SISTER JILL

Escape rooms and spatial storytelling in comparative media education

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INTRODUCTION

> *A kindly nun and a locked study in an Irish convent: a benign story quickly turns into a nightmare of light and dark, life and death, salvation and damnation in a world that evokes a serial killer of an earlier era.*

Escape rooms are a vital and rapidly growing form of collaborative play, "live-action team-based games where players discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time" (Nicholson, 2015, p. 1). Nicholson's seminal definition foregrounds the game-like character of escape rooms and the formal core of puzzle sequences that shape the experience. The game-like nature of escape rooms suggests that design practices from game and puzzle design can be fruitfully applied in escape room design, which is important, since—besides articles offering useful design principles (Nicholson, 2016)—there are just a few texts devoted to escape room design (Clare, 2016).

Designing escape rooms from scratch can offer students the opportunity to explore the potentials of spatial stories and narrative architecture first theorized by Jenkins (2004).

"Evocative spaces" draw upon familiar stories to raise expectations related to genre; this can be seen even in the titles and overall ambiance of escape rooms. "Enacting stories" engage escape room players to perform actions with narrative import. "Embedded narratives" are clearly apparent as artefacts and texts in escape rooms, communicating narrative content related to themes, as well as clues to assist in puzzle solving. Finally, "emergent narrative" could unfold in escape rooms through unscripted interaction between players.

Although Jenkins' four categories are useful for focusing analytical attention to discrete elements of an escape room design, there is also a need for integrating concepts that can account in a more holistic manner for the constructive activities of the player. Here, game studies literature can contribute to our understanding of escape rooms. Building upon the work of Jenkins and Nitsche, and rooted in the semiotic theory of Peirce, Fernández-Vara (2011) defines, and gives examples of indexical storytelling, "a strategy to construct the narrative of the game, based on leaving traces and affecting the space, either on the part of the designer or the player " (n.p.). The traces designed into an escape room can be prospective, pointing towards what the player should do, or retrospective, indicating the history of the world. The most common types of designed traces are "remains," "traces left behind by other agents who have been in the space before" (n.p.). In an escape room, remains can be either prospective, functioning as clues, or retrospective, providing the player with "room to come up with her own understanding of the events that have taken place there" (n.p.). According to Fernández-Vara's schema, players also leave traces in game space, though here there are, as we shall see, interesting differences between escape rooms and games.

1. SISTER JILL

Sister Jill is a 35-minute escape room experience inspired by the

Jack the Ripper murders. The core concept of the escape room was developed around the theory that a woman was responsible for the killings in London's East End in 1888. The shared goal of the designers was to create an evocative, horror-themed and religious narrative set in the 1950's, placed in an Irish convent (Fig. 1). Players take the role as 'unfortunates' who want to reform their lives, and come to the convent to seek help from Sister Jill, who is revealed as a serial killer.

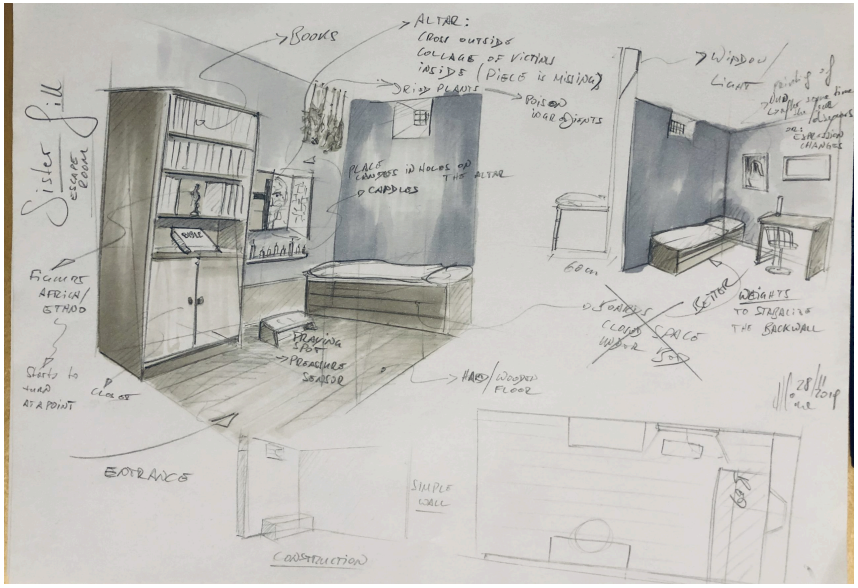

Figure 1. Concept drawing of Sister Jill's study.

