You Go That Way:

Guiding Level Design in a Horror Game

Av: Stefan Andersson och Lovisa Bergdahl

Handledare: Petri Lankoski
Abstract

In this qualitative study, an experimental horror game was developed to test what and how different aspects of the level design would guide players. The aspects that were used were identified in a pilot study. Five volunteers played the game and then participated in a Stimulated Recall Interview where each person was asked about their thought-process during a “choice-of-path” and why they chose to follow the path they did. They were also asked if any of the paths seemed like where they were supposed to go and how scary they felt the game was in general. Afterwards, the data was analyzed using thematic analysis and 16 themes that affect the player choice were identified and analyzed. The study found that decisions appeared to vary greatly between players, but that the most attractive aspects of a level were brighter illumination than in the surrounding area, easy accessibility and distinction from the surroundings. The most unattractive aspects were lesser illumination, backtracking and subjective negative associations.

Keywords: Level design, aspects, choices, horror, game
Sammanfattning


Nyckelord: Level design, aspekter, vägval, skräck, spel
Table of Contents

ABSTRACT ..................................................................................................................................... 2
SAMMANFATTNING .................................................................................................................... 3

1 INTRODUCTION ..................................................................................................................... 5
  1.1 BACKGROUND .................................................................................................................. 5
  1.2 RELATED RESEARCH ..................................................................................................... 6
  1.3 RESEARCH QUESTIONS ................................................................................................. 10
  1.4 ESSAY STRUCTURE .......................................................................................................... 10

2 METHODS .............................................................................................................................. 11
  2.1 EXPERIMENTAL EXPERIENCE ..................................................................................... 11
  2.2 DATA COLLECTION ........................................................................................................ 16
  2.3 THEMATIC ANALYSIS METHOD ..................................................................................... 17
  2.4 ETHICAL CONSIDERATIONS .......................................................................................... 18

3 RESULTS ................................................................................................................................. 19
  3.1 THE PLAYERS .................................................................................................................. 19
  3.2 CHOICE-OF-PATHS ....................................................................................................... 20
  3.3 THE THEMES ................................................................................................................... 20

4 ANALYSIS ............................................................................................................................... 27
  4.1 A WIDE SPECTRUM - CATEGORIES OF THEMES .......................................................... 27
  4.2 THEMES AND LEVEL DESIGN ....................................................................................... 27

5 DISCUSSION .......................................................................................................................... 34
  5.1 METHOD DISCUSSION .................................................................................................. 34
  5.2 THE GAME EXPERIENCE ............................................................................................... 35
  5.3 DISCUSSION AND CONTINUED RESEARCH ................................................................. 35

6 CONCLUSIONS ....................................................................................................................... 37

7 REFERENCES: ......................................................................................................................... 38
1 Introduction

1.1 Background

Video games are a popular pastime for many people these days, and the genres span from mobile puzzle games to immersive adventure and action experiences on PCs and consoles (ESA, 2013). The market is expanding all over the world (Google Trends, 2014) and we believe an improved understanding of what it is that entices a player is likely to be relevant both for academic purposes as well as business. Even though horror games do not take up a large portion of the video game market, they have been close to the players' hearts since the first survival horror games such as Resident Evil (Capcom, 1996) and Silent Hill (1999) were released in the late 90s (Agnello, 2013). A crucial part to games, apart from the genre and platform it is played on, is the level design, and we believe its significance in the horror genre might be more important than in some other genres. If the player knows something frightening could be behind a corner, it could be less tempting to go there than if the game had been of another genre. But if level designers could know player reasoning and behavior in frightening environments; could they also use it to their advantage?

While plenty of research has been conducted on strategic thinking, guidance of players and decision-making in general, a lot appears to focus on how to make the best decisions and not what people will actually do intuitively. In our experience, level designers have long relied on lore and rules-of-thumb in order to guide their players —The same kind of rules that film directors use to catch an audience's attention, like using light, warm colors, motion and flashing to draw people in. While those rules have been and remain successful in- and outside of film and games, our personal experiences hint that players are able to identify these rules and may sometimes choose another direction when presented with an option that is insinuated to be the way they should go. With an increased understanding of the player mindset in a virtual environment, designers could more easily predict how players act in-game, could be exploited for the game's purposes.

Thus, the purpose of this study is to examine how to guide players through a horror game using level design, which aspects of level design affect
players and how. The participants will play through an experimental horror
game, watch a video-recording of their playthrough and then participate in an
interview about the choices made in-game.

1.2 Related Research

1.2.1 Game and Level Design

Schell (2008, p. xxiv) describes game design as “ [...] the act of deciding
what a game should be.” The game design, according to him, derives from the
decisions that the game designer makes. Level design, on the other hand, is the
game design exercised in detail. It is the arrangement of architecture, props and
challenges in a game. (Schell, 2008, p. 343) (Bleszinski, 2000)

In Game Design: Theory and Practice, Rouse III writes that “Carefully
orchestrated levels are set up such that they have a series of tension and release
moments to create an emotional curve for the player to experience.” (2005, p.452)
and continues saying that producers will not be willing to invest in rework the
architecture of a level if it is not playing well. Therefore a good understanding of
context, the gameplay and the level in question is important. (p.454) Similarly to
what was mentioned before, greater control over this emotional curve is the
purpose for this study and could help to avoid production issues and bring
games closer to the players.

1.2.2 Environmental influence

The importance of visual cues for the interpretations of the environment
is mentioned by both literature on game studies as well as works covering other
fields. In the case of architecture, Hildebrand (1999) means that Prospect and
Refuge are fundamental concerns for humans. Areas are perceived as either
prospect or refuge and the need for either changes over time depending on the
situation. The lighting plays an important part in people’s perception of their
adds that humans prefer to move from dark to light, from the refuge to the
prospect. The darkness can be considered a refuge if one can see without being
seen. Exploring from light to dark, on the other hand, makes us feel unsafe.
Schell in *The Art of Game Design* adds to this saying that: “*One of the keys to good level design is that the player’s eyes pull them through the level, effortlessly.*” (2008, p 289) He means that a good understanding of what it is that pulls the eye of the player gives the game developer influence over the choices that the player makes. (p. 289)

The design of an environment is not just a matter of functionality, but can also have an emotional effect on players. For decades, movie directors have made use of *mise-en-scéne* to set the mood of a scene, and the same method can be applied to game spaces, according to Logas and Muller (2005). The film theorist Robert Kolker describes mise-en-scéne, in the context of cinematography, as “*[...]the use of space within the frame: the placement of actors and props, the relationship of the camera to the space in front of it, camera movement, the use of color or black and white, lighting, the size of the screen frame itself*” (Kolker, 1999).

