Dead Fun: Uncomfortable Interactions in a Virtual Reality Game for Coffins

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Abstract
Uncomfortable interactions are a common aspect of daily life, and have been explored in Human-Computer Interaction; yet little is known about uncomfortable gaming experiences. In this paper, we report on the design and preliminary evaluation of a game in which one player is invited to lie down in a coffin. Results of an exploratory user study suggest that the restricted space of the coffin along with its unsettling cultural connotation led to an engaging, thought provoking experience. By combining the previously separately explored dimensions of physical and psychological discomfort, we hope to better understand the effects that such challenges can have on player experience.

Author Keywords
Uncomfortable Interactions; Restricted Space; Games; Virtual Reality

ACM Classification Keywords
K.8.0 [Personal Computing]: Games; H.5.1 [Information Systems]: Artificial, augmented, and virtual realities.

Introduction and Background
Uncomfortable experiences are the basis of a wide range of entertainment products. From roller-coasters, to horror films and scary video games, people find

Figure 1: The initial prototype using a cardboard box to imitate a coffin.

value in causing themselves temporary discomfort and even distress. Discomfort has been generally studied in Human-Computer-Interaction (HCI), for example, by Benford et al. [3] who explore uncomfortable interactions with a focus on art and interactive installations. However, little is known about uncomfortable gaming experiences and player experience research generally focuses on positive aspects on engagements with games [7].

Despite this focus, there are a great number of games that use psychological and physical discomfort separately as a core mechanic. In the most direct sense, videogames such as the *PainStation* and *Tekken Torture* use physical pain to make players uncomfortable. *PainStation* invites two players to compete in a match of *Pong*, which is displayed on a tabletop display. Both players place one hand on a heat pad underneath a small whip; both devices are used for physical punishment if the opponent scores. *Tekken Torture* is a 2D fighting game that delivers mild electric shocks to different parts of the player's body depending on where on their game avatar's body they were hit. Additionally, other work has explored uncomfortable games indirectly such as using a gas mask and the player's breath as a control method [6]. These games form a genre that is not fun to play in a traditional sense but use player distress as an engaging and unique game element [1].

The use of psychological discomfort in contemporary video games is much more common. Drawing heavily from the tropes of psychological horror film and literature, games like *Amnesia: The Dark Descent* and *Outlast* create a tense atmosphere in which the player cannot harm the monsters that stalk them, and must survive by other means. Further games, such as *Five Nights at Freddy's* and *F.E.A.R.* make heavy use of "jump scares", typical of slasher flicks, to terrify the player. In addition, it is important to recognize those games that are designed to cause distress through empathy with characters in uncomfortable situations, such as the civilians in a war torn city in *This War of Mine,* or the complex emotions of the protagonist in *Dear Esther*.

Given the wide range of physically and psychologically uncomfortable experiences found in contemporary video games, we argue it is important as games experience researchers to better understand the factors that affect those play experiences so we may better understand their causes and effects. In this project, we aim to further explore uncomfortable gaming experiences through the design of a game prototype that aims to make players uncomfortable. We present *Taphobos*, an experimental two-player game where one player is enclosed in a real coffin (casket) that serves as a physical gaming environment. We report results from an exploratory user study that was carried out while exhibiting Taphobos at EGX Rezzed, an international game show. Results suggest that the restricted space of the coffin along with its unsettling cultural connotations led to an engaging and thought provoking experience among players.

By combining results on previous research on discomfort we hope to better understand the effects that such challenges can have on player experience. Shifting the focus from what is traditionally considered to be enjoyable and comfortable elements of play [7] opens up a more complex perspective on gaming. Thereby, we further explore the role of discomfort and

Figure 2: A player in the coffin wearing the VR headset. The lid is closed during gameplay.

contribute to a better understanding of elements of games that are at the heart of player experience.

Designing Uncomfortable Games

We followed an iterative design process in developing the concept for an uncomfortable game. In this section, we give an overview over the development process along with core elements of the final game.