This escape room was developed in the course *Storytelling: Narration across media* at Malmö University, Sweden. The course explores how specific media, such as literature, film, audio, comics, and digital media inform the manner in which stories are constructed, and how stories travel between media. *Sister Jill* was designed during a course module on mapping the story world of Jack the Ripper, in which students explored the narrative resonance of the Whitechapel murders through different media. Students were introduced to the Jack the Ripper story world

through contemporary accounts of the crimes and subsequent "Ripperology," as well being exposed to the history of Victorian-era prostitution, journalism, crime and the lives of the five women who are considered the iconic Ripper victims.

The project was executed by five undergraduate students over a period of 6 weeks. A conference room of 2.4m x 3m x 2m was dedicated to the project. The room allowed for control of lighting conditions, and the fact that the room was facing imminent renovation meant that the students could take liberties with the interior features and wall surfaces.

2. CONCEPT DEVELOPMENT

Since the development of *Sister Jill* was a part of a course in storytelling, the main objective that guided the design process was to create a spatial experience incorporating and expressing narrative. According to this logic, the main function of the puzzles was to develop the story for the players. Props and the interior design in the room were crafted in order to feed the story, serving as hints as well as red herrings, and, most importantly, creating an opportunity for spatial storytelling. The ambition of the designers was thus to work on Nicholson's fourth level, in which narrative and theme are intertwined inextricably with the puzzles: "escape rooms can have a narrative, and craft puzzles such that the puzzles are part of the storytelling and move the narrative along" (Nicholson, 2015, p. 13)

The first step in the process was to develop the storyline of the escape room, emphasizing Sister Jill's character and background. Getting to know the main character was necessary for understanding and sense-making. This backstory development was then used in all further puzzle generation as a benchmark.

3. INTRODUCTION TO THE ROOM

A two-step process was designed to help players enter the story. After an introduction to the rules for the escape room, players were approached by an actress playing a nun. By welcoming their decision to reform their lives, players were introduced to their role. The nun asked the players to drink a preventative vial of cholera vaccine, as there was an outbreak in the region. Assuring the players that Sister Jill would be with them in a moment, the nun then led them into Sisters Jill's study, the escape room.

A letter on the desk informs the players that they have been poisoned when they drank the vaccine. Their only chance to survive is to find three ingredients as an antidote before the poison takes effect. With each puzzle solved, players unfold more of Sister Jill's backstory, and learn that she was responsible for numerous murders of so-called 'unfortunates'. The players discover her journal with bible quotations and manic writings but also hints. A pivotal moment is reached early in the experience when the players solve an electronics-based puzzle, opening a sealed compartment and find—next to a disturbing collage and serial killer relics—pictures of themselves.

4. PUZZLE SEQUENCE

The design aim was to create puzzles that contribute to the religious theme and support the narrative regarding implied poisoning. After reading the letter on the table, the players knew that their goal is to find the ingredients of an antidote. These ingredients were secured by the puzzles. Starting with a simple task, the puzzles became more challenging, and finally more abstract in terms of combinations and interaction. Derived from this narrative, the design team used multi-linear (Wiemker et al., 2015) and path-based puzzle organizations. For each ingredient, an individual path was developed. Each of these puzzles could be solved independently. Nevertheless, the difficulty of the puzzle paths varied substantially (Fig. 2).

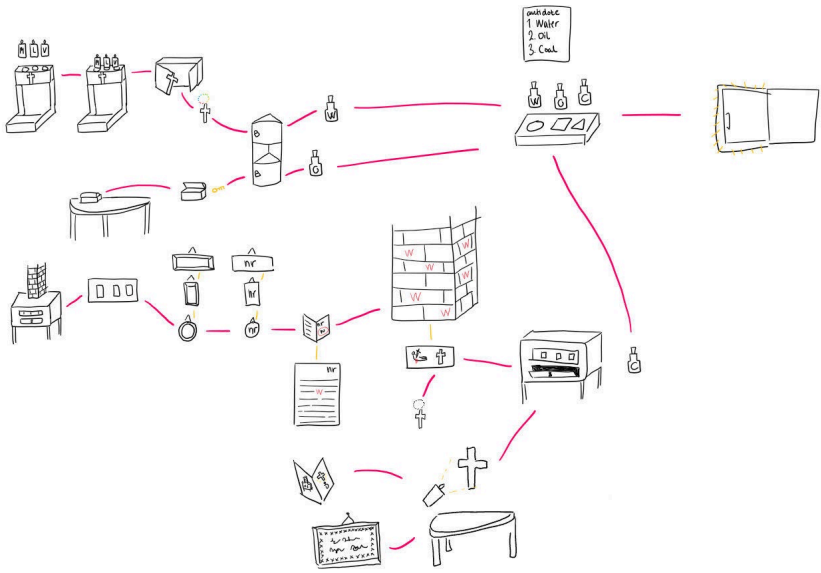

Figure 2. Overview of the multi-linear and path-based puzzle organization.

