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“Horror, guilt and shame” - Uncomfortable Experiences in Digital Games

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ABSTRACT
Gameplay frequently involves a combination of positive and negative emotions, where there is increasing interest in how to design for more complex forms of player experience. However, despite the risk that some of these experiences may be uncomfortable, there has been little empirical investigation into how discomfort manifests during play and its impact on engagement. We conducted a qualitative investigation using an online survey (N=95), that focused on uncomfortable interactions across three games: Darkest Dungeon, Fallout 4 and Papers, Please. The findings suggest games create discomfort in a variety of ways; through providing high-pressure environments with uncertain outcomes and difficult decisions to make, to the experience of loss and exposing players to disturbing themes. However, while excessive discomfort can jeopardize player engagement, the findings also indicate that discomfort can provide another facet to gameplay, leading to richer forms of experience and stimulating wider reflections on societal issues and concerns.

Author Keywords
Player experience; uncomfortable interactions; emotion; emotional challenge; reflection.

CSS Concepts
• **Human-centered computing → Empirical studies in HCI**

INTRODUCTION
Within the area of games and HCI, there has been a recent shift towards understanding more complex forms of player experience, such as investigating the interplay between positive and negative emotion [4], and exploring the concept of emotional challenge [5,12]. In addition, a growing number of commercial games are exposing players to difficult themes, such as alcoholism and abuse e.g., Papo & Yo [G6], and the morality of killing e.g., Spec Ops: The Line [G11]. Smethurst & Craps [36] also suggest that over the last two decades, video games have increasingly incorporated aspects of trauma, from players witnessing traumatic events to acting as perpetrators of trauma themselves. However, despite the fact that these experiences are likely to make players feel uncomfortable, player discomfort has rarely been investigated explicitly.

Uncomfortable interactions have been a focus in wider HCI research, specifically in the context of interactive performance and public installations [2,3]. Benford and colleagues [2] argue there is value to be had from such experiences, whether through entertaining or enlightening users, or creating opportunities for social bonding. Building on this line of research, work in the area of games has explored physical or social forms of discomfort [8,10,17]; alongside psychological forms of discomfort caused by horror games [14,27,28]. There have also been some initial steps towards exploring emotional discomfort and when this may lead to positive or negative player experience [22]. Nevertheless, there is still much to be understood about how discomfort is caused in digital games, the different forms of discomfort that players experience and how discomfort influences overall engagement.

In this paper, we explore these questions through presenting the findings of a qualitative analysis of 95 responses to an online survey. The survey focused on player experiences of discomfort in relation to three pre-selected games: Darkest Dungeon [G7], Fallout 4 [G2] and Papers, Please [G1]. The findings indicate how discomfort results from uncertainty in high pressure environments (creating anxiety and fear); when things do not go as planned (leading to frustration and feeling foolish); being provided with much responsibility but limited choices (creating anxiety and guilt), the tragedy of losing an in-game character (resulting in sadness and helplessness) and unwanted exposure to disturbing themes (leading to disgust and nausea). To process these intense emotions and experiences, players often needed time and distance from the game. While for some there was a risk that discomfort could jeopardize engagement, it often appeared to facilitate richer forms of gameplay experience. In addition, discomfort was also seen to act as a catalyst for reflections on wider societal issues and concerns. Thus, the main contribution of the paper is to present a deeper understanding of uncomfortable gameplay experiences that explains what causes them, what emotions they invoke and how players respond to them.

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RELATED WORK

Uncomfortable interactions and games

Within HCI, Benford et al. describe uncomfortable interactions as those that "cause a degree of suffering to the user" [2, p. 2005]. They argue that such interactions can, when carefully and ethically managed, provide benefits such as entertainment, enlightenment and social bonding. In addition, they describe four main types of discomfort: visceral (caused by unpleasant sensations or pain), cultural (caused by difficult themes and associations); control (caused by surrendering or gaining responsibility) and intimacy (caused by distorting social norms).

While the examples provided in the work of Benford and colleagues [2,3] tend to focus on interaction within contexts such as interactive rides and public installations, there has been an emerging area of work applying the concept of uncomfortable interaction to digital games. For instance, Musical Embrace [17], takes inspiration from causing discomfort through intimacy, where the game utilizes a pillow-like controller that needs to be 'hugged' by players from both sides. In another example, where designers focus on physical and cultural discomfort, the two-player game Taphobos requires one of the players to be enclosed in a coffin whilst wearing a VR headset [8].

Related to the concept of uncomfortable interaction, abusive game design aims to challenge normative game design in a variety of ways e.g., through inflicting physical pain, incorporating unfair mechanics or causing embarrassment [39]. For instance, the authors [39] describe Dark Room Sex Game [G5], which involves players using motion controllers in a rhythmic fashion to simulate a sexual experience. There game relies purely on audio and haptic feedback and the imagination of the players as they participate in this a socially awkward party game.

Negative emotions in player experience

The examples provided thus far have all been created to test the boundaries of play by exposing players to specific forms of interaction. With respect to mainstream games, and more typical player experiences, the literature is increasingly indicating that negative emotional experiences, are a surprisingly common part of gameplay.