Initial Game Idea

The initial idea for the game was developed at an interdisciplinary workshop as part of the AHRC funded Performance and Games Network. At this workshop, a group of developers was challenged to create an application that includes "unusual places" and "restricted experiences". A game which is played using a Virtual Reality (VR) headset was chosen, in which the player is placed in a virtual coffin with spiders and rats. A VR headset was used because it would allow an element of interactivity with the player in the "coffin", which a non-digital implementation would not allow.

Iterations of the Gaming Environment

While the first prototype of the game only included a virtual coffin, initial informal testing revealed that player experience could be enhanced by physically restricting the player. For example, figure 1 shows the use of a table and cardboard to restrict player movement. This aspect was so important that a real coffin was later acquired in order to add a further sense of realism to the experience.

Final Game Concept

The final game offers a two-player experience that uses voice to facilitate communication. The first player is enclosed in a physical coffin wearing the VR headset (Figure 2) that depicts the interior of a virtual coffin (Figure 3). The second player uses a normal PC screen to navigate a 3D world in which the coffin is hidden (Figure 4), using a gamepad. The goal of the game is for the second player to locate the burial site of the entombed player in the virtual environment. Audio and visual clues along with riddles are provided to the buried player, who can then instruct the second player via voice communication. The idea was to enable one player to see the world in which the coffin is hidden, whilst the other player has access to information on how to navigate the virtual environment.

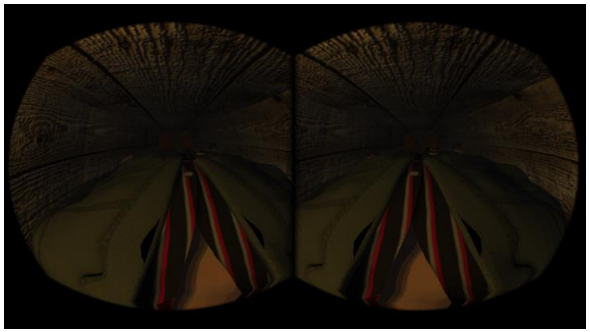

Figure 3. The view through the VR headset.

Figure 4. The rescuing player's view.

Exploratory User Study

We carried out an initial user study to better understand how participants would feel when engaging with *Taphobos*.

Participants and Procedure

We attended an international games exhibition to show the game to a wide variety of the gaming public. Out of the persons interested in *Taphobos*, we invited ten players (two female) to try out the game and participate in the exploratory user study.

After giving informed consent, participants tried the game in pairs of two. Following this period of play, we carried out a short post-play interview asking questions about their experience. The research was approved by the University of Lincoln College of Science ethics board.

Data Gathering and Analysis

Four interviews took place with pairs of players (i.e. the coffin player and their savior) of which two pairs previously knew each other before the experience, and in addition two people who had played in the coffin were interviewed individually. Questions were designed to encourage players to ref*lect on their experience openly, enquiring* how they feel before, during and after playing the game, and *whether the player in the coffin felt like they had a sense of control.*

Data was audio recorded, transcribed, and thoroughly read and analyzed by one researcher using Thematic Analysis, following the protocol proposed by Braun and Clarke [8].

Results

Three main themes emerged during analysis.

THEME 1: EMOTIONAL RESPONSES

The emotional responses to the coffin were split into three distinct phases of the experience: The initial reaction, the response whilst in the coffin and after they had exited. As the game was exhibited at a conference it could be viewed whilst the prospective players queued up to play, causing mixed emotions among players, with one participant stating they were "*kind of nervous actually cause you're about to be put in a coffin*" (P7). This nervousness was a common theme amongst the participants but it was also joined by a vein of curiosity, for example stating that "*I was interested. It's not something you do every day, lay in a coffin*" (P9). Once the players had got to the front of the queue they entered the coffin, the VR headset and headphones were given to them and the lid was closed. Once they were inside many experienced a significant initial effect, evidenced by statements such as "*It was kind of overpowering - it overpowered the senses a little bit*" (P6). During gameplay and consequent communication with the second player in the efforts to free the coffin player this initial shock turned into the gameplay needed to win: "*I just read the clues to my friend and it all seemed to work out ok. He didn't take too long to find me*" (P1). Once the coffin player had either been found or died (in game!) they were helped out of the coffin, and a common reaction was that of relief: "*It was still like, you know, thank god you're out of that!*" (P6). Some players contemplated the coffin as a somewhat uncomfortable technique in reflection, for example, one participant stating that "*It's a unique experience but it's kind of a little bit morbid*" (P2).

THEME 2: RESTRICTED SPACES

There was a shared feeling by all of the interviewed participants that the coffin felt like a restricted space. This was mainly focused on the physical restrictions, for example, one participant felt that "*It was really strange at the beginning because I couldn't I kept trying to move but then it would just be a wall there*" (P2). The enclosed nature of the coffin was a unique experience for all participants, although some thought that the interpretation of the coffin provided by the game was life-like, triggering statements such as "*I can't attest to being buried alive in a real coffin but I can imagine it probably might be something like that*" (P6).

THEME 3: GAMEPLAY

Finally, aspects of gameplay were the last theme identified during analysis. This mainly focused on how the participant would change the game to make it a better experience, such as making it more uncomfortable, for example, one participant suggesting that "*If it [the game] was longer it would certainly add more claustrophobia you would start to maybe panic a bit*" (P6). Likewise, there were some suggestions for improvement with regards to the technology used to provide the coffin experience needs to be improved in terms of immersion, as one participant suggested that "*You don't necessarily feel too in a coffin because you've got the headset on*" (P10), suggesting that modern technology in a coffin breaks the illusion of being buried.

Discussion

In this project, we have begun to explore physically and psychologically uncomfortable interactions in a playful context. To this end, we created *Taphobos*, a coffin-based two-player game that allows us to explore physical and psychological discomfort in an entertainment setting. Results of an exploratory user study show that the restricted space of the coffin along with its unsettling cultural connotations has led to an engaging and thought provoking experience.

Player Experience in Coffin-Based Games

Generally, findings from this preliminary user study show that the physical and psychological nature of coffin-based play led to an unusual, yet engaging player experience. For example, our results show that the role of anticipation in coffin based games is of high importance. This includes the physiological contemplation of the players as they see the coffin for the first time and as they then approach to enter the coffin and play the game. This effect is well described using the analogy of a rollercoaster by Benford et al. [3] as the initial effect followed by a thrilling physical sensation and the euphoria of relief having survived, and could be integrated into gameplay to further increase player experience.

Future Opportunities for Coffin-Based Play

Based on our findings, there are two main areas of research that we aim to explore next.

Exploring Physically Restricting Game Interfaces. Our preliminary results show that playing games in physically restricted environments does not necessarily detract from, but can in fact contribute to player experience, an aspect which is also evidenced by previous work in other domains, e.g., research on play within cars [4]. Based on the initial design, we plan to further explore this aspect through the development of different interaction paradigms that highlight the restrictive nature of the coffin, for example, game

interfaces that expect gesture-based input while the player is confined to the coffin.

Leveraging Games to Foster Conversation around Death. There is also a possible area of future work in regards to the cultural and superstitious connotations of the coffin especially around death. As one participant observed, *"It's a unique experience but it's kind of a little bit morbid"* (P2), suggesting that the coffin can be leveraged to foster conversation around death, and to participate in the growing movement to use death as an opportunity for design [9].

Conclusion

This paper represents a first step in exploring uncomfortable interactions in game experiences. Through the development of a virtual reality game that uses a real coffin, we identified a variety of cultural and psychological factors that led to a pleasurable discomfort in the players. These factors can both help understand how discomfort can be enjoyable as part of a game experience, and also support games that are designed to take advantage of this kind of approach.

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