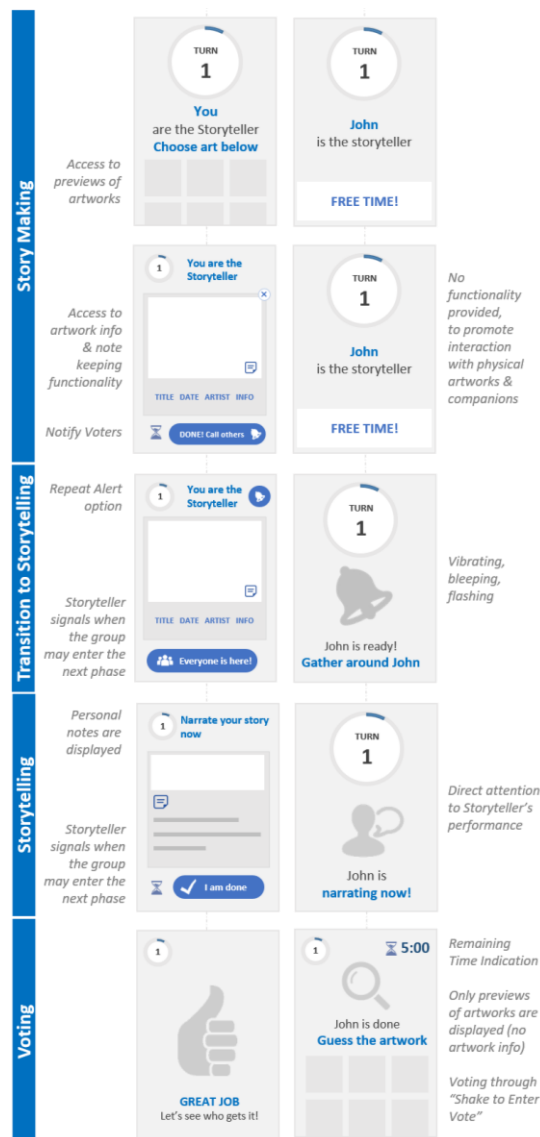


Figure 6: Selected wireframes from Storytelling to Voting phases, for Storyteller (left) and Voters (right).

As soon as the group is gathered around the Storyteller, the “*Storytelling*” phase starts. The Storyteller narrates and more or less enacts the story in front of the group, so this is the main performative phase of the experience. The Voters temporarily take on a spectator role (although from a participant perspective) and engage in the Storyteller’s performance. When the performance is over, the Voters are free to interact with the Storyteller, making comments or asking for clarifications that may lead to small discussions or complementary narrations by the Storyteller.

Then the group enters the “Voting phase”: Voters reflect on the Storyteller’s performance and try to find the “related” artwork, i.e. the one selected by the Storyteller. To do that, the Voters further observe the artworks or/and their accompanying narrative labels (space transition), however now examining them with regard to the preceding story. This is mainly a private phase and there is no particular turn maintained. When ready, each Voter notes down the selected artwork identifier, covers it to remain hidden, places his/her “vote” on the shared physical game board (interface transition), and then waits until voting is completed. During playtesting noteworthy duration variations were observed in Voting. Being a private phase, some participants completely lost track of the group and significantly delayed to reach a decision. As highlighted in the trajectories framework, time divergence between the participant trajectories is definitely an important issue and needs to be carefully regulated in the mobile-based experience design.

Similarly to Story Making for Voters, Voting is “idle” for the Storyteller, who can spend this time in varying ways to further explore the gallery. Alternatively the Storyteller may choose to focus on the actions of the Voters, closely observing their physical movement in the gallery, or “eavesdropping” potential comments and conversations between them, thus temporarily taking on a spectator role and engaging to the Voters’ unwitting performance. Although not originally anticipated, this type of behavior was repeatedly detected during playtesting. In the interview section, some participants explicitly commented that it was fun to observe the Voters in this phase, often trying to figure out who seems to be successfully connecting the pieces behind the story.