Horror games are an obvious example where players may experience uncomfortable emotions such as fear [e.g., 8,12]. Frustration has also long been known to result from dealing with the challenges of play [20,24,26] but recent work has focused more explicitly on understanding a wider range of emotional experience. For instance, Carter and Allison [11] examine the negative emotions that arise when one player kills another in DayZ [G4]. While killing in many other multiplayer shooters rarely makes players feel bad, the consequences of permadeath and the ability to attack others even when they do not pose a threat, seem more likely to result in feelings such as guilt and regret. Nonetheless, the authors conclude by suggesting that the popularity of the game indicates "an intense brutal experience, peppered with moral anguish and guilt" is precisely what appeals to DayZ players.

In other work investigating emotionally moving moments in games, Bopp et al. [4] found sadness to be the most frequently reported emotion, which was often evoked after the loss of a character that the player was attached to. Other negative emotions include shock, anxiety, fear, frustration and guilt. Despite the fact that the vast majority of reported experiences involved negative or mixed affect, players also found these moments to be rewarding, as reflected in the high ratings of both enjoyment and appreciation scales (developed by [32]). While focused explicitly on emotionally moving moments in games, as opposed to purely uncomfortable experiences, the findings of Bopp et al. [4] indicate that negative emotions can play a role in supporting positive player experiences.

Another avenue of research that provides insight into player discomfort is related to the concept of emotional challenge [12]. While Bopp and colleagues [5] found the primary negative emotion for conventional forms of challenge was frustration, in contrast, emotional challenges were mainly associated with sadness, fear and tension. These emotions primarily resulted from having to deal with difficult themes (e.g., death, illness, torture) and engaging with difficult in-game decisions (e.g., having to choose between options with unclear consequences). Again however, despite experiencing situations that involved negative emotions that were sometimes intense, players tended to frame these challenges as part of a game's appeal e.g., by praising the plot or quality of the writing.

The value of discomfort

The previous section indicates how players experience moving moments and emotional challenge in games that are played for entertainment. Other research has also suggested that uncomfortable gameplay experiences can facilitate enlightenment, particularly when they cause empathy and increase understanding around a particular issue [1,18].

Similarly, extreme live action role-playing experiences have been found to involve intense negative emotions, yet still be gratifying to players. Montola [31] describes how, in games focused on to themes such as sexual assault and societal collapse, discomfort is a key part of providing players with personal insight into extreme situations or the darker side of humanity. In addition, the intensity of the experience also allows players to bond with each other and form relationships that continue after the game is complete.

In work focused on digital games, Jørgensen [22,23] describes how players experience positive forms of discomfort when gameplay is interpreted as meaningful to the player. For instance, players of Spec Ops: The Line [G11] reported having a highly uncomfortable yet positive experience, due to the ways in which the game subverted genre expectations, highlighted negative consequences, and utilized reversal mechanisms to create drama [22]. Based on a small set of focus groups discussing personal experiences

of discomfort, and watching video clips of four different games [23], Jørgensen's findings indicate that for discomfort to be viewed as positive, the events causing it need to make sense in context (e.g., are not seen as being over the top) or they need to prompt further reflection.

The literature also suggests complicity is a key factor in discomfort [22,23,36]. In their close reading of the Walking Dead: Season 1 [G10] from a trauma-theoretical perspective, Smethurst and Craps [36] argue that it is the combination of inter(re)activity (where the game responds to player actions), empathy, and complicity that creates distressing moments in games. Players may not only witness traumatic events but can also inflict trauma on those around them. However, given the type of analysis carried out, it is unclear whether players themselves experience such instances as personally traumatic.

While the literature indicates that players often value negative emotional experiences [5,12,22], and may be able to distance themselves by pointing out 'it's just a game' [31], there is still much we do not understand about the nature of the discomfort experienced in games. While emotionally moving moments in games [4] and emotional challenges [5] often involve negative emotions, these may not all be experienced as uncomfortable. As suggested by Bopp and colleagues [4], there is a need for an explicit focus on uncomfortable forms of player experience, to find out more about what causes discomfort in games and the emotions associated with it. The study reported in the current paper aims to investigate the different types of discomfort experienced by players, how these are caused, and what impact they have on overall engagement.

METHOD

Overview

Given the focus on uncomfortable player experience, we sought to minimize the potential discomfort that participation could involve. First, we adopted an online survey format, as this is less intrusive and allows for anonymity, whilst giving respondents time to reflect on their answers and decide what they would like to share [16,21,25].

Second, the survey introduction was explicit about the nature of the study, where participants were asked to choose an experience that they were comfortable explaining and reflecting upon. They were also told they could take a break by saving their responses, reminded of the importance of self-care and provided with links to organizations such as the Befrienders Worldwide that they could contact if they did experience any distress. In addition, participants were asked to check separate boxes to confirm: they were over 18, they understood they could withdraw from the study, they understood the study would ask them "to recount and reflect on an emotionally uncomfortable experience" and they had read the information provided with and consented to taking part in the study.

Finally, we selected the games that we asked people about in advance, to avoid particular games that may trigger trauma in either the participants or the researchers (see [30] for a discussion on protecting researcher wellbeing). Selecting games that are familiar to the researchers can also facilitate a deeper analysis, due to a greater familiarity with context and game-specific terminology.

Phase 1: Game Selection

Examining user reviews on Steam

To select games for our study, we looked to user reviews to generate insight into experiences that involved discomfort. Based on previous literature [22,31], we defined discomfort as involving an intense negative emotional response. Due to its popularity [9], we examined user reviews on Steam, developed by Valve Software.

