

Murder at the Museum

Narrative Audio Games for Museums

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Murder at the Museum (MaM) is an experimental audio game featuring a multi-linear crime story that turns the museum's exhibits into witnesses and suspects. Players take on the role of a grumpy detective and help him solve a murder case: they decide which suspects they want to question by choosing a path through the museum and, ultimately, which one they want to accuse as the prime suspect.

With *MaM* we tried to overcome a common issue of many museum games which tend to shift the visitor's attention to the game app and away from the museum itself. Therefore, we developed the game as an audio-only experience that barely requires any screen interactions.

In this case study we will discuss the design process with a special focus on the narrative design and game experience. In particular, we will show how the use of open-world games helped us deal with the unpredictable movement of players in the museum.

MAIN CONTENT

Game experience

Two variations of *Murder at the Museum (MaM)* have been created and play-tested, one at *Stadtmuseum Aarau* and the other at *Ortsmuseum Küsnacht*, two local history museums near Zurich, Switzerland. Typically, museum games are location-specific and cannot be transferred to other museums easily. Each version of *MaM* features its own location-specific detective story, but they both

share the same game system and design tools as well as the same player-avatars, Detective Bissig and sidekick Isabel Minischock.

The game experience revolves around the idea of an interactive audio book in which museum exhibits come to life by turning them into life-like characters: a fancy-looking swan-shaped sled is turned into a chatty older lady; a small toy figurine in a display cabinet into a sweet but sad gentleman who is frustrated at being locked in and unable to visit his wife. The interaction between the player and the characters adds emotions and liveliness to the museum visit. It is a multi-linear story, similar to those children's books which allow readers to decide how to continue the story by choosing one of the page numbers. In *MaM*, by contrast, decisions are location-based: walking to the "swan lady" instead of the "toy gentleman" will make the story progress differently.

Figure 1: Basic game loop.



Source: Stefan Schmidlin

We used Bluetooth beacons to track players' locations in the museum. Beacons function as proximity sensors and automatically trigger the next section of the story as soon as the player arrives at their destination.

Thus, the basic game loop (Figure 1) resembles a tabletop role-playing game with story prompts, player actions and the narration of the outcome following in turn. During the 20-30 minutes it takes to complete one session, players gather clues and are then able to accuse suspects of the crime. At the end of the game, players receive a star rating depending on their choices in the game.

Development process

Despite the simple game mechanics, the experience was not initially self-explanatory. A lot of effort was spent on the on-boarding process and the polishing of the game experience.

We adopted an iterative design process as is common in game development. In the first version of the game, players did not have an avatar. Suspects spoke short monologues and a narrator then offered options as to where the player could go, referring to a color-coded map of the museum. Players reported that they had struggled to follow the instructions (which they could hear but not see) and read the map. Holding both the map and the navigation device in each hand was cumbersome, too. In addition, players found the monologues to be lacking interactivity.

Figure 2: Player with iPad and headphones looking at one of the exhibits that appears as a character in the game.



Source: Stefan Schmidlin

We replaced the map with color markers which we positioned next to the path. This allowed us to use instructions like “follow the blue markers”. Players could follow these more easily because they were actionable. To address the issue of

interactivity, we invented the role of Detective Bissig who acted as the player's avatar and led the conversations with the suspects. With the help of the avatar, we were able to turn the monologues into conversations, which made the interactions feel more natural and helped immersion. During this same step, we also replaced the narrator with the in-game character Isabel Minischock who acted by Bissig's smart sidekick and cheeky assistant. Isabel became the tutorial voice, narrated the players' choices and also occasionally teased Bissig about his clumsiness with technology and inability to navigate.

As the next important step in development, we introduced a neck pouch to enable hands-free play and let players almost forget that they were wearing the device. In combination, these measures demonstrably made the game feel more immersive.

Young players especially were not yet satisfied by this level of interactivity through dialogue, and wished for more game-like interactivity. Hence, the version of the game used in Küsnacht featured a puzzle which had players combine several objects to reveal a code that provided an important clue.

Story and narrative design

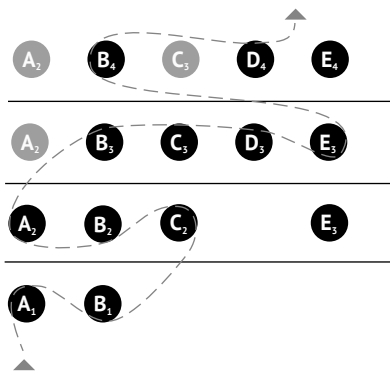
Murder at the Museum is a detective story, revolving around a murder or the disappearance of an exhibit at the museum. The genre was determined early on because it lends itself well to a narrative game in a museum: the crime inherently establishes the task that players have to solve and primes them to take an investigative mindset. Additionally, the classic detective story has a long tradition in the German-speaking world and has remained appealing for older and younger players alike.

The character-led nature of the story involved selecting exhibits that we could turn into interesting characters and then shaping them, and was the key driver of the writing process. We let ourselves be guided by intuition, visiting the two museums' permanent collections many times, looking at exhibits, assigning character traits, voices and personalities based on the historical facts, their appearance or position in the exhibition. We then wrote sample dialogues in which the characters would interact with Detective Bissig to assess if the characters worked well in the setting. A few characters dropped out at this stage because they were simply not interesting enough.