The first ingredient was intended to be found quickly in the game and provide an early success. Players had to find a key and use it in the only keyhole provided. There, the players found Sister Jill's journal, which added new information to her backstory as well as providing hints for the coming puzzles and the first ingredient of the antidote, a little bottle of holy oil.

The path to finding the second ingredient required solving two sequentially organized puzzles: the 'kneeler' and the color lock.

a. The kneeler puzzle

Three candles had to be placed in the correct order on top of the kneeler (Fig. 3). In addition, one player had to kneel down on the little prayer bench. A hidden mechanism would open the compartment in front of the kneeler and reveal a disturbing altar: a picture collage, bible quotations, and serial killer trophies including lipstick, fingernails and hair, presumably from former

victims (Fig. 4). The players also found little photographs of themselves (secreted there in advance by the escape room staff) creating a personal connection to the narrative. Also, the players found a little rosary with colored beads.

Figure 3. Positioning the three candles in the correct sequence.

Figure 4. A hidden panel springs open when the candle puzzle is solved.

b. The rosary puzzle

The players then needed to generate a connection between the colored beads of the rosary and the color lock (Fig. 5). A clue as to how to interpret the color bead sequence was provided behind a photo (though identifying the correct colors on the rosary and the lock turned out to be extraordinarily challenging due to the yellow/red light of the LED candles). Once deciphered, the color lock opened a cabinet within which players found the second ingredient, a small bottle containing holy water, and information on the last ingredient, charcoal. This cued players to concentrate further investigation on the fireplace.

Figure 5. Rosary beads and colour lock.

c. The fireplace puzzle

Retrieving the third ingredient was intended to be the most challenging puzzle. The designers developed a long sequential path which concluded in simultaneously performing two individual actions in two different places in the room. A look into the fireplace revealed a picture with resemblance to a specific image placed in the room. On the wall behind this picture, a number relating to a specific bible quotation was found. Following the quotation, players could identify a particular picture on the chimney. Then, a connection between the cross next to the picture and the same-shaped cross on the rosary had to be developed. Using the text of the embroidery on the wall next to the chimney, the players would discover that they needed to shine a light on a specific cross on the wall, and perform it simultaneously with overlapping the rosary's cross

with the same-sized cross on the chimney. In terms of narrative, accepting damnation, seeking light in faith and working together was necessary to find the final ingredient to the antidote. This opened a hidden compartment in the foot of the fireplace, revealing the last ingredient, charcoal.

The final result was to place the three ingredients on the shelf on the wall and initiate the winning sequence: the shelf illuminated brightly (Fig. 6), the music changed and Sister Jill's voice told the players that they had survived and had been granted another chance to reform their lives.

Figure 6. Illumination triggered by assembling the three ingredients and solving the final puzzle.

5. BUILDING THE ROOM

As soon as some of the puzzle ideas had been developed, and the team had an understanding of what kind of pieces to build for

the room, they created paper and cardboard prototypes. These were crafted to articulate the feeling of the room, and at the same time to investigate the measurements of the custom-made, furniture-sized props themselves. At the same time, other props and furniture were acquired at second hand stores, images and pictures collected, and items brought from home or borrowed from relatives (Figs. 7-9).

Electronics-based puzzles triggered to automatically respond to the actions of the players served an important function in the room. Both the kneeler and the fireplace featured hidden Arduino-based mechanisms that used magnetic, pressure and light sensors which, when properly activated by the players, triggered servo motors that opened hidden compartments. The three ingredient bottles required to complete the final puzzle had copper tape attached to their bottoms, so that when they were placed in the correct order, they would complete a circuit within the shelf and activate an LED strip hidden below the translucent top of the shelf (cf. Fig. 6). Solving these puzzles produced little "a-ha!" moments of mechanical autonomy that provided satisfying punctuation to the overall experience.