We first examined the 200 most applied game tags. In an effort to avoid restricting the data to a specific type of game or gameplay, tags for game genre (e.g., Fantasy, Horror) and game features (e.g., Multiplayer, Female Protagonist) were removed. The final set of discomfort related tags included: *Violent, Gore, Story Rich, Difficult, Atmospheric* and *Dark*. For each of these, the top ten "Most Popular" games were collated, resulting in a total of 43 titles after duplicates were removed. For each title, the top 60 reviews were collected. Any review under 20 words was discarded since this would be less likely to contain useful information. The approach led to a sample of 1249 reviews. A custom Javascript program was developed to randomize and anonymize reviews. Reviews were retained if they met one of the following criteria: (1) the reviewer had to explicitly state they had experienced some form of discomfort (e.g., "I felt…" or "I was…") or (2) or suggest that the game included uncomfortable experiences (e.g., "People who are easily upset might not want to play this"). After reviewing the data, only 34 reviews were found matching the criteria, from 18 different titles.

The small size of the resulting data set suggests user reviews may not be the most appropriate way to gain insight into emotional states. However, the reviews included did refer to intense emotions ("I broke my ****ing keyboard", R234) and lingering feelings ("do not play this game for the whole day it isn't great for your health and you don't want to get angry for the whole day", R225). Other reviewers also mentioned detrimental effects to physical and mental health ("at the end of a play session you'll have a migraine and be on the verge of a stress-induced breakdown", R254). Negative emotions such as fear and feeling disturbed, were frequent, particularly for games with horror themes and aesthetics.

The final set

For the final set of games we focused on those that were mentioned more than once, and on those that the research team were familiar with. This left three titles, Darkest Dungeon, Fallout 4 and Doki Doki Literature Club [G9]. We decided not to use Doki Doki Literature Club as it deals with

topics such as suicide, depression and abuse and we wanted to minimize the chances that taking part in our study would create distress in people who had previously been affected by the game. The decision was also made to protect researcher wellbeing [30]. Instead, we selected Papers, Please as an alternative since it is a well-received game (with 'overwhelming positive' reviews on Steam) that also addresses serious issues (immigration and authoritarianism) but in a less shocking way. The game is also frequently discussed in literature [e.g., 5,12,15].

The three titles differed in terms of both genre, mechanics and content. Darkest Dungeon is a 2D dungeon crawler. The characters are randomly generated and the player manages their actions in turn-based combat. One of the main mechanics is 'stress'; which is accumulated through certain actions and loss of light. Characters with too much stress are less likely to obey player commands, and more likely to act in ways that will increase the stress of others and increase the chances of their own death. At the time of submission, the game reviews on Steam are "Very Positive" (85% of 42,087 user reviews are positive).

Fallout 4 is an open-world RPG set in the USA after a nuclear war. The player character was frozen before the war and awakes to witness the murder of their spouse and kidnap of their baby. They are on a mission to search for their child. In addition to side stories and companions that earn affection if you act according to their morals, there are also factions to join and settlements you can manage. At the time of submission, the game reviews on Steam are "Mostly Positive" (70% of 89,550 user reviews are positive).

Papers, Please is a game where you play a border guard in a fictional Eastern European country in the 1980s. Your role is to check the papers of people wishing to enter the country and this becomes more complex as the game continues with new documents to be checked. Each successful check earns money, which you need to feed and house your family; failed checks are penalized. At the time of submission, the game reviews on Steam are "Overwhelmingly Positive" (95% of 23,029 user reviews are positive).

Phase 2: Questionnaire study

Participants

Selecting the games in advance also allowed for targeted recruitment of the survey through discussion boards and subreddits. To incentivize participation, respondents were offered to chance to win one of ten £20 vouchers.

111 responses were collected, 16 were discarded as spam or for not answering the question, resulting in a total of 95 responses. Of these, 75 participants were male (78.9%), 17 were female (17.9%) and 3 were non-binary (3.2%). The mean age was 25.56 (SD: 8.23). Participants were generally experienced gamers with 44.2% playing between 11-20 hours a week and only 3.2% stating they play for less than 3 hours a week. Participants came from all over the world but the majority were from Europe or the USA (88.4%).

	Total responses	Mean age	M	F	NB
Darkest Dungeon	40	23.40 (SD: 5.96)	38	2	0
Fallout 4	28	30.18 (SD: 10.99)	19	8	1
Papers, please	27	23.96 (SD: 5.79)	18	7	2

Table 1. Breakdown of responses and demographics by game (M = male, F = female, NB = non-binary)

Table 1 displays a breakdown of age and gender for each game. There was a very high proportion of male respondents for Darkest Dungeon (95%), whilst respondents for Fallout 4 appeared to be a bit older (mean age: 30.18).

Procedure

At the start of the survey, participants were provided with study information, which included links to mental health support organizations in the event they experienced any distress. The survey explained that we were interested in experiences that related to emotional as opposed to physical discomfort (e.g., motion sickness). Participants were asked to confirm consent and which of the three games their experience related to. After doing so they were informed:

"The following sections will ask you about something that happened in a digital game that made you feel uncomfortable. Please use as much or as little detail as you like."

We did not provide a definition or examples as we did not want to limit players in reporting what they had experienced as 'uncomfortable'.

In addition demographic items and questions about game playing habits, the survey contained open questions in the following order about why they had wanted to play the game initially, what happened in the game that made them feel uncomfortable, what emotions they experienced, whether they were expecting the event or situation to occur, whether they were expecting to feel uncomfortable about it, whether the experience had affected them afterwards, and if they had shared this experience with anyone else.