**1.2.3 Choice**

The aspect of choice and how the player is guided through the game is connected to both level and game design, as well as being a major part of what we aim to examine in this study. Salen and Zimmerman (2004) go into great detail of the aspect of choice, although not necessarily connected to the Choice-of-Path, and divides it into five sections:

1. What happened before the player was given the choice?
2. How is the possibility of a choice conveyed to the player?
3. How did the player make the choice?
4. What is the result of the choice, how will it affect future choices?
5. How is the result of the choice conveyed to the player?

Should one of these sections not be properly functional or understandable for players, the choice might not be considered meaningful. For example, if players get a *game over* and does not understand why, or if players cannot tell if the choice they did made an impact, they might feel the choices are arbitrary. (Salen & Zimmerman, 2004, p. 64).
Should one of these sections not be properly functional or understandable for players, the choice might not be considered meaningful. For example, if players get a game over and does not understand why, or if players cannot tell if the choice they did made an impact, they might feel the choices are arbitrary. (Salen and Zimmerman, 2004, p. 64).

1.2.4 Patterns of game design

One often occurring problem with game design is that it is difficult to communicate and describe (Holopainen, Björk, 2005). There are several works that dive into the field of game design as well as attempt to build frameworks and terminologies that can be applied to game design.

Björk and Holopainen created a language for expressing game design, which they named *Game Design Patterns* (2005). This framework includes too many patterns to list here, but those patterns that describe a part of the interaction that is possible in games, combined with other patterns, describe possible gameplay. Björk and Holopainen’s patterns are fragments of gameplay, not of level design and is thus an activity-based framework not necessarily based on physical aspects of the game. (p.8)

Milam and El Nasr (2010) also describe game design patterns relevant for the guidance of players in video games. They propose five patterns which are inclusive rather than specific as they describe collections of design choices that induce a certain result. These five patterns consist of:

- *Collection Pattern*, which rewards collection of items, upgrades and special items.
- *Path Target Pattern*, which orients the player movement or attention towards targets that the player can see.
- *Pursue AI Pattern*, which means that the player is required or proposed to move in response to other characters, hostile or friendly.
• *Path Movement and Resistance Pattern*, which is the narrative goal in a linear mission, and can be with or without resistance such as barriers or enemies.

• *Player is Vulnerable Pattern* which means that the player risks dying. (Milam, El Nasr, 2010)

While Björk and Holopainen have already established the extensive *Game Design Patterns*, their patterns do not focus on specific aspects of actual level design, but rather the actions, changes on game state or interaction that the design leads to. A similar problem occurs should one wish to examine level design, when using the lens of Milam and El Nasr, as their patterns are so wide that specific aspects are excluded. Should one wish to examine path choices based on player interpretations of level design as well as the design as such, neither of these pattern collections are applicable.

### 1.3.5 Horror

An important aspect of this study is the horror setting, as we believe fear of the unknown and possible danger to the player character might influence players to think more carefully about what path they choose. We also think that knowledge of player behavior may be more valuable to the horror game industry specifically, as outsmarting players is an important part in also scaring them. Freeman (2004) writes in his book *Creating Emotion in Games* that a character that is too powerful or courageous in the beginning of the game will be difficult for the player to identify with. Thus creating flaws in the character, disempowering it by making it weak or unable to defend itself helps immerse the player. (p. 258) A similar trait of disempowerment in games can be found in the *Call of Cthulhu: Fantasy Role-Playing in the Worlds of H. P. Lovecraft* (Petersen, 1989) where the player character becomes weaker the more it learns about the world, due to the loss of sanity. Both terror and horror, often confused as having the same meaning, are mentioned in *De mörka labyrinterna* (Fyhr, 2009, p.39). *Terror* is the unknown and the sublime, which the audience can shape in their own mind. *Horror*, on the other hand, is terror taken too far, where the enjoyment of the sublime is taken away (p. 40). Fyhr continues with that the
term is often used in gothic literature and is associated with explicit descriptions of violence and gore that is without beautiful details and that does not make the reader empathize. King, on the other hand, describes horror in his book *Danse Macabre* (1980) as the moment at which one sees the cause of suspense in a story and the moment of shock is created. What Fyhr writes about violence and gore, King adds his own term for, called *revulsion*, which he compares to the gag-reflex and calls a bottom-level cheap gimmick.

### 1.3 Research Questions

This study will attempt to answer:

- How do aspects of level design affect players’ choices of path in the context of a horror game?

### 1.4 Essay structure

First we go through previous research to provide a good foundation for the understanding of the topic. Then we describe our method and our data collection. The results are presented, first the player-related experiences and choices, then the found themes. These themes and the actual level design along with the player context is then analyzed to create a good understanding of the choices player makes. Finally the conclusions are presented.
2 Methods

This study made use of Stimulated Recall Interviews, or SRI, a method where the activity of the participant is recorded and then used as stimulus for later interviews. (Gass & Mackey, 2000) SRI was used because we wanted to inquire as much information as possible on the participants’ decision-making and thinking, while keeping close ties to their actions in the game. To test the method, a pilot study was conducted. We found that an SRI would be unsuitable as long as a normal game was used for the study due to what we call the individual player context. This is when a player-choice affects the upcoming player-choices, something that happens almost constantly in games in general, thus making it hard to draw parallels between the choices of two different players. But because SRI worked well in all other regards, we decided to counteract this problem by developing a short experimental game that would suit our needs. Creating an online game and collecting quantitative data was also considered, but was discarded as we wanted deeper information than statistics. The data was analyzed using thematical analysis.