When the prototypes were tested and replaced with higher-fidelity constructions, the team wallpapered the room to further bolster the impression of being in a nun's study (since the room was about to undergo renovation, the wallpaper was stapled directly to the drywall). A playlist of dark, sacred music enhanced the religious theme, and tests were run adding the scent of frankincense to the environment (though this was eventually abandoned because of the efficiency of the ventilation system).

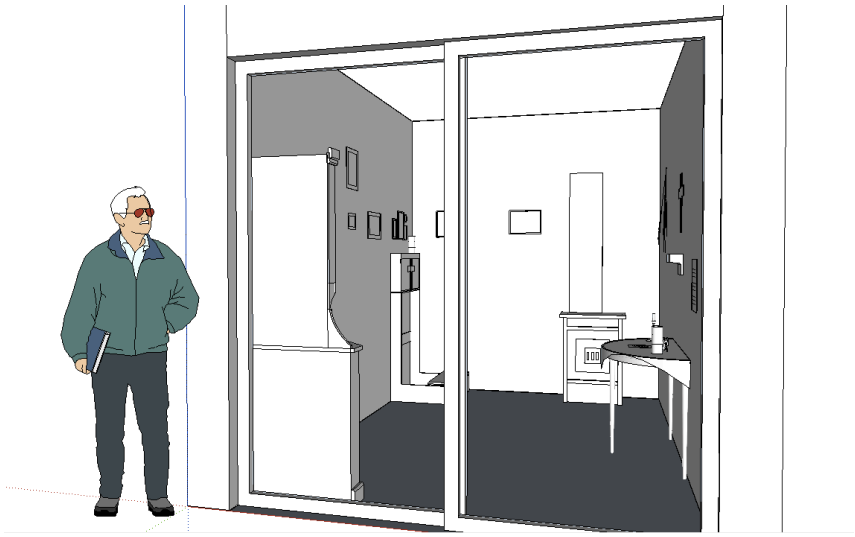

Figure 7. Construction rendering of the escape room from an exterior perspective.

Figure 8. Interior perspective rendering of the cabinet, kneeler and fireplace.

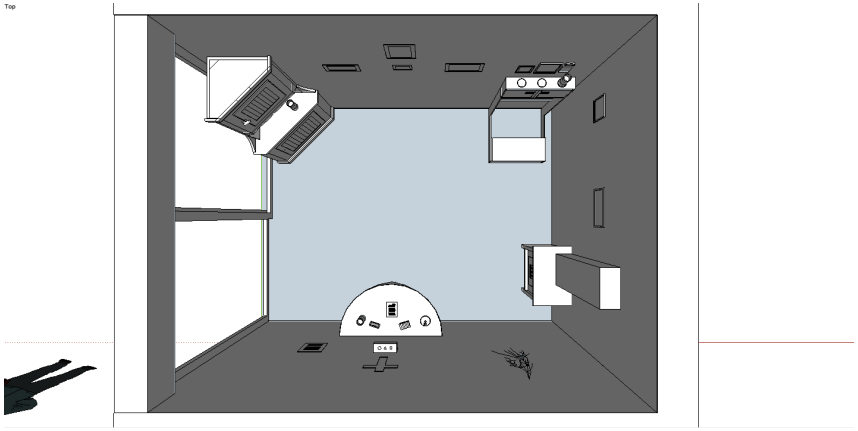

Figure 9. Top-down rendering of the escape room.

6. PLAYTESTING THE ROOM

Ten playtests involving 2 players each were run in late December 2019 until mid-January 2020 to evaluate the room and puzzles. The designers created one script for the facilitator to introduce the rules of the room, and one for the actress playing the nun. One of the designers was present in the room with the players, with the caveat that they were only supposed to be a "fly on the wall," invisible to the players. In-room observation was called for because the low light levels in the room made using an externally-monitored web cam impossible. Documentation of the playtest happened on the spot, as the designer inside the room recorded observations of playtester interaction and communication on a mobile phone, while simultaneously communicating with those outside of the room through social media.

7. SUCCESS RATE

The difficulty level of the escape room was higher than anticipated, with only one group out of ten managing to solve every puzzle within the allotted 35 minutes. One element that contributed to the difficulty was the beads of the rosary. The

colors of the beads were not easily identifiable in the warm LED light of the candles. Choosing not to implement a hint system also definitely added to the challenge. However, as the solution that allowed players to escape the room required three different objects that were acquired by solving separate puzzles, the room still offered players a sense of progression and gave them a tangible confirmation of how close they had come to succeeding

8. RETROSPECTIVE INTERVIEWS OF THE PLAYTESTERS

Nine months after the playtests we conducted retrospective interviews with 9 of our original playtesters (6 women, 3 men), as a means of identifying the elements of the escape room to which playtesters paid the most attention, and were best able to recall. Interviews were conducted individually via Zoom and followed a semi-structured interview format (Sharp et al., 2007) in which open-ended questions were followed with more directed queries (see Appendix). Key words from the interviews were grouped, categorized and ranked in hierarchical order, based upon the frequency of mention and greatest perceived impact.