Analysis

The data was analyzed using inductive thematic analysis, a method for identifying and interpreting patterns across datasets, as outlined by Braun and Clarke [6,7]. Our aim was to develop an in-depth understanding of how people experience discomfort in games and how this discomfort influences their engagement. An iterative coding process was adopted by the researchers, where codes were revised and discussed throughout. The analysis involved multiple cycles, gradually moving from broad codes, such as "fear" and "uncertainty", to more complex themes. In the later stages, codes were grouped together into a set of provisional themes e.g., "Forced choices". These provisional themes were

applied to the coded data set, before being refined and re-applied to the full data set to determine overall fit.

FINDINGS

The final set of themes are presented in Table 2. The first five relate to nature of the discomfort experienced by players and what caused it, while the other three themes indicate how discomfort impacted overall player engagement.

The nature of discomfort
1. The persistent pressure of uncertainty
2. When things don't go your way
3. Great responsibility, limited power
4. The tragedy of loss
5. Unwanted exposure to disturbing themes
Impact on player engagement
6. The need to process uncomfortable experiences
7. Discomfort as contributing to a richer gameplay experience
8. Discomfort as a catalyst for reflection on life, the universe and everything

Table 2: List of final themes

Quotes are used to illustrate each theme, where each is labelled with a participant number.

The nature of discomfort

Theme 1: The persistent pressure of uncertainty

The first theme is focused on the different ways in which games utilize uncertainty to apply persistent or repeated forms of pressure on players. The dominant emotions reported in relation to this theme were fear and anxiety.

One way that games can increase pressure is through the use of visuals and sound design to create suspense. In Darkest Dungeon, enemies were referred to as "pretty repulsing", where the "really terrible mix of mutated animal and deformed human hit me right in my bones" (P54). The audio also had an effect, adding to the tense atmosphere in the game, e.g., "The combination of pig squeals, rapid, loud music […] created rather intense anxiety", P46). Horror tropes are also used in Fallout 4 to create discomfort. For instance, in a section in the game where the player is being stalked through a building by a monster, P4 reported "The whole experience is very similar to [the film] Alien"). In a different section of the game, another participant reported:

> "The limited visibility made me feel claustrophobic and anxious, every little noise made me jumpy. I really wanted to leave but had to keep going to continue the story, so I was relieved when I got to leave." (P52)

In addition, uncertainty appears to be amplified by surprise enemy encounters, leading others to describe Fallout 4 as a "high threat environment" (P9). Papers, Please was also described as "highly stressful" due to having to try and "keep up with the rules that kept changing" (P87) as the game progressed. Similarly, P67 highlights how sustained pressure is created through being given "so little time to make decisions", while P76 notes there is "a lot of uncertainty" around the possible effect of your choices.

Out of the three games, Darkest Dungeon was particularly noted for being "inherently difficult" (P22). Uncertainty manifested in the randomized effects of the 'Stress' mechanic that players consistently have to keep an eye on when playing through dungeons. If stress levels get too high, things could go very wrong very quickly. As a result, players frequently felt "panic" (P74), "since you're generally unaware of what's ahead of you" (P21). As P1 further explains, the game involves "carefully playing the odds" where you may experience some "truly awful luck."

Theme 2: When things don't go your way

When negative events occurred, players experienced a range of uncomfortable emotions including high levels of frustration and anger, but also helplessness, self-doubt and even foolishness. They also felt sad when their poor performance affected in-game characters.

In relation to Darkest Dungeon, P74 describes how high 'stress' in one character created a situation that led to:

> "increasing the stress of themselves or other party members, which could cause a domino effect […] although deaths from direct enemy attacks also happened in-game, stress related deaths and quest failures were especially frustrating".

Others reported feeling "powerless" (P90) or "helpless" (P26) when they felt they were unable to cope with the challenges Darkest Dungeon presented them with.

Failure could also take many forms. For instance, in Fallout 4, P53 explains how they felt "sad and angry" after what they felt they had made "the wrong choice" by siding with an in-game character's synthetic double, and assisting in the murder of his human counterpart. The episode has such an impact, it convinced the player to switch factions in the game and to "go out of my way to kill synths". Many also took failure to heart, particularly when an event personally resonated with them e.g., in relation to Papers, Please, a participant refers to having failed to make enough money to buy their in-game son some crayons for his birthday:

> "For whatever reason I was in a slump and couldn't keep a quick turnaround rate. It just made me picture someone telling this poor child, who's scared and hungry and cold, that his birthday is met with no gifts and just... it broke his heart and mine." (P75).

Some players responded to failure by questioning their own confidence and skills. For example, after losing their heroes in Darkest Dungeon, P31 describes feeling "stupid, overconfident and foolish […] I reflected on whether I was capable of overcoming the campaign at all". Others looked externally, claiming the AI was "cheating" (P29), the game

may be "bugged" (P4) or expressing 'fury' at a character who "missed 5 times" thus making another go "mad" (P49).

Theme 3: Great responsibility, but with limited power

The next theme relates to the discomfort experienced by players when they know they are responsible for making a choice in the game and are aware those choices are likely to involve negative consequences. The effect is further amplified by reducing player agency through presenting them with limited choices that put different goals into conflict. While making a difficult choice creates anxiety, players also feel guilt after a choice has been made, particularly in situations where they have empathized with other character who is affected negatively.