2.1 Experimental experience

2.1.1 Selection of Participants

Five participants were found and were chosen through convenience sampling as well as three other criteria, mentioned further below. It is possible that the limitations in time and the narrow scope of the study — horror and level design — made participants hard do come by. The participants we did find were in part found using the Facebook forums for an education program at Södertörn University. The group has members from all years of the program, as well as students that have graduated, and currently has around 155 members. Some participants were also found through our personal networks. The Facebook post contained information about what the study was about and the length of time required for the interviews and the game session. After finding possible participants, we also had to conclude that they were fitting for the study. This was made using three simple criteria:
1. They must occasionally play games.
2. They must have some experience of playing horror games.
3. Horror games are not one of their most-played genres.

The first and second requirements exist because of our assumption is that the average consumer of horror games is likely to be one who plays games and occasionally horror games, but because many people do not like being scared, it also seems unlikely that people who do would make up a majority of a consumer-base. The decisions and reflections in the experimental game of participants that are entirely unused to games or horror games might differentiate from the target group of gamers that play this genre of games, thus making the results of less interest to any industry level designers. However, the last requirement also excludes very experienced gamers of the genre. This is because, from personal experiences we have recognized that as people become accustomed to the horror genre, both in games and other media, they often appear to learn the genre tropes instinctively and can often predict scary events yet to happen and even make light of the situation by toying with certain aspects of the medium, for example by asking who is making the strange noises in the background. While it is true that those sorts of people would likely be potential customers, we again assume from personal experiences that they would be a minority. It could also be argued that a game cannot be designed for people who refuse to immerse themselves, or enter the magic circle, as it exists for all forms of play. Huizinga (1938) writes "The player who trespasses against the rules or ignores them is a "spoil-sport". The spoil-sport is not the same as the false player, the cheat [...] He robs play of its illusion".

The participants were given aliases to ensure their anonymity. They were given names of famous horror authors. Koontz is between 50–55 years old, Stoker 30–35, and both work in the field of economy and business. King is the only interviewed female, and is alongside Lovecraft and Poe, who are both male, between 20–30 and are game design students at a college in Stockholm.
2.1.2 The game

The participants played through a first-person horror game developed over a period of three weeks specifically for this study. Important to note is that this game does not necessarily fit the majority of existing definitions for the term *game* as there is no way to lose. However, for the sake of simplicity and to avoid confusion, the term *game* will still be used. Each Choice-of-Path contains one or more level design aspects such as: door, open door, light, dark, close, big, small, alluring object, obstructed view, staircase down, staircase up, etc. The aim is to connect the actual level design to the experiences of the players to extract what and how level design affect player decisions on way of path.

The game is played through the eyes of a completely anonymous character with an unseen lantern, so as not to disturb any immersion, and the only instruction given to participants was to complete the level. The lantern is a light source that cannot be aimed but rather lightens up the near proximity, this is to make lighting equal. The game consists of eight Choices-of-Path, each with one or more level design aspects chosen in retrospect to what aspects in the pilot study produced the most interesting results, connected by varying rooms. To counteract the possibility of the player backtracking too far and remaking old decisions, the level is divided into smaller sections that close off behind the player character, often by doors that close and lock automatically as they are passed through. To counteract the individual player context noticed in the pilot study, the game utilizes non-Euclidean geometry, or *impossible space*, inspired by the usage in the game *Antichamber* (Bruce, 2013). Less vaguely, when the player makes a Choice-of-Path, they are discretely teleported to where they are supposed to be going. This can be used to trick the players into thinking that they have a choice in what path to take, when in fact all paths lead to the same destination. When used in a less discrete manner, it can also be used to confuse the players and increase the sensation of terror, since they can never know for sure what lies behind a corner or what is behind them.

The setting for the level is a surreal, museum-like environment inspired by *The Outlook Hotel* of *The Shining* (Kubrick, 1991) and *The Black Lodge* of *Twin Peaks* (Beyond Life and Death, 1991). The sensations of terror and horror were created mostly by using various religious imagery presented in subtly disturbing
ways and using a color scheme inspired by skin and blood, but also by using background noises one would not expect in the environment present, such as dripping water, and unexpected noises with an undertone of importance, such as a telephone ringing and an unknown man coughing behind the player character. A few horror events were also implemented in the design with the intent of scaring the player and discouraging a careless play style. Because many mediums, including books, movies and games, use tropes such as darkness, blood, the supernatural and the violation of what we tend to see as positive things, such as children or God, to hit at the fear of death or the unknown (Fyhr, 2009), it seemed fitting to do the same here as we wanted the results to be a tool for the industry.

2.1.3 Choices-of-Paths

The choices of paths are the point of interests that we examine in this study. They are presented below in the order they appear in the game.

1. [Light] or [Dark, Availability]

The player exits the starting area and sees a small, glowing item on the floor ahead. To the left and right of the item are two paths.

2. [Stairs down] or [Stairs up]

The player comes to a staircase. Both options have equal lighting. The lighting was unintentionally slightly darker for participants King and Poe.
3. **[Light] or [Dark, Distinct Aspect] or [Distinct Aspect]**

The player finds a dead end, rotates and finds him/herself in a new room with a statue.

4. **[Dark] or [Distinct Aspect, Interaction]**

The player comes to a large painting and two paths to choose between, with a door at the end of each. One path features a turned-off lamp with a collectible on top of the lampshade.

5. **[Open door] or [Door]**

The player enters a new room and lights reveal the two paths. As the player approaches a collectible on a chair, blood appears on it, the walls and the floor.

6. **[Dark] or [Distinct Aspect, Light] or [Dark]**

The player enters from the first or third option and is left with two to choose between. The layout and two Distinct Aspects are reused from earlier areas.
7. **[Stairs down] or [Corridor] or [Stairs up]**

The player can choose between three paths. The only difference is the change in elevation. For two participants, King and Poe, the middle option unintentionally featured a collectible and the lighting was slightly darker.

8. **[Open door] or [Corridor]**

The player has the option to go through an open door or down a corridor. With the exception of the door frame, both options are identical. If the player looks behind him/her, a jump scare will occur, but only Lovecraft experienced this.

9. **[Distinct Aspect, Dark] or [Light]**

The player enters a room with a strange painting, a strangely placed wall and a door. Exploring will uncover another door that is concealed behind the wall.