When voting completes, to enter the following phase the group needs to gather around the physical game board where the votes are placed (space transition), thus facing the same issues to the transition between Story Making and Storytelling. In the “*Explanations phase*”, one by one, the Voters first reveal their votes and then they explain why the artwork they voted for matches the particular story and how. Finally, the Storyteller reveals the “artwork behind the story” and explains his/her own reasoning. This is the primary social phase of the experience and includes plenty of discussions between the group members, who lively exchange their personal viewpoints, reflections, or even memories and emotions. During playtesting no particular turn was maintained by the Voters. When some agreed with the one currently explaining his/her vote, they often intervened to state their agreement or to further elaborate on their personal perspective, thus taking a form of “agreement-based, group turns”. Finally, the participants’ scores are calculated in the “Scoring phase”.

Figures 6 to 7 present wireframes of the mobile application, depicting how the key transitions are handled under the Storyteller and Voter roles.

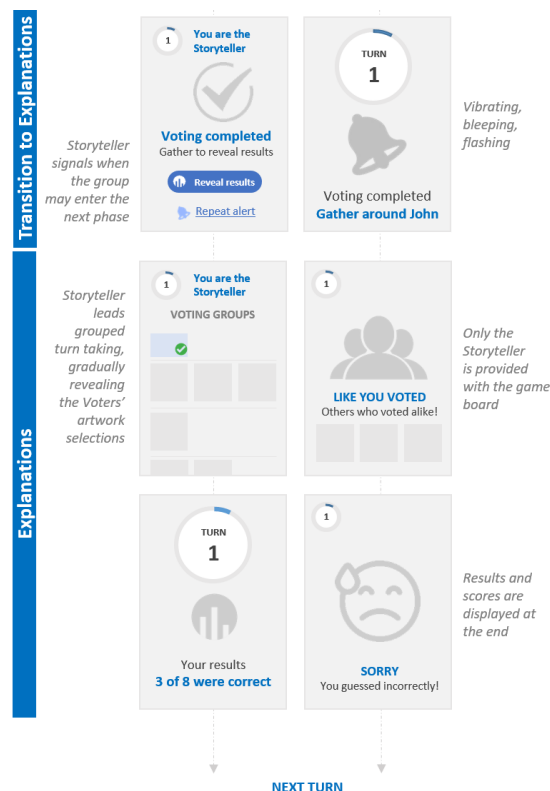


Figure 7: Selected wireframes from Voting to Explanations phase, for Storyteller (left) and Voters (right).

ACKNOWLEDGMENTS

This research has been co-financed by the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation, under the call RESEARCH – CREATE – INNOVATE (project ΠΙΣΕΤΟ code:T1EDK-05362).

MOBILE-BASED EXPERIENCE DESIGN & FUTURE DIRECTIONS

During Story Making the Storyteller has private access to artwork information and is able to keep notes. The Voters are deliberately provided with no functionality, aiming to avoid the heads' down phenomenon and promote their interaction with the physical artworks in the gallery's environment. A series of alerting services is implemented to handle space transitions: notifications are sent when the Storyteller is ready to announce the story and when voting is completed. Considering seams in the technical infrastructure we rejected the use of location-based triggering. To ease the transition between phases, the Storyteller undertakes a facilitator role guiding the succession of phases, while also "carrying" on his/her personal device the voting results (originally depicted in the shared physical game board). During the Explanations phase, the Storyteller leads a grouped turn taking process for gradual vote revealing. To avoid attention trapping on personal devices, Voters are personally informed only about which group members voted alike.

To handle time-divergence, explicit time limits are set in the global canonical trajectory and they are communicated to the group members at the corresponding phases. A speeding bonus is added in the gameplay to motivate quick pacing and a random vote is automatically placed on the Voters' part when the time threshold is met. It is worth noting that different time limits are set in each turn, progressively reducing between the episodes: as the overall experience evolves, the participants gradually get more acquainted with the gallery's contents, thus turn duration gets reduced with time.

Analyzing user experiences as evolving journeys that pass through different places, times, roles and interfaces, proved to be really useful in shaping our design. The trajectories framework provided us with sensitizing concepts and helped us to identify key requirements for the mobile-based implementation. Thus we strongly advocate for its use in the design of on-site, gamified experiences.

Regarding our future work, we envision "game events" where multiple groups concurrently participate in the gallery's space. We plan to introduce shared screens to display leaderboards, as well as digital souvenirs depicting segments of past experiences (Figure 5). We are also keen to investigate the participation of curators, providing information based on the group's discussions.

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