For instance, when playing Fallout 4, one respondent described feeling uncomfortable about the "difficult choices" they were given and feeling "frustration at having agency removed" (P38). Similarly, P17 recounts an experience that made them feel "Horror, guilt and shame" as they felt pushed into a particular direction as "any other outcome was narratively undesirable".

In Darkest Dungeon, as part of the final boss fight, the player must choose to sacrifice a character from their party, otherwise they cannot complete the game. In addition to the experience of loss (see below), this is made all the worse by the fact the player is forced to make this choice themselves. For P23 this made them feel "Really stressed and anxious. I also had a sense of overwhelming dread" because:

> "Before when a character died it wasn't entirely my fault. It was the enemies that did it. But now I was the one killing them".

P31 felt similarly complicit where "All I could do was watch them die and it was my fault."

In Papers, Please players frequently weighed up negative consequences e.g., "You have to choose between helping them which penalizes you and turning them away which pays you" (P11). Choices are made all the more difficult when players empathize with others: "Do I get punished for making a mistake, or not listen to them and let them live in misery"? (P40). Many also mentioned a decision concerning whether to let a woman with incorrect papers go through to join her husband i.e. between letting them be together and doing their job. The event led to feelings of "Guilt, second-hand concern, fear on their behalf" (P50) and concern "it'll have ramifications later" (P76). In addition to empathy, uncertainty can play a role here, where players are unsure of the impact of their choices.

Theme 4: The tragedy of loss

The experience of loss led to players feeling sadness and grief, where discomfort was exacerbated by a strong attachment to characters that had died. In addition, guilt was experienced when they felt responsible for their death.

Despite the fact that characters in Darkest Dungeon are randomly generated, players reported feeling attached after investing time and energy into levelling them up and giving them names e.g., P61, P6. When these characters died, many experienced a range of emotions e.g., "I felt a deep sadness, foolish for not preparing better, guilt for not doing more, and a deep feeling of regret" (P70). Similarly, P26 describes feeling: "Despair, when Dismas died […] Grief, as I fled with my only survivor and returned to the Hamlet".

Players could also experience discomfort in situations that they were not in control of but still felt a personal connection to. For instance, with respect to the opening of Fallout 4, P85 explains "As a father and husband, this scene invoked feelings of fear and anger as I could put myself in the character's shoes". Similarly, another participant refers to a quest that involved following a distress signal, only to find that the sender had been dead for a long time:

> "I probably sat for a good five minutes crying over this poor woman, feeling how desperately alone she must have felt, picturing what her last forlorn and hopeless thoughts must have been" (P47).

In addition, players could be affected by witnessing how other characters reacted to death. For example, P30 referred to an instance in Fallout 4 where they saw a raider (a human enemy) mourning a fallen comrade. As a result, they "Felt uncomfortable and guilty about killing raiders, as it humanised them, as they only try to kill you to survive another day". The event changed how they played the game, where they began to seek more diplomatic ways to resolve conflict.

Theme 5: Unwanted exposure to disturbing themes

The final theme in this section focuses on how participants experience high levels of discomfort when a game exposes them to disturbing themes such as sexual abuse or assault. The exposure here was not just unexpected but potentially unwelcome, where players reported feeling uneasy, disgusted and nauseous as a result.

For instance, in an example relating to third party content, a participant described a mod for Darkest Dungeon that contained overly sexualized character designs:

> "What made it disturbing however was that this girl was completely naked barring restraint straps, blindfold and FGM piercings with chains" (P59).

The participant felt "appalled and disgusted" by the depiction of the girl (described as "pre-pubescent […] with extremely endowed breasts"). As a result, they refused to play the mod and reported it to Steam.

In Papers, Please participants reported discomfort when encountering stories related to the murder of a child predator or sex trafficking (e.g. P40, P56) and also when engaging in "random 'security checks' that showed the pixelated characters naked" (P93) that felt "weirdly invasive" (P77). Similarly, in Fallout 4, there was "Unease. Discomfort. Slight feeling of nausea" (P25) at encountering a Vault

where the population was all male, except for one female. While P25 was aware that these sort of "experiments were a part of the lore involving the Vault makers", they were shocked by the implication of sexual assault. In the same game, P44 reported struggling with a backstory of an NPC that covered parental abuse, slavery and murder where they felt "distinctly uncomfortable, like I was listening to something I didn't want to hear and would rather be anywhere else". In this case, they found the narrative somewhat jarring and started to question "why the writers put in such content" as it felt out of place in relation to the rest of the game.

Impact on players

Theme 6: The need to process uncomfortable experiences

For some players discomfort was short-lived, and so they "just powered through" (P11). As P22 explains, while Darkest Dungeon can have you "at the edge of your seat […] Ultimately, I could easily distance myself from the game's fictional setting once it was over." For many however, they needed a break to process their feelings. This could be short, e.g., P91 took 5 minutes after from a surprise attack in Fallout 4 to reduce their "high heart rate"; or much longer e.g.,: "I didn't think I'd lose anyone [in Darkest Dungeon] […] I stepped away from my computer, sat on the couch, and felt sorry for a while" (P58).

The distance was usually required for emotional processing, as in the case of P10 who describes how they wrote a log for Darkest Dungeon "detailing the lives and deaths of characters" as a "coping mechanism to allow me to release emotions." When playing Papers, Please, P75 also reported having to "pause playing the game and take a few minutes to sit and reflect on life" so they could recover from feeling "destroyed" at not making enough money for their in-game family. A few also discussed their experiences with others e.g., P41 referred to sharing "harrowing stories" of Darkest Dungeon with their brother.