2.2 **Data Collection**

In preparation for the interviews, which were semi-structured, we wrote an interview guide which we read thoroughly and discussed before the interviews were held. The interview guide was rather simple, since the same questions were applicable to most Choice-of-Paths in the game. The questions were kept wide in order to avoid leading questions or to inadvertently cause the participant to exclude relevant information in their answers. In necessary moments, follow-up questions were added for clarification. We also adapted some questions to the context. For example, some participants did not see one of the available paths and thus a question like “Did you consider any of these paths to be the main path, or where you should go?” would clearly not be relevant.
Five participants took part in the study and were interviewed. The location of the interviews and play sessions depended on the proximity to the participants to ensure that the interviews were easy for the participants to attend. One was held at the home of a participant, another at the workplace, and three were held at Södertörn University. Despite the different locations used, a relatively proper setting for the playthroughs and following interviews were actively chosen in each case, with the aim of them being secluded without a lot of people or noise around so as not to distract the participant. Unless directly asked a question we did not interact with the player during the playtest even if the player got slightly stuck. In some cases the players needed clarification in the beginning of the game to understand which buttons to press, but otherwise than that they discovered the game on their own. The game was played on a laptop with in-ear headphones and software recording video of the playthrough and the voices of the participants. The participants were instructed to watch their recorded gameplay straight after the playthrough and they were allowed to jump back and forth or skip parts in the recording as they pleased, although for the most parts they all watched from start to finish. After the initial review by the participant, we interviewed them using points of interests, or choices-of-path, from the video. For each Choice-of-Path, we asked them what they were thinking in each situation and if required we inquired further about specific aspects. Because fear was expected to affect the decision-making, participants were also asked to rate the game’s fear factor on a scale from 0–10; 0 being Not at all and 10 being Paralyzing. They were also asked some questions about choosing paths in games in general.

2.3 Thematic Analysis Method

The analysis of the gathered data was made through thematic analysis, a method where the material is analyzed and put into themes through close reading. (Bryman, 2008) In this study, keywords from each Choice-of-Path were extracted from the transcribed interviews, then combined into themes of keywords, which could later be gathered into larger themes. Each Choice-of-Path in the game was designed to include specific level design aspects with the intent
that these could be combined with the found patterns to create a better understanding of the choices player makes. In the first phase of the analysis, keywords were extracted using deep readings of the transcribed interviews. These keywords were extracted alongside the quotes from which they were gathered so that the context of each vital phrase could properly understood. Both of us completed this process separately and then discussed and combined our keywords until consensus was reached. The keywords were combined into a table that described different themes found in this process and proper descriptions and names were given to each. During the thematic analysis both induction and deduction was used as new themes were combined with previously known themes during the process (Langemar, 2008).

The different themes are separate from one another in how they attract or repel the player but they have many connections in between and several often appear during the same Choice-of-Path.

2.4 Ethical considerations

The participants were all given aliases in the form of famous horror author names in this study to ensure their anonymity and the recorded video and sound material was only used for the sake of this study and was not submitted anywhere else. The participants were all informed of this, as well as the purpose with the study. They were told before the interview that the purpose was to examine how they played the game and that it was a horror game. The more in-depth explanation was given after the interview so that their preconceptions would not skew their answers. While the religious imagery used in the game to create a sense of terror might be considered upsetting and possibly unethical by some due to religious reasons, the intent was to cause unpleasant emotions, and all participants were aware of the horror setting. (Cf. Creswell, 2008)
3 Results

3.1 The Players

3.1.1 A rather scary game

When asked to rate the game's fear factor, participants generally described it as scary and creepy, although all players except Lovecraft missed one of the two jump scares. All participants gave the game a rating of about 6-7 on a scale of 1-10. The participants said the creepiness stemmed both from the sound [King, Koontz, Lovecraft], the surreal setting [Stoker, Koontz] and the jump scares [Lovecraft]. The players also said that fear or uneasiness sometimes influenced their decisions.

3.1.2 Play styles

The participants displayed very different ways of playing the game and this could be seen in both the initial playthroughs as well as in the interviews and the categorized data. The differences were mainly in each player's decision-making and how much exploration was conducted. These differences were summed up into three play styles based on how quickly players committed to one path.

<table>
<thead>
<tr>
<th>Play style</th>
<th>As seen in</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rash</td>
<td>King, Koontz</td>
<td>Commits to a path very quickly, with little to no exploration of the other options.</td>
</tr>
<tr>
<td>Median</td>
<td>Poe</td>
<td>Checks out every, or almost every option before committing.</td>
</tr>
<tr>
<td>Careful</td>
<td>Lovecraft, Stoker</td>
<td>Carefully considers and explores every option before committing.</td>
</tr>
</tbody>
</table>
### 3.2 Choice-of-Paths

In the table below is every participants’ Choice-of-Path. Only some Choices had three options. When referring to a specific one, we will henceforth use “CoP #X”.

<table>
<thead>
<tr>
<th>CoP</th>
<th>Choice 1</th>
<th>Choice 2</th>
<th>Choice 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>King</td>
<td>Koontz, Lovecraft, Poe, Stoker</td>
<td>N/A</td>
</tr>
<tr>
<td>#2</td>
<td>Koontz, Stoker</td>
<td>Lovecraft, King, Poe</td>
<td>N/A</td>
</tr>
<tr>
<td>#3</td>
<td>King, Koontz, Lovecraft</td>
<td>Poe</td>
<td>Stoker</td>
</tr>
<tr>
<td>#4</td>
<td>Lovecraft</td>
<td>King, Koontz, Poe, Stoker</td>
<td>N/A</td>
</tr>
<tr>
<td>#5</td>
<td>Lovecraft, Stoker</td>
<td>King, Poe, Koontz</td>
<td>N/A</td>
</tr>
<tr>
<td>#6</td>
<td>King, Poe, Koontz</td>
<td>Lovecraft</td>
<td>Stoker</td>
</tr>
<tr>
<td>#7</td>
<td>Stoker, Koontz</td>
<td>King, Poe</td>
<td>Lovecraft</td>
</tr>
<tr>
<td>#8</td>
<td>King, Stoker, Lovecraft, Poe</td>
<td>Koontz</td>
<td>N/A</td>
</tr>
<tr>
<td>#9</td>
<td>Lovecraft, Stoker</td>
<td>King, Koontz, Poe</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### 3.3 The Themes

As mentioned earlier, the game and its choices of paths were designed with specific level aspects in mind. This was done with the hope of analyzing both the themes found through the interviews as well as the design choices consciously done in the level to affect the player. The different themes are separate from one another in how they attract or repel the player but they have many connections in between and several often appear during the same Choice-of-Path. The themes are presented below, with the physical aspects of the 3D world first, then the interpretation of that world and finally the themes that seemed to reflect player behavior.
3.3.1 Light

Since the level was rather dark, light sources were easily noticed by the players. An area or object that is lit-up both fit into the themes of light. In many cases the light not only caught the attention of the players but also led them to choose a lit path. In CoP #1, King was the only one who went to the left door, and motivated the choice with that she suspected there might be something scary in the dark.