We found that the interviewees spoke mostly about the experience (1) in itself and the emotions evoked, secondly the puzzles and the physical actions (2) the players enacted in the room. This was followed by descriptions of the room (3), such as the setting, ambiance, props and furnishings. Finally, interviewees discussed story elements, including the story theme, introductory narrative framework/poisoning mechanic and character of Sister Jill herself (4). These categories allowed us to reflect upon the way in which design decisions were actually perceived in the escape room experience, and identify the means through which spatial narrative can be constructed.

a. The experience

We found that when the interviewees were asked about what

they remembered the most about the experience of the escape room, they first and foremost responded by describing how they felt when playing the game. It can be seen below that there is a mix of feelings ranging from excitement to stress and fear.

Key words from interviews: *Death, getting killed, "we're going to die", stress, time constraints, immersion, exciting, 360 degree experience, convinced of being poisoned, enjoyed the experience, frustrations, great fun, team experience, scary, the feeling of being a detective trying to understand what is going on here instead of getting out of the room, exciting experience, danger for their lives, haunting feeling*

Design decision: We designed the game to follow the mystery of the Jack the Ripper theme. We wanted the players to feel uncomfortable, scared and a bit on edge while playing. This was mostly intended to be felt through the ambience in the room, playing on the different senses.

Player experience: After interviewing the players, we could see that our plan was largely successful. Many players used words such as "scary" and "creepy" (7/9). Some felt stressed by the music and the bell that rang to show the time running out (2/9). Many of the interviewees also talked about the experience as something positive (6/9), using words like "awesome", "laughing mid-game" and "really funny".

b. The puzzles

We noticed that the puzzles and the players' actions inside the room stuck in their minds. It is not surprising to us that they have a strong memory of what they *did* inside the room, because we assume that one has a stronger memory of one's actions than, for example, small details of a decoration in the room. Most of the players mentioned the kneeler and putting the candles into the correct position. Additionally, people mentioned the frustrations connected to the puzzles.

Key words from interviews: *the kneeler, candles, rosary, the difficulty of the puzzles and the frustration they provoked, pictures on the chimney.*

Design decision: Our aim was to weave the puzzles into the interior and story, to encourage spatial exploration for players as a means of discovering Sister Jill's story (Jenkins, 2004). The kneeler was a theme–specific piece of furniture that most players interpreted correctly in order to solve the built-in puzzle. During the playtests we observed that the majority of players spent most of their play time with the kneeler and the color lock which followed the kneeler. Less time was spent on the fireplace puzzle as for most players the previous puzzles, especially the color lock, were rather time consuming. Emotionally, players experienced excitement, surprise and success when solving the kneeler. The color lock, which turned out to be especially challenging due to the illumination situation, was mostly associated with frustration.

> *"[...] when you managed to get the cabinet open [...] you start to see that she's a very angry woman and [...] you start to feel a little bit threatened a little bit uneasy beyond realizing that you've been locked in this room [...]"*

Player experience: In our retrospective interviews, we discovered that the kneeler was the most frequently mentioned puzzle. Players also remembered details like 'putting the candles in an order' and 'kneeling down'. The surprise when the hidden compartment opened was recalled as well. The second most frequently mentioned puzzle was the color lock. Details like the rosary with its color beads and the little cross were recalled also. Players remembered the frustration connected to the challenge of identifying the correct color beads with limited and colored light sources. The third most commented puzzle was the chimney and details about how to solve it. Besides that, players mentioned various details like specific actions ('put the candles in

the right order', 'put the cross in a certain spot', 'kneeling down', 'count the beads', 'collect four things', 'mix a potion').

c. The room

What people remembered most from the room was the setting, the atmosphere and its furnishings/props.

i. Setting

Design decision: Our interpretation of the Jack the Ripper story was set in an Irish convent in the 1950s. To create this setting, we focused primarily on the use of time- and theme-appropriate furniture and decoration. Additionally, an actress portraying a nun welcomed the players and, after an introduction, led them into the escape room.

Key words from interviews: *church, convent, monastery, in the study/office, Catholic religious theme feelings, plague hospital.*

"I was shocked that I was in the space that I had been in so many times, and that was such a different experience."

Player experience: Seven out of nine of our interviewed players recalled that the story was set in a convent, monastery or nunnery. One interviewee assumed it was a church and another one connected the monastery to a plague hospital. Besides that, no other assumptions about the setting were made. We assume that the combination of several elements led to this lasting memory. Many objects and symbols in the room, which were meant for interaction and decoration, supported the religious and Catholic theme, including the welcoming nun, who wore an archetypical veil.

ii. Atmosphere

Design decision: We tried to create an ambiance in the room

by working with all five senses. We experimented with adding incense, removed and supplemented the room's built-in lighting, made users drink a substance and designed music into the experience.

Key words from interviews: *dark, eerie, the music, Catholic music, organ music, creepy, smells, ambience. Religious, Catholic, horror.*

Player experience: During the interviews only 1 person mentioned the smell in the room, 3 mentioned the sound, 3 mentioned the drink but almost everyone (8/9) mentioned the low level of illumination in the room.

Design decision: The intention with the music was to make the users more stressed, but also to create a specific ambiance in the room and throughout the game.

Player experience: The players seemed to think only about the music when the game was nearing the end, probably because of the crescendo of the music. In the retrospective interviews, only one player remarked upon the music at the conclusion of the game.

iii. Interior design

Design decision: As we did not expect that any of our play testers had ever entered a convent in real life, we drew inspiration from historical references and pop-cultural elements found in movies and online – the same sources with which (we assumed) our play testers would be familiar (Jenkins, 2004). To transform our small conference room into a nun's study in a 1950s convent, we tried to keep the 'present' out and put the 'past' into the room. This means that we primarily aimed to control elements which afforded interaction, like furniture and puzzles in terms of material, color, haptics and usability. To minimize any reminders of the present, we covered the white walls in beige wallpaper. By using only three electric candles

and restrained flickering in the fireplace as light sources, we reduced lighting to the minimum. This made it more difficult to recognize any potential flaws in the interior design. To prevent players from experiencing auditive distraction, we chose to play religious music to make any possible real-world noises unrecognized within the room.

Key words from interviews: *furniture, interior details, the chimney/fireplace, pictures, herbs. Props: nail clippings, lipstick, bible quotes, bible verses behind the pictures, charcoal, diary, hair.*

"[...] the furniture, and things in there were very dark and religious feeling, so you felt as if you were in some nuns room. [...] all felt as if they were from a different time."

"[...] feel a little bit as if you are in your great grandmother's living room, and you're not supposed to touch anything or we'll get in trouble."

Player experience: Besides the puzzles, details about the interior dominated the information we gathered in our interviews. Furniture was recalled most frequently, followed by pictures and decoration, books and texts. Our interviewees referred most frequently to the fireplace, kneeler, and cabinet, or attributes directly connected to furniture ('dark wood', 'something to kneel on'). 4 of 9 players even remembered the exact positions of pieces like the kneeler, the fireplace or the cabinet. It is expected that players would remember the kneeler and the cabinet as they spent most of the time with these two objects while trying to solve the embedded puzzles.

d. Narrative elements

When listening to the interviewees, it is notable that their recollections about the story were not accurate compared to the story developed by the designers. The interviewees either didn't remember anything at all, or made up a totally different story about Sister Jill and her intentions. For instance, some of them

conflated the nun that welcomed them with Sister Jill, assuming that it was the same person. The playtesters also exhibited poor recall of the details of the narrative framework/poisoning introduction. Other story elements, however, such as the broader narrative theme, left an impression upon some the playtesters.

Words from interviews: *atoning for her sins as a woman, redemption and repentance process, helping unfortunates, disappeared prostitutes, the welcome nun – actress.*

I. THEME

Design decision: Our interpretation of Jack the Ripper was shown through the actions of the nun Sister Jill (murdering prostitutes), living in an Irish convent in the early 50s.

Player experience: 4 out of 9 interviewees used the word "religious" or "Catholic" to describe the setting in the room. However we could also see that 7 out of 9 talked about nuns – and with nuns being *"very strongly attached to horror movies"* we can see that all the users from the interviews remembered the setting even after 9 months of time in between playing and being interviewed. This theme seemed to be remembered with or without being told of the name of the room beforehand. However, some did not remember the name Sister Jill but guessed she was "the nun" – the one the story was about.

Design decision: The Jack the Ripper murders were not explicitly evoked the room, though there was a common serial killer theme.

Player experience: None of the players that were not a part of our course made any connection with the Whitechapel killings–there were no explicit details with this theme embedded in the room. Some of our classmates, however, made the connection to the Whitechapel killings through the general context (the escape room was developed as a class assignment),

as well as through our scripts *"you have been so unfortunate in your lives"* or the mentions of *"missing prostitutes"* and *"whores"* in the in-room texts. Having been introduced to the world of Jack the Ripper through the course, this connection was easily grasped.

II. FRAMING NARRATIVE/POISONING

Design decision: We opted to create an introductory element that took place directly before players entered the room and the actual play experience began, reasoning that players would be more likely to grasp the basics of the narrative in a situation where they were not distracted by puzzles and time pressure.

Player experience: Before entering into the actual escape room players were greeted by a nun who briefly introduced them to the narrative and asked them to drink a preventative vaccine for cholera, later revealed to be the poison that acts as a catalyst for the narrative. We anticipated that the enacted nature of this introduction would help make it an especially memorable part of the experience, though only a third of the players mentioned the nun, and remembered having drunk something. Among the players who mentioned being offered the drink, none recalled that it was presented as a vaccine. Instead, one only remembered having drunk something and the other two interpreted it as holy water. Only one player elaborated on their impression of the nun, describing her as "very pleasant" and a "warm and caring person." Since this free-standing narrative frame was delivered apart from the time pressures and puzzle focus of the escape room itself, this relatively low level of recall seems significant.

In conclusion, our interview data indicates that accurately following the story of Sister Jill as designed is not crucial for the players in relation to their overall experience. Almost none of our interviewees remembered the story correctly, but most did recall the felt experience and the puzzles of the escape room.

9. DISCUSSION: DESIGNING SPATIAL STORIES IN ESCAPE ROOMS

The *Sister Jill* escape room provides fertile ground for exploring spatial stories, narrative architecture and indexical storytelling.

a. Evocative spaces

According to Jenkins' concept of evocative spaces, players "draw upon [their] previously existing narrative competencies. [Designers] can paint their worlds in fairly broad outlines and count on the visitor/player to do the rest" (2004, p. 6). As the retrospective interviews indicate, playtesters who were not part of the *Storytelling: Narration across media* course were able to read generic associations of the room through their experiences with horror films, mediated for the most part by the religious theme in title and introductory narrative frame, as well as the interior design and atmosphere of the room. Some playtesters responded to being welcomed by the nun who led them to Sister Jill's study:

> *" It was something that was a bit spooky but maybe it's because it was a nun, very strongly attached to horror movies"*
>
> *"It felt like we were actually really brought into a church... "*

Playtesters who were, on the other hand, enrolled in the course were able to make connections to the Whitehall murders associated with Jack the Ripper, largely through scripted elements found in the introduction to the room and in-room texts. *Sister Jill* does not explicitly evoke the Jack the Ripper story world. Rather, the connection can be made through the serial murderer motif, one that is aimed at victims characterized as "unfortunates," the social coding in the contemporary accounts of the Ripper crimes. Players themselves are cast in the role of "unfortunates" seeking personal change and redemption.

b. Enacting stories

The religious theme of *Sister Jill* offered the designers opportunities to physically engage players in enacting stories of contrition and redemption through furniture, props and lighting design. Solving the kneeler puzzle required at least one player to trigger a sensor by kneeling on a piece of confessional furniture that opened up to reveal a hideous tableau. Solving the rosary puzzle compelled players to literally finger rosary beads for translation to the color lock. The light ambience in the room was quite dark, and the only illumination was provided by LED candles that players manipulated to create pools of light in darkness, enhancing the narrative connected to religious imagery of illumination and enlightenment (Fig. 10).

Figure 10. Players enact a shadowplay by using the candles as light sources in a dark space.

We also found evidence that having players enact specific

embodied scenarios could pave the way for later emergent narratives. In one case, a playtester who had reached an impasse with the final puzzle adopted an attitude of prayer:

> Minute 28
>
> He's sitting down to pray on the floor

At this late stage in the escape room, the player realized his team might not make it, and applied the logic of the earlier kneeler puzzle in an unscripted, emergent moment.

c. Embedded narratives

Embedded narratives in the form of texts or images are a common feature of escape rooms (as well as games), and also serve an important role in indexical storytelling. Narrative materials in an escape room can function either as a means of articulating narrative, or else as way of delivering clues. In the case of this room, Sister Jill's journal was written to illuminate her motivations and state of mind, but also included hints for the puzzles. Our intention with the journal was to convey a narrative about Sister Jill's madness but, when assessing the interview data, we could see that the players instead used it solely as a source for hints. This suggests that the playtesters grasp of the background narrative was fragmentary, not constructed into a coherent image that was shared by other players. No common understanding of the character of Sister Jill emerged from the retrospective interviews.

d. Emergent narratives

Emergent narratives unfolded in *Sister Jill* through the unscripted player actions, as well as interaction between players. In one of the initial tests, a nun's veil was left in the room, and a player decided to wear it. In the player's feedback, she said she took on the character of the nun instead of that of a victim, which

changed her perspective on the story. In another playtest, players told one another that they were "going to burn."

We observed that emergent narratives can be seeded by elements and events from the other Jenkins categories. The behavior of playtesters telling one another that they are "going to burn" could be rooted in the overall religious/horror ambience of the room (evocative spaces) and texts on wrath and judgement in Sister Jill's diary (embedded narratives). As we saw above, having players enact solving a puzzle by kneeling in a prayerful attitude (enacting stories) makes prayer a logical (if unexpected) in-room response to the prospect of failing to escape the room on time.

e. Indexical storytelling in escape rooms

"Remains" are, as Fernández-Vara notes, the core of environmental storytelling, a " type of indexical storytelling . . . constituted by the traces left behind by other agents who have been in the space before" (2011, n.p.). Interpreting remains, especially the relationship to gameplay can, however, be problematic, and that is our experience as well. Our follow up interviews indicate that though the diary of Sister Jill left in her study contained narrative material to further develop the story, players used it almost solely for clues, perhaps due to time pressure. It isn't possible from our interviews to weigh the relative weight of narrative construction vs time constraints in the escape room experience. Further articulation of the temporal demands of escape rooms on player narrative construction would be valuable.

Indexical storytelling encourages us to look at traces left by both designers and players.

As we saw in *Sister Jill*, the fact that escape rooms are reset between each session allows escape room designers to leave custom traces, objects secreted in the room that are unique for each set of players. Room resetting also changes the character of

player traces, which customarily do not persist after the session is finished. The sort of player traces left during an escape room session are often processional, a series of solved puzzles (opened locks, drawers, boxes etc.) that signify progress towards the ultimate goal of escaping the room.

f. Why build a consistent narrative?

Our retrospective interviews suggested that players tended not recall narrative details designed into the escape room, but rather that the constructed player story focused on the felt experience of solving puzzles, as well as the physical and spatial qualities of being in the escape room. Besides grasping the opportunities and limitations of storytelling as constructed by the escape room designer, we learned that coherent narrative development ought not be aimed at communicating fixed content to the player, but rather be employed as a design tool.

As the room started to take form, we sought to motivate the meaning and logic of all items brought to the room in order to keep the narrative consistent. Nicholson (2016) writes that it is important to "ask why" a specific item or element is placed in the escape room during the design process, in order to ensure that it is there for a reason and is consistent with the overall concept of the room.

Much was determined by the character of Sister Jill. As the room was her study, we had to ask questions such as "What would Sister Jill keep in her study?" "What would be visible and what would she hide?" "Where in the room would she hide things?" Although playtesters apparently made little effort to fully understand Sister Jill, beyond registering her malign intent, having a good grasp of her character allowed us to shape more impactful settings and puzzles, as well as a more coherent experience. In this sense, the "ask why" methodology functions in a manner analogous to other narrative- and character-based

design methodologies such as personas and scenarios (Cooper et al, 2007).

CONCLUSION

Designing an escape room in a comparative media course is a good way of throwing the unique character of spatial storytelling and player-constructed narratives into relief. The dark shadows of the 1888 Whitechapel killings may lend themselves to stylized chiaroscuro effects in comics, but in an escape room the shadowplay moves through player agency. Spatial storytelling can link puzzle structures with narrative themes through text, image and the built environment. In *Sister Jill*, players adopt confessional postures, learn to count rosary beads, seek to illuminate darkness with light, and, in so doing, either find the redemption scripted for them by Sister Jill, or else remain in darkness.

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Appendix

Interview questions:

Q1: What do you recall about your experience of the escape room?

Q2: Tell me the story of Sister Jill.

Q3: Here are some images to refresh your memory (4 images, beginning with top schematic of the room, Fig. 9). What do you recall?

Q4: Is there anything else you remember?