When testing the early prototypes, it became obvious that players would often stray off-path, either because they got lost or because they just found something intriguing to look at that had nothing to do with the game. Museum visits should of course reward such exploration and discovery, but our prototype did

not support that mode of play. It assumed that players would choose one of the proposed options and walk there immediately. Yet this model, which was based on a multilinear storybook offering limited choice, proved to be wrong! Physical space affords a degree of choice that is nearly unlimited. We had to factor unpredictability into our design, so we made it a paradigm that every previously discovered character would always have something to say. They would either help players to get back on track, or open up secret paths or a shortcut. This open-world approach was more complex, because instead of just two or three options, players could now choose to visit every character in the game world at any time. We modelled this concept using a world state as shown in Figure 3. If players discover a crucial piece of information, the world state then changes (represented by the vertical lines), and characters adapt their dialogues to offer meaningful help relating to this new state (represented by the little numbers next to the letters each of which stands for a character). Characters that are not so important in a given state do not necessarily say anything new, but still give useful hints (represented in gray). If players are inactive for too long, Isabel will give them hints, too.

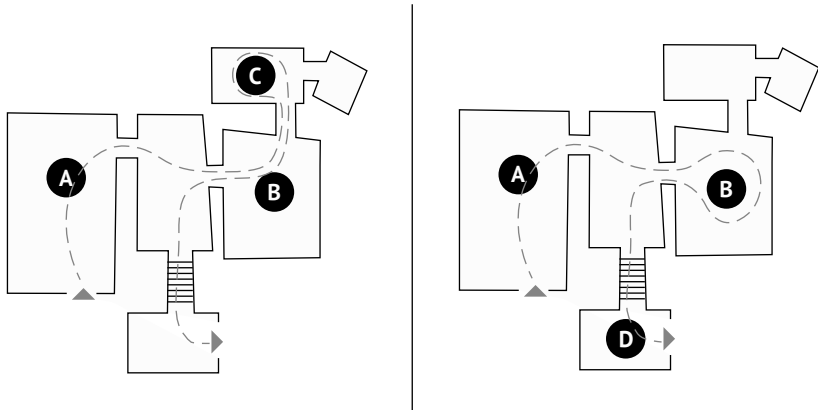
Figure 3: Using world state to drive the story enables players to always interact with any of the known characters and obtain pertinent information.



Source: Stefan Schmidlin

The physical layout of the museum's exhibition had a strong influence on story progression. There were two important factors to take into account: the players' perceived *cost* of taking a decision and the *design limitations* associated with the use of Bluetooth beacons and the open-world approach.

Figure 4: Avoiding unintended interactions by selecting characters at locations that prevent unintentional visits.



Version 1: When returning from C, players must pass B and trigger unintended interactions

Version 2: Avoids unintentional interactions with B.

That *cost* was a factor became apparent in the earliest prototypes: players did not make decisions based on the rationale presented in the game, but rather based on a ratio of *cost* versus the promise of fun. For example, players would rather visit a new character than one they had already met (backtracking), and prefer to stay on the same floor rather than climb stairs (physical cost). In Aarau, the exhibition is located in a historic tower spanning seven floors, so the *cost* is obvious. Play testers mentioned that they thought backtracking was boring, even more so if it meant climbing down stairs they had ascended before. For us, this meant that we modelled the story to progress as players climbed to higher floors, which allowed visitors to discover new areas of the museum with each decision and thus conveyed a sense of exploration. But we also exploited this in order to reward players who engaged in more exploration. Secret routes, shortcuts and side quests often meant having to backtrack.

The *technical limitations* stem from our decision to create a hands-free open-world experience. The use of beacons meant that they would trigger whenever a player walks up to a character, and the open-world design dictated that the character would always say something when the player approached them. For comparison, in a normal open-world adventure, game designers are free to remove a NPC when they have nothing to say. In a museum, said NPC being a physical exhibit, it cannot just disappear. We opted to remove characters that would provoke unwanted interactions due to their geographical location, instead of inventing idle dialogue. This is visualized in Figure 4. At B, the player has to decide

whether to backtrack to A or visit C. Most players would want to choose C because it is the explorative choice. In Version 1, players visiting C would invariably come into the proximity of beacon B on the way back, and trigger a reaction from the character. If players had not planned to talk to B, they interpreted this as a mistake. In Version 2, we dropped C in favor of D. After D, the player could choose to go back to B or A without unwittingly visiting any characters. This felt more natural.

The short duration of a game session lent itself well to a simple three-act structure. The adventure hook and in-story familiarization with the game system are followed by a phase of free exploration where players can widen the field of suspects, until they finally discover a decisive clue that allows them to identify the murderer. What makes the game experience stand out is the juxtaposition of fictionalized characters and the reality of the exhibition. This allowed many visitors to form an emotional connection with the exhibits and left them interested in learning more.

OUTCOME AND CONCLUSION

We conducted studies at both museums. Our goal was to evaluate players' experiences and assess the game's ability to enhance the museum visit and make it more memorable.

Overall, the game was very well received at both locations. Three out of four respondents awarded it at least four out of five stars. More than half of the players responded that they would visit a museum just to play this game, and would like to play more episodes. Among the negative points the most frequently mentioned were low interactivity and slow pacing, a feedback that mostly came from young adults who were used to playing video games. The inclusion of a puzzle in the second version of the game received a lot of positive feedback, and we estimate that including more puzzles could further improve the game experience.

Using beacon technology and neck pouches to allow for hands-free play proved to be crucial in keeping players focused on the museum's exhibition and the story, rather than being glued to the game app.

REFERENCES

Game

Murder at the Museum, Stefan Schmidlin, Game Design, Zurich University of the Arts, in Collaboration with Engagement Migros and Stadtmuseum Aarau, 2019.