3.3.2 Dark

An area or aspect that is dark or darker than the player’s present area fits into the theme of dark. This can both mean cases where something is less bright than another option, as well as actual protruding darkness. Some areas may seem very dark in comparison to a lighter area even though they in other contexts could be seen as not as dark. Darkness was in several cases a reason for the players to choose a specific path. In CoP #2 Koontz and King did not see one of the alternatives because it was too dark.

3.3.3 Obstructed View

Should the player come across two options as in CoP #5 where one is an open door and one is a closed door this situation displays the Obstructed View and Unobstructed View. Obstructed View means that the player cannot see. This may be due to darkness, that it is not in the line-of-sight or that something is blocking the view. In the case of CoP #5, the Obstructed View is caused by the door being closed. Two participants chose not to take the closed door due to not being able to see what was behind it. The Obstructed View several times caused players to choose a certain path simply because they did not see that there was another option.

3.3.4 Unobstructed View

The counterpart of Obstructed View is the logically named Unobstructed View. From the CoP #5 mentioned above, the open door is the Unobstructed View. Simply put, the theme means that it is easy to see. This can be seeing objects, the intended path or the alternative paths. This theme can be the result of other
themes. For example, a corridor that is well-lit is likely to be easier to see through than a pitch-black corridor. Lovecraft in CoP #5 and CoP #8 chose an open door rather than a dark hallway, motivating the choice with that he could see through it. In CoP #3 all participants chose the first door to the left apart from Poe who chose the door that was slightly ajar and thus could be seen through.

### 3.3.5 Distinct Aspect

The *Distinct Aspect* (DA) is a theme with several siblings and an object that is easy to see and recognize. It might be a collectible, a painting, or a statue. It sticks out from its environment and grabs the attention of the players. A painting on a wall filled with paintings is not very distinct. However, should the painting be very different, larger or with other colors than the other paintings, it would be distinct. In CoP #3 all participants but Koontz took notice of the door with curtains, but none decided to go through it. In CoP #4 all participants but one chose the second corridor which had a shining collectable.

### 3.3.6 Non-Distinct Aspect

The *Non-Distinct Aspect* (NDA) is the counterpart of the *Distinct Aspect*. It is an object or item that does not stick out. Rather, it functions by empathizing another aspect placed in its near proximity. For example, the corridor mentioned above which is filled with paintings, is a corridor filled with *Non-Distinct Aspects*. Anything that differs from these NDAs will be more distinct. Another example would be a ‘normal’-looking door next to a door covered in blood. During Stoker’s playthrough, he went back in CoP #5 to check the door he came through, but upon seeing it covered in blood, he decided to take another door. In that case, the NDA was more appealing than the DA.

### 3.3.7 Remembered Aspect

The *Remembered Aspect* (RA) is a *Distinct Aspect* that is re-occurring in different areas. In this game, the statue of Jesus and a large painting occurred in two different locations. A small camera also appears on the floor behind the player at random points throughout the game. A *Non-Distinct Aspect* is not likely to be remembered and can thus be utilized several times without being noticed.
by the players. A Remembered Aspect can be used for guidance or for disorienting players. The player remembers the Distinct Aspect and may associate feelings or locations with the memory. When encountered again, it becomes a Remembered Aspect. This may cause different responses depending on the player. In CoP #6 King and Koontz identified the statue as a possible indication that they had been there before and thus chose to examine the other path, while Lovecraft felt the statue gave him a sense of safety as he re-encountered it because he was still shaken from a jump scare.

3.3.8 Interaction

The possibility of interaction lured players to certain areas. This connects to Distinct Aspects as these objects or aspects were interpreted, sometimes correctly so, to be possible to interact with. Not only paintings or collectibles were interesting to the players from an interaction-standpoint; Doors were also examined to see if they were locked. In CoP #7, Poe suddenly stopped considering what path to choose when he noticed a collectible glowing in the dark of one path and simply went there. It can be noted that this collectible was moved afterwards, because of this effect. When asked why, he explained that besides doors, collectibles were the only thing he could interact with, so he wanted to do so.

3.3.9 Main Path

The aspect of Main Path is connected to the interpreted goal of the game. The main path is the path that leads to progress and an eventual end to the game. Several other themes may be connected to the interpretation of a path as a main path. The most commonly occurring themes for a path interpreted as Main Path appear to be Light and Distinct Aspect. Cop #2 where the choice was between a staircase going down and a staircase heading up, Lovecraft felt that going up was better as the horror setting, along with the lack of windows, implied that he was underground. Although unsure, he felt that the path upwards was probably the Main Path. Poe, in the same Choice-of-Path, theorized that the stairs upwards
may have been brighter, and that symbolically a staircase heading up was a more attractive option. However, in CoP #2, the lighting was in actuality equal in both staircases.

3.3.10 Side Path

Side Path is the opposite of Main Path, does not necessarily lead to progress and will not result in the completion of the level or game. Players sometime chose Side Paths despite this, in the hope of finding items, avoiding jump scares or exploring alternative paths. In In CoP #2 Stoker thought of treasures and cellars and went downstairs. He did not think either of the options were an obvious Side Path, but if one of them were, it would probably be the way down.

3.3.11 Availability

When the player comes across a choice where one path is closer than the other, or a choice where one path is more easily accessible, it fits in the Availability theme. Availability is not limited to spatial distance, but is also affected by the effort required to reach the end of the path in context. For example, a locked door might require the player to find a key or a way around and is thus not easily accessible, even though that door may seem available when located close to the player. An open door is quite probably easier to get through, thus more available. In CoP #1 almost all participants went right, choosing the closest, unlit door.