For others, the break was about needing to calm down: "I had to stop after getting party-wiped out few times. And I always open another game that's relaxing, like ABZÛ" (P50). Taking some time out could also result in improved performance. While the impact of failure can be even more pronounced for those with less experience, some players used it as an opportunity to learn more and do better next time. As P5 explains in Darkest Dungeon:

> "Exiting the game and decompressing directly after a bad run was common, but I learned to plan better to avoid making the same mistakes".

Another strategy was to avoid parts of the game that had caused discomfort e.g., in Fallout 4, P33 giving a specific "area/mission a wide berth" to avoid the anxiety they had experienced in a haunted house mission. In some instances, players decided to quit entirely, e.g., in relation to Papers, Please: "I gave up when a member of my in-game family died because I wasn't doing my job well enough. I have not played since" (P87).

Theme 7: Discomfort as contributing to a richer gameplay experience

Despite the range of uncomfortable emotions that players reported across the three games, many also noted that their discomfort added to their overall experience. For example, in Fallout 4, one participant suggests that difficult choices and dark themes are "natural in M rated games" (P5). With Darkest Dungeon, participants considered stressful situations to be just "part of the experience" (P46), even writing a review "praising the game for inspiring these emotions as it fits with a Lovecraftian theme and is difficult but fair" (P10). Similarly, P69 reports how much they "love games that are like [an] emotion rollercoaster". With respect to Papers, Please, one participant stated they were "in awe of the game and the developers for having made something that made me feel that way" (P67). Despite feeling "more distressed than I thought I would be over a few coloured pixels", they reported their discomfort "made me love the game even more".

In the case of situations where discomfort clearly did not lead to a more rewarding experience, these tended to be ones where the players felt too overwhelmed or where players thought the game had been unfair. For instance, P35 decided to quit Darkest Dungeon as "I didn't feel like playing what was ostensibly a more stressful roguelike". In addition, P53 felt rushed into making a decision about who to side with in a fight in Fallout 4, reporting that this reduced their "gameplay fun". In addition, the examples provided above in relation to unwanted exposure indicated there are cases when players feel they have been pushed too far and start to question the intent of the designers.

Theme 8: Discomfort as a catalyst for reflection on life, the universe and everything

While the previous theme focused on the quality of the gameplay experience, players also appreciated how games were able to stimulate reflection on themselves and society. Discomfort may not always lead to reflection on such matters, but it is clear that some players appreciated how their experiences prompted thinking about wider issues beyond the game.

For example, P93 describes how Darkest Dungeon "makes you question your own beliefs in what you think is moral, correct and what is just a given law (like dying)." In relation to Papers, Please, P67 questioned what their gameplay says about them as a person "[I] wondered whether I could become so cruel in real life, so easily".

Some of this process stemmed from people making connections to aspects of their own lives. Particularly in Papers, Please, participants reported how the game got them thinking how they might act under a "strong oppressive government" (P77) or about their own country's immigration laws e.g., in terms of "how stressful it must be for immigrants looking to make a new start, who don't know all the

labyrinthine rules which the government sets out" (P92). In another example, P42 discusses how finding out more about the backstory of a game villain in Fallout 4 led them to experience empathy as they were:

> "forced to recognize his humanity and what terrible events created the man […] [I] often thought about real-life villains, whether they be murderers, or alt-right nazis, and wondered what events shaped them into the hateful people they had become"

The participant also spoke about how the incident prompted them to do further research into "articles that link patriarchal structures and paternal abuse to things like membership in white supremacist organizations". While the game may have intended for people to reflect on these topics, this particular interaction seems to have affected the player well after the game session ended.

DISCUSSION

A growing base of evidence indicates that negative emotional experiences are a common, and in some cases integral, component of what makes gameplay appealing. However, there has been little focus on negative experiences that cause discomfort to players, particularly in terms of the types of discomfort games can entail, how they are caused and how they impact overall engagement. Below we consider our findings in relation to three key questions that focus on the relationship between negative emotions and discomfort, how discomfort manifests in digital games, and how discomfort influences player engagement.

How do negative emotions relate to discomfort?

In contrast to prior work on emotionally moving moments [4] or emotional challenge in games [5], asking players to share 'uncomfortable' experiences led to responses that primarily focused on strong negative emotions that each game had elicited. It would seem that what differentiates a negative emotion from an uncomfortable one is (1) the intensity of the experience and (2) the fact that is does not co-occur with or immediately lead to a positive emotion. Thus, while discomfort may not always lead to a negative overall experience, in the moment of play, the primary emotional reaction is both intense and negative.

There were some examples when discomfort did lead to a negative overall experience, such as players avoiding certain areas (e.g., P33), questioning the intent of designers (e.g., P25) or quitting the game entirely (e.g., P87). However, discomfort is a subjective experience [23], where not everyone had an intense response to a similar event. While some may have just experienced milder negative emotions, others also tried to distance themselves by using the 'it's just a game' defense [31].

How does discomfort manifest in digital games?

Of the four methods that Benford and colleagues present [2] in relation to causing different forms of discomfort, the two most relevant to our findings relate to 'control' and 'cultural themes'. While previous work has examined interactions involving 'visceral discomfort' and 'discomfort via intimacy' (e.g. Taphobos [8], Dark Room Sex Game [38] and Musical Embrace [38]), given our focus on single-player games played with standard controllers, it is not surprising that these forms of interaction did not feature prominently in our data set. That said, Benford et al. [2] suggest that one tactic for achieving discomfort via intimacy is to isolate people by leaving them alone in unfamiliar environments: "Not only is isolation disturbing, but it also naturally focuses participants inwardly on their own feelings (self-intimacy)." [2, p. 2011]. From this point of view, all single-player games could be isolating in some way, but while players were clearly aware of their own feelings, none explicitly referred to feeling isolated or alone. Another technique Benford et al. propose for causing discomfort through intimacy is to 'employ surveillance and voyeurism'; something which most is relevant to the gameplay in Papers, Please. In particular, as indicated in *unwanted exposure,* this was reflected in the discomfort participants expressed at having to carry out full body scans of individuals which showed them either completely nude or in their underwear (depending on which version of the game they are playing).

Other examples of *unwanted exposure to disturbing themes* appeared to be closer to cultural discomfort and the technique of 'confronting people with challenging themes and difficult decisions' [2, p. 2009]. In this case, the themes involved sensitive topics such as sexual abuse and assault, where reactions range from feeling shocked and disturbed to experiencing disgust and nausea. In many instances, exposure alone seemed enough to cause discomfort, without requiring players to make decisions related to a particular theme. The examples in this theme were also the closest to those that were purely negative as they did not seem to be interpreted afterwards in a more positive light (e.g., in terms of enriching gameplay). In line with Jørgensen [23], it may be that positive experiences can result from encountering such themes (as in [5,21,31]), but when players are pushed too far and start to question why the designer has included them, there is a real risk of disengagement.

Cultural discomfort also related to the theme of having *great responsibility, but with limited power,* depending on the context of the decisions that needed to be made. In particular, Papers, Please frequently involved situations where players are required to "take moral decisions and resolve dilemmas" [2, p. 2010] when dealing with different people at the border. However, discomfort did not just stem from dealing with a difficult theme or from being unsure of the 'correct' choice. Players also experienced a lack of control in relation to what happens next – although the game provides them with a choice, it is a limited one. As Jørgensen [22,23] suggests, complicity can play a role e.g., with respect to Darkest Dungeon and having to choose a character to sacrifice, but it this is also about feeling 'forced' into making the decision in the first place [cf. 4].

To a certain extent, *the persistent pressure of uncertainty, when things don't go your way* and *the tragedy of loss* all

involve the player experiencing a lack of control. However, this is less the 'surrendering of control' that Benford et al. [2] discuss, and more a battle to stay in control before losing it entirely. In the case of *the persistent pressure of uncertainty*, players can be trying very hard to stay on top of everything, but are essentially subject to whatever the game decides to the throw at them. Thus, players become uncomfortable because they just don't know what is going to happen next, or if they will be able to cope. The use of horror tropes and sound design have long been known to cause fear and anxiety [33,37], and applied in Darkest Dungeon and Fallout 4 created a suspenseful atmosphere, even though neither of these titles are typical survival horror games. In addition, randomization (whether in relation to enemy attacks, changing rules or the impact of mechanics) increased the experience of stress. As a result, this form of discomfort tended to result in fear and/or anxiety. Much of this relates to what Costikyan [13] refers to as 'performative uncertainty' (related to difficulty – which may be particularly relevant for Darkest Dungeon) – and 'randomness'. Similarly, Power and colleagues [35] indicate players can experience uncertainty in numerous ways, including in relation to taking action (e.g., when players feel overwhelmed) and in terms of decision making (e.g., when they are not sure what option is better).

While persistent pressure can make players feel uncomfortably stressed, this will give way to feelings such as frustration and foolishness *when things do not go your way* i.e., by this point, the player had almost certainly lost control of the situation. Thus, players also experience helplessness, self-doubt, and even sadness when their actions affect others in the game. Failure was not always about death, as it was also experienced when players felt they had made the wrong decision or not met a particular goal (e.g., being unable to buy crayons for your son's birthday). As Juul [24] describes, failure can be painful and made all the more so by the fact that when we fail in a game we only have ourselves to blame. That said, a few players tried to distance themselves by blaming the game for being unfair, as seen in [20,24,35]. The most common response however was to take a step back and try again. Thus, while failure created discomfort, player responses indicated that learning from overcoming failure could lead to a positive experience in the longer term [something echoed in 34].

Finally, with respect to the *tragedy of loss,* players became uncomfortable when a character (or number of characters) died in the game. The loss led to feelings of sadness and grief, where discomfort was exacerbated by strong attachments that had formed, and also led to guilt when players felt responsible for character death(s). Again, the findings overlap previous work but, in contrast to Bopp et al. [4] where players discussed the death of main characters in narrative rich games such as the Final Fantasy [G8] and Mass Effect [G3] series, the majority of experiences in this study involved the loss of characters that were somewhat limited in their description. Thus, randomly generated characters from Darkest Dungeon and the voice of a woman in Fallout 4 pleading for help still led to intense reactions, due to the players themselves adding their own details about who these characters were and what they had gone through. Notably, Papers, Please players did not really refer to a sense of loss – though family members could die under certain circumstances, their deaths were less common and did not generally seem to have the same effect, perhaps because their characterization was even more limited.

How do uncomfortable experiences influence player engagement?

After having experienced some form of discomfort, many participants expressed a clear need to *process their uncomfortable experiences* either through pausing the game, taking a break, or even just taking some time afterwards to deal with what they had gone through. With respect to uncomfortable interactions, Benford and colleagues highlight the "critical importance of reflection afterwards which provides opportunities to assimilate the experience of discomfort" [2, p.2011], though they also note this is an often neglected consideration.

With respect to games, research around learning and gameplay [19] indicates having a break can later improve performance, particularly if taken as an opportunity to reflect. However, while research on negative emotions discusses how games resonate with individuals [4,18], the fact that it may be necessary for players to take some time out has not been considered. In extreme role-play experiences, aftercare is as an important part of the process, where players usually debrief together afterwards [31], though this is generally not available to players of digital games. Benford et al. [2] suggest that one of the benefits of discomfort is 'sociality' (an opportunity to socially bond through the sharing of uncomfortable experience) but we only saw a few examples of people discussing their experiences with other people, either in person or online (perhaps due to our focus on single-player games). In addition, we also saw people choosing other ways to cope their discomfort e.g., writing up their experiences in a personal log or playing a relaxing game.

The findings also provide further evidence that negative emotions, even primarily negative ones, can contribute to a *richer gameplay experience.* Despite their discomfort, players appreciated how games utilized punishing difficulty or incorporated difficult themes and decisions, in an effort to provide them with more varied forms of gameplay. In line with Benford et al's work [2], our findings illustrate that discomfort can lead to players appreciating games as complex forms of 'entertainment', where they were keen to praise designers for creating such experiences.

In contrast, the final theme, where discomfort acted as a *catalyst for reflecting on life, the universe and everything,* is more concerned with 'enlightenment' i.e., where players reflected on themselves and what they were capable of, or on wider societal issues. As with previous work, it is clear that uncomfortable experiences can lead to reflection [e.g.,

4,18,23]. However, while transformative reflection in games appears to be relatively rare [29], we did observe occasions where experiences led to significant changes in gameplay (e.g., P30 deciding to play through the game without killing Raiders) or in terms of understanding that extended beyond the game itself (e.g., P42 investigating how people to become murderers). Whitby and colleagues refer to these as examples of endo- and exo-transformative reflection respectively [38].

Finally, while Benford et al. [2] focus primarily on the benefits of uncomfortable interactions, our findings do indicate that there are occasions when players do not experience anything beneficial as a result of their discomfort. As discussed earlier, we saw how individuals could disengage with game content or decide to quit playing entirely. These situations indicate discomfort can become overwhelming, and highlight the need to carefully consider how uncomfortable experiences are incorporated into the design of digital games.

Limitations

One of the limitations of online recruitment via channels such as reddit is that instead of a representative sample of those who play certain games, the sample may be more reflective of those who participate in online communities. Our sample also shows a clear bias towards male participants, and also towards players from Western countries. In addition, when the survey was advertised in some online spaces, there were players who expressed disbelief that digital games can produce uncomfortable or upsetting experiences and questioned the purpose of the research. Thus, our findings cannot be used to make any strong claims about how common or likely uncomfortable experiences are, only that they can result even when playing games that receive predominantly positive reviews.

Future research and design considerations

While the games included in our study differed in terms of genre and style, future work could examine a wider range of players and games, or perhaps look at titles that are more deliberately provocative (though clearly there are associated ethical considerations that would require consideration). Additionally, it may be useful to explore a broader range of more complex emotional experiences, such as love, intimacy etc. and how these may involve discomfort.

The format of the study means that players were sharing retrospective accounts of uncomfortable experiences. Thus, there is additional scope to explore players reactions in situ, or immediately after an uncomfortable experience. Again, there would be significant ethical issues to consider if planning on deliberately trying to make players uncomfortable. To properly capture the impact of discomfort (e.g. after players have processed their emotions or reflected further on their experiences), a follow-up study would also be required, as it may even be the case that some experiences do not become uncomfortable until after players have had a chance to reflect on them.

Another avenue for research would be to investigate particular causes. For instance, in relation to uncertainty, Power and colleagues [35] suggest it is more appropriate to consider it as a feeling engendered in the player, as opposed to an attribute of the game. The Player Uncertainty in Games Scale (PUGS) that they present could be a useful tool for assessing felt uncertainty and considering how it relates to discomfort and overall game experience.

Based on our findings, we would suggest that game designers should consider ensuring that any discomfort is relatively short-lived, and to provide players with an opportunity to step back and process their experience. Benford et al. [2] discuss how to embed discomfort into an interaction (with reference to a five-act performance structure – consisting of exposition, rising action, climax, falling action, and dénouement), but further research is required as it is unclear how applicable this approach is to the design of digital games, particularly ones that involve multiple hours of play. It may also be worth examining discomfort in games that are not so well received to see whether they deviate from the structure suggested or whether there are other reasons why players have an overall negative experience.

CONCLUSION

Despite the growing interest in more complex forms of player experience and creating games that involve difficult themes, there has been less of a focus on uncomfortable forms of experience in commercial games. Through our analysis, we provide a deeper understanding of how discomfort manifests in play and how it can impact overall engagement. Discomfort was found to result from experiencing uncertainty in high pressure environments; when things do not go as planned; being provided with responsibility but limited choices; experiencing the loss of an in-game character; and through unwanted exposure to disturbing themes. Many of these experiences resulted in strong negative reactions where players expressed feelings such as anxiety, frustration, feeling foolish, guilt, sadness, helplessness and disgust. To process these feelings, players required time and space. While there was a risk that discomfort could jeopardize their engagement, uncomfortable experiences generally facilitated richer forms of gameplay experience and could also lead to reflections on broader issues and concerns.

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