3.3.12 News

Like most other first-person games, new locations are discovered as players progress. Finding new areas was often a motivation for players in their choice of path. Koontz specifically chose a staircase leading down since he reasoned it would take him somewhere new. Despite all paths leading somewhere new, some paths were considered to be more new than others, likely
because *Distinct Aspects* by themselves are also seen as New. King in CoP #8 chose to go through the open door, describing it as a “new room” despite not having examined either path more than with a look. In fact, both paths were identical, with the exception of one being behind a door frame.

### 3.3.13 Backtracking

Backtracking is the process in which players have to go through an area which they have already explored. In some instances, the players chose a path because they were already on the way there, so not only was it closer than an alternative path, the players would also have to retrace their steps should they wish to take another path.

### 3.3.14 Deduction

The act of coming to a conclusion, or assumption, on the nature of a level aspect, such as “this door contains a safe room” or “I need to collect keys to open this door” is *Deduction*. The players interpret their surroundings, and sometimes include previous knowledge of games to determine where to go and what to do. For example, King avoided a door framed with curtains in CoP #3 since she thought it was “too obvious” and both she and Poe believed a jump scare might follow if they went through that door. In CoP #1 Poe said that while he wanted to go toward the light, which was the other alternative, he also wanted to “get anything bad over with” and chose the unlit door, and thus associated “anything bad” with the dark door.

### 3.3.15 Disorientation

Players feeling lost were common in this study, which may have to do with the non-logical layout of the game. The disorientation meant that they did not know where they were or if they had been there before, or which door they had come through. In some cases this was resolved by finding an area that was definitely new. Koontz, as mentioned earlier, chose a staircase in CoP #7 as he believed it would take him somewhere new and possibly reduce his disorientation.
3.3.16 Exploration

When several options were available, most players examined their alternatives, but it was quite rare that someone examined every alternative. *Exploration* can include both the action of choosing an interpreted *Side Path* with the aim of finding treasures, as well as the process of investigating aspects or paths deemed interesting before committing to a path and action. Many times it was difficult for participants to determine which they thought was the *Main* or *Side Path*, but it appeared to be very common for players to attempt to vary between *Exploring* and making progress. While the lack of quantitative data and a larger group makes it impossible to draw any real conclusions, it appears to be a fairly equal distribution between the application of the two.

3.3.17 Unattractive themes

These themes are *Attractive* in their default state, so the *Unattractive* attribute was added to some themes and describe that a theme repelled, rather than attracted, the player from a specific choice. For example, Lovecraft described himself as rather scared when he entered the final room and said that the large, open space made him uneasy, so therefore he kept close to the walls and avoided the open center of the room. Poe, on the other hand preferred the small, secluded area in the same room less and did not at all mind the open space. Thus, a large room can both attract and repel the player.

The curtain-door in CoP #3 was by Lovecraft considered the main path, or where they should be going, based on the Distinct Aspect of the curtains, while others [King] thought it seemed suspicious since the door looked different than the other doors. Thus, some participants chose the door based on it being different and some avoided it because they assumed, due to *Unattractive Deduction*, that a jumpscare might occur if they went that way. This also connects to the Non-Distinct Aspect. In another hallway, CoP #8 Koontz continued right because he thought the path ahead looked like a “boring door.”
4 Analysis

4.1 A wide spectrum - Categories of themes

4.1.1 Player Styles and Choice

While no statistical evidence can be drawn from this data, it is interesting to note that choices of path varied greatly among all the participants, meaning that this design was perhaps not very good at leading players. It is, however, also important to remember that many Choices-of-Path were intentionally designed to pit one likely attractive aspect against another to see if some aspects were superior to others in leading ability.

4.2 Themes and Level Design

The many patterns or themes extracted from the interview data were in several cases closely connected to one another, but they were also found to differ from each other in how they affected the players’ choices. 

4.2.1 Light and Dark

Light and dark, as can be seen in the other themes analyzed here, proved to be fundamental to the interpretation of the environment. It was mentioned in every Choice-of-Path by almost all participants and in many cases proved to be the main reason for choosing a specific path.

As the level is very dark, any light source stick out and become noticeable in a manner it might not have, had the level instead been bright. Several participants explicitly said that the lighter path usually was the Main Path. Light and Dark therefore seem to affect player interpretation of which path is the Main or Side Path. In the case of equal length in distance, or equal Availability, but unequal lighting between options, the participants in general chose the lighter path. On several occasions unlighted, Dark, paths were assumed to be closed-off, locked or not to have possible paths, and dark areas were often not explored if there were lighter areas available. The lighting in some sense seems to affect the
player’s perception of Availability. One explanation of this could be that a door hidden in pitch-black darkness can look identical to a corridor stretching into the dark.

An interesting aspect of lighting is also how it appears to rely much on the 3D world as well. In CoP #2, Poe mentions that the stairs leading up is brighter, when both stairs have identical lights in identical positions relative to the stairs. The reason it looked brighter may be that more walls hit by light were visible when looking up stairs rather than down. Poe repeats this statement in CoP #5, saying that he fled towards the light. Both paths are identically lit, but the difference may be that the option he did not choose was an open door, meaning that light had to travel further before hitting a surface, becoming more diffuse and less apparent. The dark blood covering the floor may also have affected the interpretation.

If a level designer specifically wants to guide players somewhere, changing the lighting may be an important tool to do so.

4.2.2 Staircases and New

It was clear that many of the themes were connected in more than one way to each other. In addition there were also cases where one theme or design choice could result in different outcomes. Poe, Lovecraft and Stoker, the Median and Careful players, associated staircases leading down to darkness, vaults and cellars, but their decisions and emotional responses differed. For example, the staircases down were interpreted by Stoker as leading to treasures, as dungeons and cellars are generally located below, while Lovecraft and Poe considered staircases down to be scary and much rather chose the staircase up, when given the option. Although Poe did not specify that this was his reason to choose the staircase leading up at CoP #2, he did say that symbolically, staircases leading down lead to scary things while staircases up go to heaven. There was one association with staircases that was not contradicted by the participants that mentioned staircases, and that was New. The game was on a level with flat floor, and many participants conceived the staircase to lead them somewhere new, where they had not been before. The staircases seemed to be considered a level-
breaker, an indication of progress and an aspect that would take the participants somewhere new. However, as it was associated with something *New*, the idea of the unknown and possibly dangerous was present when going downwards. Therefore, forcing a player to go downwards may be a way to increase uneasiness in the player. In addition to that, although not possible to prove without further studies, it could be possible that presenting the players with the option to go upwards a staircase, which might make the players feel less uneasy, only to introduce a scare as they go up, could be an efficient way to scare players.

### 4.2.3 Doors, Corridors, Obstructed and Unobstructed View

Throughout the game, the players encountered several different ways of getting into new areas, the most common one being closed doors. Corridors occurred in several instances, but were often not noticed by the players. They were considered passageways or “just some corridor” as Koontz described when he looked at a path hidden in darkness. They were only chosen, when the options were other things than more corridors, three times, and in one of these cases it was due to a collectible shining far away. In the instances where the players were given a choice to go through either a closed door or an open door, most players at least checked the open door. In CoP #8, Lovecraft went through the open door and motivated it with that he could see through the door, despite the fact that his other option was a corridor, identical to what was behind the door. Thus, the path Lovecraft chose was the more obstructed option, meaning that the concept of a room was more attractive than a corridor to him. Some players seemed to be more reluctant to approach closed doors once they had encountered a jump scare, and motivated this with that they could not see what was behind it. In CoP #3, Poe motivated his choice of a partially open door due to it being near him, and that the fact that it was partially open insinuated that it was the way he should go.

Players occasionally associated doors without lights to being locked. In general, the brighter a door was, the more alluring it appeared to become for the player. There was not a case were a well-lit door was associated with uneasiness or scares. However, the door with a distinct curtain in CoP #3 was met with some
hesitation, even though that players considered it to be the *Main Path* they also associated possible scares with it. This may have been an effect of one of the other options with a twice as high light intensity.

Based on these observations, it would seem that a door that is distinct, but not well lit would not be preferred, should a door that was better lit be available. Should one wish to exploit this in a game, placing an open door with a lit interior as bait could be a good option. The lighting would make the open door stand out in a dark area, making it a *Distinct Aspect*, but one that can only be investigated by entering the door. However, as with the case of the curtains where one participant considered them “too obvious” and avoided them, making a path *too* alluring might actually scare players away, as they might interpret the path as “too good to be true”. The surrounding circumstances clearly affected the interpretation of the doors, as both *Light*, *Dark* and *Distinct Aspects* were shown to be connected to the interpretation of the level design.

### 4.2.4 Distinct Aspects, Remembered Aspects and Interaction

The other most singularly noticeable guide for the players were interesting objects. If there was an alluring object, a *Distinct Aspect*, in the field of view of the players, they usually went that way. This was most obvious with the shining collectables that were placed throughout the level. In almost all cases, the players went in the direction of the shining collectible. Paintings, lamps and other objects with which the players could not interact also stirred interests in the players. However, once an item proved not to be possible to interact with, the interest subsided. Recurring, *Remembered Aspects* such as the paintings and the statue held less interest the more the players had come across them earlier in the game. The camera, which to several participants appeared as possible to interact with, even though this was not the case, was ignored after the initial encounter. The participants did note and comment on the camera’s reappearance [Koontz and Stoker], showing that it had caught their attention and curiosity sufficiently, but they did not attempt to interact with it.
4.2.5 Non-Distinct Aspects

The Non-Distinct Aspect is interesting in that it is, unlike other Aspects, not very noticeable. Rather than attracting attention to itself, the Non-Distinct Aspect functions by making other aspects stick out. In most cases, the Non-Distinct Aspects seemed to repel players, but in some cases it also attracted players as they wished to avoid the main path. Since the Non-Distinct Aspect does not stick out, it also seems to connect to the Side Path-theme. We were at first hesitant to consider the Non-Distinct Aspect a theme at all since it works by not being noticeable, but since it seemed to cause conscious decisions it was deemed distinguishable enough. Koontz, for example, said that he avoided a door due to it looking dull, rather than it being that something interesting was the other way. Thus the Non-Distinct Aspect became Unattractive in comparison to other alternatives. In the case of CoP #3 where the first statue is found, King said she wanted to avoid the door with curtains since it was “too obvious” and chose a less protruding door. Stoker also chose a less distinct door in CoP #5 due to one path being covered in blood. This may also be connected to Unattractive Deduction, which is further explored below.

4.2.6 Exploration, fear and immersion: Deduction and Unattractive Deduction

There seemed to be an increase in carefulness the further into the game the players got. The participants’ level of fear or immersion seemed to have some effects on their choice of path. Poe did not mind going through a dark door in the beginning of the game, but as it progressed he became more reluctant to do so and went towards the light instead. Lovecraft said that, following the game’s first jump scare, his behavior, at least for a while, became more instinctive and caused him to discard his previous strategy of not going where he thought the game was leading him. The scare seem to have encouraged his already Careful play style. This may indicate that the level of immersion, or how scared the player is, could affect player decisions. The more worried the players became, the more they avoided areas that made them uneasy and seemed to prefer lighter areas and doors.

The fear of jump scares, of deducing that the level designers might have placed disturbing things in the players’ paths, was present in several of the
playthroughs. This caused an aversion toward paths that were interpreted to lead to jump scares. In several cases, participants chose a Non-Distinct Aspect rather than a Distinct Aspect with this interpretation in mind. This Unattractive Deduction caused players to avoid areas that stuck out, such as the curtain door in CoP #3. The more worried the players were, the less daring they became to choose distinct paths.

Stoker remained rather unaffected and chose the staircase down, while the others who seemed more uneasy in general avoided the staircase down. Stoker did not seem to mind exploring despite the horror setting and, while admitting that he was not sure he thought so at the time, considered the staircase going up to be the main and the staircase down to be the Side Path. Other participants chose the staircase going upwards and also considered it to be the Main Path. The players’ willingness to go to alternative paths or paths that could lead to scares therefore seem to be reduced as the players become more scared. These results show that it is likely that scared players would choose the path they think is safer than the alternatives, which is something game designers could probably utilize to their advantage when guiding players. As there was in actuality only one possible way ahead and no real backtracking available in this game, we could not examine if this behavior would have persisted if the player was forced from time to time, due to need of keys or other objects, to encounter the uncomfortable paths.

4.2.7 Availability, Backtracking and News

One of the most frequently mentioned reasons for choosing a path was that it was closer than the alternative. For example, Poe explained during CoP #8 that he chose to not go down the corridor because there was no knowing how far it would lead, compared to the open door next to him. Availability might in a sense be connected to Unobstructed View as it is perceived to be easier to see and reach through an open door, than a closed door. It is also worth noting that Availability is an interpreted trait, meaning that something that seems easily accessible is not necessarily very available. A door that is near the player could be locked, and an open door might be considered more available than a closed door, even if the
doors are equally close to the player. Interpreted Availability, Unattractive Deduction and other similar themes are the result of the players’ interpretation, and not necessarily the actual level design.

Related to Availability is another frequently occurring theme, Backtrack, where participants described that they did not want to Backtrack to a previous area. After proceeding down one path without exploring the alternatives first, participants were sometimes asked why they did not do so at this point. A common reply was that they did not want to backtrack and might as well continue on the current path. In CoP #3 King deducted that the unlit doors could be locked. In order to avoid having to try them just to see that they were locked, and then have to go back, and Backtrack to the other doors, she went directly to the lit areas. Connections may be drawn between this behavior and the News theme, which may in turn be connected to Distinct Aspect as a not a previously encountered Distinct Aspect might indicate that the player has reached a new area. News was occasionally observed in participants who explained their actions with wanting to find something new or to get some variety. All these combined themes appear to suggest that players will seek out and investigate things that break from the norm, while avoiding that which has already been investigated.

In many cases it seems like the players used Deduction to figure out where they had been and which areas that were new to avoid having to Backtrack.

Regarding most found themes, it became clear that players in most situation utilized their previous knowledge of games in general and their experiences in this particular game; “where the light is, that is where you should go” or “treasures are often in cellars” and connected that with the level design they encountered to understand their surroundings. While the game design cannot guarantee a certain result regarding player decisions, certain aspects of level design seem to affect player decisions, based on the players’ individual playstyle. Although not possible to prove without further studies, these results imply that it is likely that if the game designers identify their target group’s general playstyle, guiding players in a uniform manner using level design might become easier.
5 Discussion

5.1 Method discussion

5.1.1 Participant selection and representativity

During the pilot study, we reasoned that our troubles of finding participants was due to our usage of a famous horror game as context and that its name could be what scared people off. Using an experimental homemade game for the full study thus seemed appropriate. Despite this, very few people reported interest in the study and reaching even the minimum required amount of participants proved to be difficult. Many of the possible participants that might have fit the set criteria did not have time and others were simply not interested in playing horror games. While several attempts at finding students from different programs and participants from outside the college was made, the end results were sparse as very few responded. This meant that we had to allow participants for the sake of simplicity, rather than them being a perfect fit for the criteria. King reported that around 30% of her games recently played were horror games, higher than what we had hoped for. Koontz had many years of experience playing games, but had not played first person games for several years, and had little to no experience of horror games. While this might cause low validity, the lack of control regarding participants in the end actually resulted in a more heterogeneous group than one we initially intended.

With the low amount of participants, it is difficult to know how much more data there is to uncover. However, because many lines can be drawn between the existing participants’ actions and behavior, we suspect that the main bulk of data has been found and that further inquiry could result in research saturation (Lankoski, Björk, (in press), p.4). No real new data was uncovered in the final interview, so perhaps, regarding the scope of this study and the experimental game developed for it, research saturation might have been accomplished.
5.2 The Game Experience

When the experimental game was created, we believed it to be important to avoid being too ambitious regarding graphical assets and sound since we do neither had the time nor the competence to make all parts of a game ourselves, so all graphical assets had to be found as freely available online. The range of assets available turned out to be much lower than expected, however, and setting up a frightening environment proved to be difficult, which is why the religious theme was implemented. To make the best of the situation, a focus on psychological horror was considered, although this too turned out harder than expected due to hardware constraints. The lack of play testers also became apparent, as participants of the study appeared to play the game in ways not previously considered: Some horror events implemented to keep players on edge were missed, sometimes entirely, and some Choices-of-Path became skewed as the lighting turned out to be far weaker than expected, making participants completely miss some options. After noticing these problems, some things in the level were adjusted to account for the problems, but these changes are noted when relevant.

5.3 Discussion and Continued Research

Some very interesting things could be noted in the study. Firstly there were not many uniform guiding designs, even though some designs seemed to have similar impact on the players. Secondly, the reasons for this were in several cases connected to the players’ interpretation of the level design in the environment. A noticeable aspect was that the players’ utilized both in-game experiences and previous knowledge to make sense of their surroundings and where they should be going. Understanding the target audience for a game and distinguishing that target group’s plays style is likely to be very valuable when designing with guidance in mind.

This was not major study, so in order to create a framework or a set of level design patterns to aid game designers in their guidance of players, further research would be required. However, the results imply that there are aspects that do lead players in a uniform manner, but the extent is unknown. There were also large differences depending on the player’s play style, experiences and
preferences, which could also be explored. Studying how different play styles affect player decisions would be a natural continuation to this study. Also adding more level design aspects or examining level design guidance in combination with a narrative or explicit goals might lead to interesting results.
6 Conclusions

There were connections between level design and player choice of paths. Some were easier to distinguish, such as stairs leading to new areas and light being preferred over dark, but other level design aspects resulted in a very wide spread of choices. Some of the differences may stem from the experiences of the player, both in-game and outside of the game, and the player's level of unease. There were, as we believed, two major components that seemingly affected the choices; the actual level design and the interpretation of the different environments. However, this interpretation was not uniform and may have been affected by the players’ preferences and experiences. Players that associated staircases down with scary things chose to go up, and players that associated staircases heading down with treasures naturally went down. Players were more likely to go towards light and away from darkness if they were scared.

Availability, distinct aspects and illumination seemed to be the most attractive level design aspects to the general player. Darkness, backtracking and the players’ own negative associations were the most unattractive aspects of a path.

Thus, if a level designer wants to guide players, this study suggests that an area with higher light intensity than the alternatives, that is easily accessible for the player and is distinct from its surroundings will be a very attractive path and a good tool, although too much attraction can cause a reverse effect. A less-illuminated path that is troublesome to reach and features aspects the player may associate with negative effects is suggested to be very unattractive.
7 References:


