“I need to play three times before I kind of understand”: A Preliminary Exploration of Players’ Reasons for (and against) Replaying a Visual Novel

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Replay of interactive stories is an essential characteristic of the medium, enabling players to both see whether their choices impact the narrative, and work towards an understanding of the story and underlying system. Despite the centrality of replay to the form, little work has been done to investigate what motivates people to replay interactive stories, or when and why they stop replaying. In this paper, we report on the results of an exploratory qualitative observational study of 12 participants (aged 22 to 28) replaying the visual novel *The Shadows that Run Alongside Our Car*, a short work that presents a post-apocalyptic survival story from the perspective of two different playable characters and involves four dialogue choices leading to one of three possible endings. Unlike previous models of rereading, our observations suggest that players’ reasons for deciding whether or not to replay change fluidly as their sense of closure changes, and players are deciding based not just on whether they have reached closure, but also on their estimate of the likelihood of seeing something new or moving closer to closure versus the effort required to replay. This suggests a need to rethink earlier, more simplistic models of rereading in interactive stories.

CCS Concepts: • Human-centered computing • Human computer interaction (HCI) computing • Empirical studies in HCI

KEYWORDS: interactive stories; replay; closure; empirical studies; rereading; storygames

ACM Reference format:

Biying Wang, Abel Beng Heng Ang, and Alex Mitchell. 2021. “I need to play three times before I kind of understand”: A Preliminary Exploration of Players’ Reasons for (and against) Replaying a Visual Novel. In *PACM on Human-Computer Interaction*, Vol. 5, CHI PLAY, Article 257, September 2021. ACM, New York, NY, USA. 18 pages, <https://doi.org/10.1145/3474684>

1 INTRODUCTION

Interactive stories are a form of interactive media that encourages players to return to and re-experience the work both to see the impact of their choices, and to work towards a better understanding of the story and the underlying system. Murray [34] highlights the central role of replay in the experience of interactive stories, which she refers to as a kaleidoscopic form. Despite

This research is funded under the Singapore Ministry of Education Academic Research Fund Tier 1 grant FY2018-FRC2-003, “Understanding Repeat Engagement with Dynamically Changing Computational Media”.

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2573-0142/2021/9 – 257 <https://doi.org/10.1145/3474684>

this, there has been little work done to understand the reasons why people choose to replay interactive stories, and when and why they stop replaying.

In this paper we focus on repeat experiences of storygames, which Reed [38] defined as incorporating a playable system and units of narrative, where players must reach an understanding of both playable system and story to achieve a satisfying traversal. Here, a playable system refers to the game's mechanics accessed by the player by means of some interface and the underlying rules and game state affected by those mechanics [30]. The narrative is the "mental representation of causally connected states and events which captures a segment in the history of a world and of its members" [39]. Following [30], closure in storygames is categorised into two types: narrative closure and system closure. Narrative closure is "the phenomenological feeling of finality that is generated when all the questions saliently posed by the narrative are answered" [10], while system closure (what Murray [34] refers to as "electronic closure") occurs when "a work's structure, though not its plot, is understood" [34:174]. While it is possible for players to arrive at either narrative or system closure without also arriving at the other, Reed's definition of storygames suggests the need for players to satisfy both in order to achieve a satisfying outcome. This is similar to Murray's [34] concept of kaleidoscopic closure, the point at which a player has managed "to see how their individual parts fit into the overall story and to understand the many processes that make up the microworld of the simulation", such that they can "construct a composite view of the narrative world that does not resolve into any single story but instead composes itself into a coherent system of interrelated actions" [34:180–181]. Kaleidoscopic closure arguably involves some elements of both narrative and system closure [29].

While there are theories regarding rereading of non-interactive stories, such as Calinescu's [8] model of rereading, the nature of repeat experience in interactive stories is less clear. Although there have been some attempts to adapt existing theories to interactive stories [26,32], the study of repeat experience in storygames, where there is a strong connection between the playable system and the resulting units of narrative, remains relatively unexplored. In particular, there has been little work done to study the reasons players give for why they choose to either continue or stop replaying. This is the question we are exploring in this paper. It is important to note that, as Mitchell [26] suggests, replay can happen "any time after the initial reading – immediately, later the same day, the next day, several days later, or years later" [26:9–10]. Following Mitchell, for this paper we are restricting ourselves to "repeat experiences of an interactive story which take place *immediately* after the previous experience has been completed" [26:10, emphasis in original].

Through an exploratory qualitative empirical study of 12 participants (aged 22 to 28) replaying the visual novel *The Shadows That Run Alongside Our Car* [25], this paper investigates what players consider to be their reasons for replaying, and at what point they decide not to engage in further replay. Our findings suggest that players claim to be replaying for multiple reasons, sometimes simultaneously, shifting fluidly between something like Calinescu's partial, simple and reflective rereading as their sense of closure changes. We also found that players make ongoing judgements as to whether or not to continue replaying based not just on whether they have reached either narrative or system closure, but also whether they feel that the potential for either reaching narrative closure or seeing new story elements outweighs the effort involved. These observations suggest that previous theories of rereading in interactive stories [26,32], which see rereading as a more linear process moving from partial to simple or reflective rereading, may need to be rethought to account for the complexities of the process of replaying storygames.

2 RELATED WORK

There has been much work done to understand why people reexperience non-interactive stories. As Galef [18] argues, “reading is an experience, not merely an act of retrieval, and repetition does more than deepen experience” [18:23]. Comparing reading and rereading, Iser [21] suggests that “during the process of reading, there is an active interweaving of anticipation and retrospection, which on second reading may turn into a kind of advance retrospection” [21:282]. Bacon [1] proposes two categories of motivations for rereading: rereading for *sameness* and rereading for *novelty*. Similarly, Calinescu [8] proposed a framework for rereading in which readers initially reread to understand a work, what he refers to as *partial rereading*, and only then shift to more nostalgic *simple rereading* in an attempt to recapture the original experience, or more analytical *reflective rereading* which involves looking for deeper meanings, reflecting on the reading process, and “attempting to study it and penetrate some of the secrets of its making” [8:277]. The tension between looking for something familiar and looking for something new is seen in discussions of repeat experience more broadly, with theories of hedonic adaptation [17] suggesting that there is a decrease in the intensity of affective response to repeated circumstances, although recent research has suggested that people tend to underestimate the pleasure they will actually get from repeat experience [36].

Regardless of the motivation, repeat experience has long been seen as a key element of the experience of interactive stories. In the context of hypertext fiction, Bernstein argues that “hypertextuality is perceived through rereading and reflection... recurrence is the essence of hypertext” [5:2–4]. Early work on rereading in interactive stories largely focused on whether people reexperience works for variation or to reach closure. Bernstein [4–6] feels that rereading opens up the possibility for multiple meanings to emerge as text is encountered in different contexts, while Selig [40] and Peacock [37] suggest multiple meanings will encourage further rereading. In contrast, researchers such as Douglas [14] and Harpold [20] feel that readers are rereading for some form of closure, although this closure can often be frustratingly difficult or impossible to reach, with readers eventually only reaching a “contingent conclusion” [20:24]. Murray [34] proposes a middle ground, suggesting that while people do reread for variation, they are ultimately looking for some broader form of what she refers to as kaleidoscopic closure. Drawing on Murray, Mitchell and McGee [26,32] argue that rereading for closure is analogous to Calinescu’s partial rereading, suggesting that it is only when people reach closure that they move on to something equivalent to Calinescu’s simple or reflective rereading.

In more recent work, Mitchell [27] has refined this earlier theory, arguing that it is only when people reach both narrative and system closure that they will be motivated to engage in reflective rereading. This echoes Murray’s notion of kaleidoscopic closure, which involves both story and system understanding. Mitchell, Kway and Lee [30] later connected this to Reed’s notion of storygames [38], suggesting that players need to maintain a sense of *storygameness* to be motivated to reread beyond closure. In addition, the role of rewind mechanics, which involve requiring a player to go back and rereading *part* of a storygame before moving forward, has been examined by Kleinman et al. [22–24]. Their study showed that players who engaged with rewind mechanics found the experience rewarding, and there was no observed impact on game engagement, narrative engagement, or narrative transportation [22]. Most recently, the linear progression from partial to simple or reflective rereading proposed by Mitchell has been problematized in the context of rewind storygames, where it has been suggested that players move back and forth between these types of rereading [29]. This suggests the need to reexamine earlier theories of rereading and extend them to account for these more recent findings.

3 RESEARCH QUESTION

Recent work by Mitchell et al. has suggested that, rather than moving from partial to simple or reflective rereading, players of storygames may engage in some form of reflective rereading while still working towards closure [29], and that it is not clear how the process of reaching either narrative or system closure impacts the desire to replay [30]. In addition, there has been little empirical work done to explore the experience of replaying storygames other than studies by Mitchell and McGee [26,31,33] and Kleinman et al. [22]. This suggests that it would be productive to follow up on recent investigations into reasons players give for choosing to replay and for deciding not to replay, and to do so using methods other than textual analysis. This paper represents a first step in this direction.

To begin this work, the current study uses qualitative empirical methods to investigate the following questions:

1. What reasons do players give for choosing to replay a visual novel?
2. At what point do players choose to cease to replay, and what reasons do they give for stopping?

4 METHODOLOGY

To investigate these questions, we conducted a preliminary, exploratory qualitative observational study with 12 participants (aged 22-28), exploring how people replay the visual novel *The Shadows that Run Alongside Our Car* [25], henceforth referred to as *Shadows*. This research has been approved by our institutional ethics review board.

4.1 Materials

Shadows is a freely available visual novel which was released on the indie gaming platform *itch.io*². The narrative in *Shadows* involves a conversation between two characters fleeing a zombie apocalypse. The game begins with a choice of character, with the story experienced either from the male or female character's perspective. Players are asked to make four dialogue choices for the chosen character during the game and are only shown the perspective of that character. During the game, the player uncovers details of the characters' backstories and their reactions to the current situation. Dialogue choices collectively determine which of the three endings per character the player arrives at. Each ending serves as a conclusion to the game, but the fate of the characters is left somewhat uncertain.

Shadows can be considered a storygame [38] as the player needs to pay attention to both the choices being made, and their impact on the resulting narrative. Although *Shadows* is not an example of a rewind storygame [29], in the sense that choices made in one playthrough do not impact subsequent playthroughs, it is worth noting that it includes a 'skip' function, as with many visual novels, which allows players to skip segments of dialogue that have been seen in previous playthroughs. However, none of the participants made use of the skip function.

There were several reasons behind our choice of *Shadows* for the study. The choice of character perspective and the ambiguous nature of the ending potentially provide some motivation for replay after the first playthrough. In addition, although there are only four choices in the game, these choices do change the outcome of the game, leading to one of three possible

² <https://loxrain.itch.io/shadows>

endings for each character. This provides an additional reason for players to replay: to reach an alternative ending. The fact that the game can be played to completion in 10-15 minutes makes it feasible to have participants play the game several times within a reasonable time period. The combination of a short game with two playable characters, a small number of choices, and multiple endings creates a situation where it may be possible that players would be willing to go back to replay. This is supported by several comments on the game’s itch.io page, with players sharing that they played the game multiple times to see the story from the different characters’ perspectives and to read different endings. Since investigating the reasons players give for choosing whether or not to replay is the focus of our research, *Shadows* seemed to be an ideal choice for the study.

4.2 Participants

Participant recruitment was conducted via convenience sampling through social media and an online research recruitment system within our university. A total of 12 participants (4 males and 8 females, aged between 22 and 28 years old) were recruited for the study. The participants were university undergraduates, postgraduates and alumni from a range of disciplines. None of the researchers were involved in either teaching or supervising the participants. Of the 12 participants, 5 participants (6, 7, 8, 10 and 11), reported having experience playing storygames, and 4 participants (2, 3, 5 and 12) had experience with other types of games, such as mobile games, first-person shooters, and MOBA (massive online battle arena) games. The remaining 3 participants claimed not to have played games.

4.3 Protocol

In compliance with safe-distancing measures considering the ongoing COVID-19 pandemic, interviews were conducted online via the videoconferencing application Zoom³. Participants were not informed of the exact nature of the game or the focus of the study on replay prior to the interview and were asked to download the game at the start of the session from a separate Google Drive folder rather than the game’s official website, to avoid exposing the participants to additional information about the game, such as the number of endings, before play.

All participants were asked to complete three playthroughs of the game, where a playthrough involves starting at the main menu and playing until the credits screen is shown and the game returns to the main menu. Each playthrough takes 10-15 minutes, depending on how fast the participant advances the text. At the end of each playthrough, participants were briefly interviewed regarding 1) what they were looking for as they were interacting with the work, 2) whether they want to play the game again and, 3) if so, what they want to achieve by replaying. If participants did not want to play again, they were asked why not. These questions were intended to provide some initial insights into the reasons participants had for either wanting to replay or not having any interest in replaying. The questions asked between playthroughs were deliberately kept brief to avoid influencing subsequent playthroughs, while at the same time capturing the participant’s immediate thoughts about the previous playthrough. Each of these short interviews took 2-3 minutes. In total, the playthroughs and accompanying short interviews took roughly 40-55 minutes.

³ <http://www.zoom.us>

Participants were then asked to play again, regardless of whether the motivation to replay was present. The reason for having participants replay even when they did not express a desire to replay was to investigate whether they would maintain their decision *not* to replay after playing the work again and potentially encountering different paths through the story. What is important to note here is that we were not trying to either determine whether *Shadows* encourages replay, but rather the *reasons* participants gave for their preference. We were also interested not just in why participants might *want* to replay, but also why they might *not* want to replay, and whether further exposure to the story might lead them to realizing that they did, after all, find replay to be satisfying. Finally, as we asked participants whether or not they wanted to replay, and why, *before* requiring them to replay, the response we get at that point will not be influenced by the requirement that they replay. As such, we argue that the “artificial” nature of replays in the case of participants who did not want to replay does not invalidate our observations, but rather is an important part of the study design.

At the end of the three playthroughs, a semi-structured interview was conducted making use of a combination of video-cued recall [3] and retrospective protocol analysis [15]. Participants were shown pre-recorded video clips of the decision points during the game and asked to elaborate on their thoughts and decision-making process. Probing questions were asked in response to these responses. This in-depth interview was conducted after the three playthroughs, rather than during or in between playthroughs, to avoid interfering with the participants’ gameplay experience by potentially encouraging additional reflection on the playthrough before all three playthroughs were completed. Due to the complexities of conducting a remote playthrough and interview session, we prepared a set of video clips representing all possible combinations of choices participants would encounter and used these clips as stimulus during the interview. Since the only action the player can take is moving the mouse to click on a dialogue choice, there was minimal difference between these prerecorded clips and what would have been captured in a recording of the actual play session. The semi-structured interview took roughly 20-30 minutes.

It is important to acknowledge that the presence of the researcher may have some impact on the results. To reduce the chance that participants may be influenced by a misunderstanding that we were in any way responsible for the creation of *Shadows*, we explicitly stated at the start of the session that we were not involved in the development of the work. We also clearly stated that the participants were not being evaluated, and they were encouraged to be as honest as possible in their comments about the work. Finally, the sessions were conducted remotely through Zoom with the video turned off, both to protect the participant’s privacy and to minimize any non-verbal feedback from the researcher that might influence the participant’s behaviour. We argue that these steps helped to minimize, but not completely remove, the possible impact of the presence of the researcher on the results.

4.4 Analysis

The first author conducted 8 interviews and the second author conducted 4 interviews. The interviews were transcribed by the author who conducted the session. All of the transcripts were then analyzed by each author, by first creating descriptive codes on a line-by-line basis, during which we used our research questions to focus our coding while at the same time trying to stay open to unexpected insights. We then went back over these initial descriptive codes, refining and combining similar codes in an iterative process to develop a set of axial codes. These steps are often referred to as “open coding” and “axial coding” [12] or “line-by-line coding” and “focused coding” [11] in grounded theory. However, as we were working from specific research questions

and using theory to focus our analysis, we avoid calling this grounded theory. Instead, our approach is closer to what Tracy [42] calls “phronetic iterative analysis”. The three authors each conducted the descriptive and axial coding for all 12 interviews independently, before working together to iteratively develop a combined set of categories, what Tracy refers to as “hierarchical codes”, in a process of “systematically grouping together various codes under a hierarchical ‘umbrella’ category that makes conceptual sense” [42:226]. These categories are used to structure the presentation of the results below.

5 RESULTS

We now describe the results of the study. A total of 8 categories were derived from the interviews. These categories have been grouped according to our two research questions: motivation to replay, and loss of motivation to replay.

5.1 Motivation to Replay

The first grouping focuses on reasons participants gave for wanting to replay. When asked upon completion of the initial playthrough, of the 12 participants, 6 participants (1, 2, 5, 8, 9 and 10) stated that they wanted to play the game at least one more time, 2 participants (7 and 11) said that they did not want to replay but wanted to watch someone else play, whereas the remaining 4 participants said that they did not want to replay, one (6) having felt they had seen everything, one (3) preferring to play a sequel, and 2 (4 and 12) expressing a lack of interest in the story. As we will discuss below, some of the participants (3, 4 and 7) who were initially uninterested in replaying changed their mind after the second or third playthrough.

Participants who were motivated to replay described themselves as being motivated to replay to *experience variation*, to *reach completion* in terms of having seen every possible variation, to come to some degree of *narrative or system closure*, or to *recall information* that they had either missed or forgotten. We now describe each of these motivations for replay in detail.

5.1.1 Replay for Variation. One clear motivation for replay was to explore variations in the story. As described by Participant 8, there is an appeal in exploring options that they did not choose during the previous playthrough, “to learn more about these characters... exploring different options, even if they are ‘bad’ options.” This desire to look for something not previously encountered influenced the way participants played the game during replay. For example, when asked what they were looking for when replaying, Participant 8 explained that they were:

“...exploring the different options and seeing if they have the same outcome or anything changes... but, you know, the changes can be like, small but noticeable and I will still like, be just like, let’s just say the graphics change a little bit based on one of my choices anyway, [it will be] interesting enough to let me continue.”

For Participant 8, the motivation to replay was very much focused on seeing changes as the result of their choices.

Shadows provides a choice of playing the game from the perspective of one of two characters, something that some participants reported as being a key motivation for replay. For instance, at the end of their first playthrough, when asked what they intended to do in their next playthrough and what they were looking for, Participant 9 responded with the following:

“I think I will start off with the other character... I think there was this portion, I click as the driver right, the guy... and then he’s postulating

what [the female character] thinks. I think it will be interesting to find out what is happening on the other side.”

For participants such as Participant 9, choosing a different perspective allowed them to see a different version of the story, something that motivated them to play again.

Interestingly, Participant 3, who had expressed no desire to replay at the end of the first playthrough, later experienced a change of mind upon encountering an ending that was different from the previous playthroughs: “I was quite surprised that there are parts of the story which I have not seen.” At this point, when asked if they would like to replay, they said: “Yeah. Maybe at most, one more time to see if there is an alternative ending.” This change in motivation to replay upon discovery of a variation suggests that players, at least in part, are motivated to replay for variation once they realize that there is more to see, even when not initially driven to see new material or other versions of the story.

5.1.2 Replay for Completion. Cruz et al. [13] describe a completionist player as someone who is achievement-driven and values challenges, among other traits. Several participants were observed to adopt completionist-oriented goals, typically after having replayed the game at least twice. As stated by Participant 7:

“I just wanted to try all the options that were different from the previous ones as the conversation did not seem like it changed a lot from the second playthrough. And therefore, I want to choose the different ones.”

Similarly, participant 8 explained that:

“I think I will play again, maybe one or two more times. Like, exploring the different options and seeing if they have the same outcome or anything changes.”

Players who pursued replay with a completionist attitude appeared to be seeking validation and assurance that they had truly unlocked *all* possible variations. In Participant 8’s case, having previously been playing for variation, they were undecided whether to replay the game after the third playthrough:

“Given the situation, I do not know how it could end differently because it seems like the whole thing plays out with them in the car and then the car is definitely going to run out of gas at some point. It is just a conversation. But I mean, having played visual novels, I know sometimes after you play through a certain number of times, new options open up.”

Here, although Participant 8 no longer expected that replaying the game would yield different results, they were undecided as to whether to replay and were instead seeking confirmation that they had fully explored the game. There is also an element of game genre expectation involved here, as Participant 8 has experience with visual novels, a game genre which sometimes includes “unlockable” endings, casting doubt on their sense of completion. Rather than simply expecting or seeking variation and novelty, these players were looking for confirmation that they had seen all there is to see.

5.1.3 Replay for Narrative Closure. In addition to replaying for completion in the sense of having seen every possible variation, participants were also observed to adopt closure-oriented goals during replay. Notably, some participants were motivated to replay in order to achieve a fuller understanding of the game’s narrative. As stated by Participant 2:

“As I play more and more, the story becomes more complete. If you play it once, you might not be able to get the story. Like if you click on the other options [subsequently], it might bring you further deeper into the story. For me, I need to play three times before I kind of understand the storyline and how it goes.”

This can be considered motivation to replay for narrative closure, as the goal is to better understand the storyline.

The degree to which participants were inclined to form narrative closure-oriented goals appeared to be related to the degree to which they believe there is more to the story that is yet to be uncovered. Here, the goal is not mechanical completion in the sense of having seen every ending, but more a matter of resolving any unanswered questions about the story. For example, Participant 4 was initially uninterested in replaying the story, expressing a lack of interest in the storyline. Upon subsequent playthroughs, however, particularly after traversing the narrative via the perspective of a different character, Participant 4 expressed interest in replay:

“I think I can begin to understand more, and I have become more interested. The first round, from the guy’s perspective, I don’t really learn a lot of things. After that from the girl’s perspective, I learnt more about the specific things like what happened to her dad. Maybe she will do something to the guy. Maybe I didn’t delve on [the story] enough.”

Participant 4 had initially very clearly not seen everything, having only played from the male perspective, but had not been motivated to replay due to lack of interest in the story. However, upon realizing that there were as-yet unexplained aspects of the story, they wanted to continue to replay. This suggests that for Participant 4, it was not a question of completion, but instead one of narrative understanding, that was driving their desire to replay.

At the same time, there were also instances where the subversion of narrative understanding resulted in confusion and feelings of frustration. This was the case for Participant 5:

“It doesn’t really make sense that he just kept on driving..I don’t really know what he’s doing. They tried to sleep, and then he’s agreed to sleep, and then the tank suddenly ran out of fuel even though previously there was only one there was one quarter left. I don’t really know like what’s going on, like is he gonna die, is she gonna kill him?”

Participant 5 seems to be looking for some form of narrative closure and is frustrated when that closure is withheld.

Interestingly, several participants appeared to interpret the storyline of *Shadows* as being the same across playthroughs, as opposed to a branching narrative, even after encountering different endings. Participant 7 attributed this impression to the fact that the ending scene was preceded by a fade-to-black effect, which they saw as a gap in the story which they must bridge via multiple replays:

“I was looking for the continuation of the story from the previous playthrough, from when she was starting to turn into a zombie. I did not expect the story to turn out this way. From the previous playthrough I realized there were some blanks in between the scenes, so this [ending] fills in the blanks between the scenes.”

For Participant 7, replaying eventually seems to have become a means of filling in the “blanks”, rather than looking for variations.

Another factor that led some participants to perceive the game as having a single narrative rather than branching may be the fact that much of the narrative remains the same throughout, save for minor alterations to the dialogue depending on the choices selected by the player. Such was the case for Participant 1:

“I feel like I got most of the plot from the first playthrough. It shows to me as a player that the plot is somewhat fixed, and my choices do not affect the storyline. Despite this, I still want to progress the storyline to see what happened in the end.”

This suggests that, because much of the narrative in *Shadows* remains consistent across replays, some participants formed the expectation that there was a single narrative, or at least a “somewhat fixed” narrative as Participant 1 put it, rather than branching. For these participants, the desire to replay was much more focused on understanding the story than on experiencing variation, as they did not expect there to be much variation across play sessions.

5.1.4 Replay for System Closure. Participants were generally able to figure out that, in addition to dialogue choices unlocking specific variations of the character dialogue, choices made earlier in the game also have an impact on the ending. While some participants were satisfied with this degree of understanding of the playable system, other participants sought a deeper understanding, such as wanting to find out the details of how earlier choices affect the ending.

In some cases, participants developed hypotheses as to how they suspected the underlying system works and stated that they were motivated to replay to check the accuracy of their theory. As explained by Participant 10:

“I was looking to test a hypothesis that I had, which is that this choice was a pivotal choice, whether to put my hand on her hand or not. I guess it led to a more satisfying moment, but she still didn’t talk about, like, having a bite on her stomach.”

We suggest that this is an example of a participant replaying for system closure.

In addition, while not all participants seeking system closure pursued closure in as systematic a manner as Participant 10, some participants expressed that seeing how the game will respond if different dialogue choices were selected, not in terms of story outcome but rather in terms of how the system behaves, was a motivating factor for replay. As expressed by Participant 2: “If I choose different options, then it speeds up the storyline or slows down the storyline. It is quite interesting to me.” This suggests that Participant 2’s objective during replay was not limited to simply advancing towards a gameplay or narrative goal, such as attempting to achieve a more positive ending, but also involved exploring and understanding the workings of the game’s mechanisms.

5.1.5 Replay for Information Recall. When asked what they were looking for in subsequent replays, some participants expressed that they were trying to remember information or to confirm their understanding of specific narrative units. For instance, when asked why they wanted to replay the game and what they were looking to achieve, Participant 5 said they were replaying:

“...to find out the things that I don’t remember, about how the guy was feeling, and also to see if I missed out on some clues, like you know, just like how in some movies, you’ll just keep watching over and over again, and every time you watch, you find out something new.”

In this instance, it is interesting to see how Participant 5 compared *Shadows*, an interactive work, with movies, which are typically considered non-interactive works. Rather than seeking out new variations, they instead appear to have been looking for information that they have forgotten or missed, information which was not generated as a result of different player decisions, but rather was already present in the game but that they failed to recall.

It is also interesting to note that participants did not consider information recall to be a standalone motivation for replay. Rather, participants who expressed the desire to recall information tended to do so in order to satisfy other motivations for replay, such as pursuing narrative or system closure.

5.2 Loss of Motivation to Replay

While participants were often motivated to replay in order to see variation, or to arrive at a more complete understanding of the narrative or the system, there were cases where the participants chose *not* to pursue questions regarding the game, despite being aware that those questions existed and remained unanswered. In some cases, this was related to the *perceived (un)importance of unanswered narrative questions*. There were also instances where participants were reluctant to replay because they either wanted to *minimize exposure to repeated narrative units* or felt there would be a *lack of impact of their choices on the narrative*.

5.2.1 Perceived (un)Importance of Unanswered Narrative Questions. Participants appeared to assign different degrees of importance to the same narrative questions, depending on their perception of what constitutes narrative closure and whether it was worth the effort to pursue answers to unanswered narrative questions. For example, when attempting to understand the reason for the female character’s stomach pain, Participant 9 explained that, despite not knowing the reason why the character was turning into a zombie, they were satisfied simply with the knowledge that she was a zombie:

“After the second [playthrough], I feel like... it doesn’t matter to me if she was bitten, because the crucial part was if she was turning into a zombie, and I felt like that was addressed. So, I was not so much interested in how she got there but knowing that she is there is good enough.”

In contrast, Participant 5 had a different reaction to the same narrative question. In this case, the lack of clear answers caused them to feel confusion and frustration:

“[I was] trying to figure out the cause of her stomach pain. [At first,] I thought like, oh my gosh, she’s pregnant. And then I was thinking, is she feeling uneasy because she killed her dad? So, what was the cause of [her] stomach pain, then? That was a bit confusing and frustrating.”

Some participants also expressed disappointment with the narrative, signaling unfulfilled expectations for narrative closure. During their third playthrough, Participant 1, who had previously encountered two different endings, expressed that they were looking for a continuation of the story, and subsequently expressed disappointment when their final playthrough yielded an ending they had already encountered before: “At this point I just want to see the ending. Now I feel a bit cheated.” In fact, some participants interpreted the ambiguous endings of the game as a cliff-hanger, which they saw as an obstacle preventing them from achieving a satisfying sense of narrative closure. For these participants, the inability to “see more” of the story frustrated them, violating their expectation of a clear ending, and reducing or removing their motivation to replay.

This suggests that rather than narrative closure being a fixed endpoint where all questions posed by the narrative are answered, the individual's perception of the (lack of) importance of these questions plays a significant role in their experience of narrative closure. Regardless of whether the game can provide answers to certain narrative questions, players need to first perceive these questions to be valuable to furthering their understanding of the narrative in order to be worth pursuing. If the question is seen as unimportant, they may be satisfied without reaching a clear answer, feeling that they "get it" enough to stop replaying. On the other hand, if a player feels that coming to some form of narrative closure is indeed important, the frustration resulting from their inability to reach closure can similarly lead to a loss of motivation to replay.

5.2.2 Desire to Minimize Exposure to Repeated Narrative Units. Another factor that contributed to the loss of motivation to replay was the feeling of frustration from (potentially) having to repeatedly re-traverse versions of the narrative that they felt they had already seen and understood. Some participants expressed that while they still had unanswered questions regarding the narrative, they were unsure if the satisfaction of these questions would be worth the effort needed to replay the game. According to Participant 5: "I'm a bit hesitant cause I don't really want to go through the front part again, but I also really want to know what happens." There seems to be a tension here between the desire to find out more and the effort required. This is somewhat different from the above point (see 5.2.1). Here the participants are indeed placing value on the unanswered narrative questions but feel that the need to potentially re-experience the same narrative outweighs the answers to be found by replaying.

Similarly, when the game presented itself in a manner that was in line with their narrative understanding, participants tended to lose interest in pursuing further replay, perceiving themselves to have "gotten" the story. For example, upon completion of the second playthrough, Participant 3 summarized their experience as follows:

"I already know what has happened. These parts become too boring and I already expected what would [be coming] ... there is nothing else more that I would want to know."

Interestingly, despite these frustrations, none of the participants made use of the 'skip' feature in the game. Instead, many participants engaged in a form of 'manual skipping', where they rapidly clicked through portions of the dialogue they have already encountered. It may be that participants who were not familiar with visual novels simply did not see the skip button, as we did not explicitly mention it. However, it is also possible that players were wary of accidentally missing key information had they skipped through chunks of dialogue completely. For example, when asked why they did not use the 'skip' button, Participant 10 explained:

"Once I already knew the storyline, playing through it again was a little bit, not very, just a little bit frustrating. At the same time, I didn't want to miss out on important details. I was looking out to see if there will be changes, so I couldn't skip it entirely."

For Participant 10, if there was some chance of encountering new information, they were willing to endure the repetition involved in not skipping, despite the frustration involved.

5.2.3 Perceived (Lack of) Impact of Choices. Some participants expressed that they had no desire to replay upon completion of the first playthrough, despite believing that unexplored variations in the game exist. These participants attributed their lack of motivation to replay to the feeling that their actions would not impact the story significantly, so even though they had not literally seen everything, they felt there was little chance that anything meaningful would change upon replay.

For example, Participant 6 compared *Shadows* to *The Walking Dead* [41], stating that in *The Walking Dead*, they felt that it was very apparent that choosing one dialogue option over the other will have major impacts on the subsequent narrative, with frequent “life or death” decision points occurring throughout the game. In comparison, they felt that choosing a different option in *Shadows* only had a small and insignificant impact on the narrative.

Citing another visual novel, *Eliza* [2], as an example, Participant 6 elaborated as follows:

“When I was playing another visual novel called *Eliza*, there was a choice about whether she should leave her job or if she should continue in her job... it’s about knowing that the trajectory of the story could be very different because what’s going to follow after this decision will be very varied. [But for] this visual novel, whatever decisions that they made were not something that could spin off very differently.”

Here, the degree to which the player perceives decision points to be impactful hinges on whether they perceive their choice to affect the subsequent trajectory of the narrative in any significant manner. In the above example, Participant 6 perceived the decision in *Eliza* to either quit or continue the character’s job to be significant to the subsequent story. In contrast, when asked to select between two dialogue options while playing as the female character in *Shadows*, to either respond with “that was weird” or “whatever”, Participant 6 felt both options “sounded almost the same”, and that consequently, “there [will not be] much difference choosing either”.

After two replays, most participants concluded that the actual changes in dialogue as a result of selecting different dialogue choices are minimal, ‘low-stakes’ choices, upon which participants tended to lose interest in replaying. This suggests that believing that little variation will result from replaying the game reduced participants’ motivation to replay the game. In fact, once they came to feel that their choices had minimal impact on the narrative, some participants expressed a desire to use alternative methods to understand the game. For example, Participant 7 said that, if given the opportunity:

“I would probably watch someone else play this and follow through instead of me playing it by myself...I do not think the choice that I made [will] have a major impact on the outcome of the game itself. So, what I think I would do is to watch someone else play this game on *YouTube* because they will probably share more insights about the game.”

This suggests that participants are engaging in a form of cost-benefit analysis when deciding whether to replay the game, specifically, whether the satisfaction from attaining (more complete) narrative closure will be worth the effort needed to replay the game.

6 DISCUSSION

The participants in our study shifted between various motivations for replay while attempting to make sense of the game’s narrative or playable system during repeated playthroughs, potentially moving from replay for variation to replay for closure and back again, or even having multiple motivations at the same time. Players’ motivation to replay were also observed to be affected by a variety of factors not exclusive to closure-oriented goals, including their estimate of the potential value of replaying in terms of additional insights versus the effort required to replay. We now discuss how the observations described above suggest the need to reconsider some of the details of existing theories of replay in interactive stories.

6.1 Motivations for Replay

Previous theories of rereading in interactive stories [26,31–33] have suggested that players initially reread for closure, an activity similar to Calinescu's [8] notion of partial rereading. It has also been suggested that players only consider themselves to be "rereading" an interactive story once both narrative and system closure has been achieved, at which point they possibly engage in something like Calinescu's simple or reflective rereading [27]. From this perspective, players are very much focused on closure during their initial process of rereading, and then move on from that to something that does not involve closure. The key point is that this is described as a one-way process: once closure is reached and partial rereading completed, players move on to simple or reflective rereading.

However, the results of our study suggest that players engage in a form of "parallel processing" when engaging with storygames, often pursuing multiple goals and having multiple reasons for continuing to replay. As articulated by Participant 5, they replay:

"...both to find out the things that I don't remember...and also to see [if] I missed out some clues, just like how in some movies, you'll just keep watching over and over again, and every time you watch, you find out something new."

Here, Participant 5 is largely engaged in something like partial rereading, as they try to recall details that may have been missed in previous playthroughs while also looking for variation. There were times where participants were also both trying to understand the story in a more closure-oriented manner, while simultaneously engaged in something like reflective rereading to, for example, examine the game's dialogue text in order to understand the game's inner workings. In addition, there were times when participants thought that they had understood the story, only to encounter new narrative material or realize that they had reached a different ending, causing them to shift back to partial rereading. This is similar to what Mitchell and Kway have suggested in recent work [29] and suggests the need to revise earlier theories [26,31–33], which propose that players first engage in partial rereading, and only move on to simple or reflective rereading after reaching closure.

These findings also suggest that the satisfaction of closure-oriented goals may itself involve the act of reflective rereading. The new insights obtained from reflective rereading contribute to the player's sense of discovering something new, furthering their understanding of the storygame's narrative and hence contributing to the fulfilment of closure-oriented goals. This finding also supports recent observations based on close readings [29,30], where in games such as *Bandersnatch* [35] or *Elsinore* [19], additional information or changes to the way the playable system was understood encouraged a movement from closure back to partial rereading. This is also perhaps closer to Murray's [34] description of replaying for kaleidoscopic closure, which is described as simultaneously trying to understand both the story and the system by experiencing variation, while also attempting to derive some meaning from both, something Mitchell's earlier work situates *after* closure.

6.2 Reasons for Stopping Replay

We also observed that there were numerous reasons why players would decide to stop replaying. In our interviews, we found that even when participants were still curious about the game's narrative, their sense of system closure at times led in a reluctance to re-traverse parts of the game to achieve narrative closure. This is in line with previous studies on repeat experience [27,30] which suggest that in order to maintain motivation for replay even after achieving closure-

oriented goals, the game needs to sustain a continued sense of storygameness, where the player needs to perceive that understanding the underlying system of the game is essential to understanding its narrative.

Our observations also suggest that simply introducing variation is insufficient to ensure player motivation to replay. Rather, there are points during which there is potentially either too little or too much variation to the extent that player motivation to replay is negatively affected. When there is insignificant variation, the outcome of the player’s actions leads to what Cage [7] refers to as a “bending” story, where the overall shape of the narrative is not significantly altered, but just consists of subtle “bends” in the direction of the story. In such situations, several participants were found to lose motivation to replay, either preferring to give up on the investigation completely, or turn to third-party sources such as forums or *YouTube* where they may more easily find answers.

While games that signal to players that there is more to the story are said to encourage replay [28], there were also instances whereby significant variations in the narrative resulted in the opposite effect. For example, some players had come to feel that the story was the same across their various playthroughs, despite encountering minor variations. Upon encountering a new ending, where parts of the dialogue changed in ways that are not aligned with the previous ending, some participants expressed a sense of confusion and frustration which later inhibited their motivation to replay the game. In these cases, their expectation that the story would remain consistent had been violated, discouraging them from replaying.

Finally, players tended to consider how much of an impact their choices would have on the narrative during replay, and as a result whether they were likely to encounter something they had not seen before. When there was an expectation that they would not be able to see an impact on the story, and therefore likely only see narrative content they had already encountered, they were inclined to stop replaying. This suggests that players are engaged in a form of cost-benefit analysis, constantly reassessing whether it is worth continuing to replay and deciding based, not on some absolute sense of narrative and/or system closure, but on an ongoing assessment as to whether they feel that there is value in continuing given the potential effort involved.

7 CONCLUSION

In this paper, we have described the results of an exploratory qualitative observational study of 12 participants replaying the visual novel *The Shadows That Run Alongside Our Car*. The results of the study suggest that participants moved between various motivations as their understanding of the story and the playable system developed. Rather than initially working towards closure in a manner analogous to Calinescu’s partial rereading, and only after reaching closure shifting to simple or reflective rereading, participants were engaged, in parallel, in something like both partial and reflective rereading. In the process, they potentially moved from thinking they had reached closure to feeling that there was more to be seen, as their estimation of the potential of encountering new material changed. Participants were engaged in a form of cost-benefit analysis, weighing the effort required to replay against the potential to either see something new or reach narrative closure. This parallel process of partial and reflective rereading and the fluid shifting between closure and a desire to continue replaying is quite different from the more sequential process described by Mitchell and McGee [26,31–33], and is closer to the descriptions of replay of more complex works reported by Mitchell, Kway and Lee [30] and Mitchell and Kway [29].

There are several limitations to the current study. Given that some participants were able to easily understand the underlying system and appeared to have reached system closure relatively early on, it may be that *Shadows*, as a storygame, is relatively limited in its ability to maintain a

sense of storygameness. Future work may consider the use of artefacts with more interactive elements that tie in more closely with the narrative, such as games like *Undertale* [16] and *Minit* [9], or perhaps works with a more complex underlying system, such as *AI Dungeon* [43]. In addition, the fact that the story of *Shadows* ends on a cliffhanger, leaving the player unable to find out what became of the two characters, may have limited the ability of players to feel they had reached narrative closure. Although we chose the game in part due to this open ending, it may also be a confound. Future studies should use a game with a more ‘complete’ narrative to allow investigation of the relationship between narrative and system closure and replay. It is also important to note that our participants represent a small portion of the larger population, which may limit generalizability, although this is often the case with this type of study. For example, participants in Kleinman’s study of rewind mechanics [22] had an average age of 21.55, and participants in both of Mitchell and McGee’s studies [31,33] ranged in age from 20-24. Future work should look at a more representative sample. Finally, we are looking specifically at immediate replay. It is also worth considering why people may or may not want to replay a storygame after some time. This will likely require other methodological approaches, such as interviews with people who have replayed games on their own initiative, or longitudinal studies of replay over time.

Our observations provide preliminary empirically grounded support for Mitchell and Kway’s [29] call to rethink and extend earlier, somewhat simplistic models of rereading in interactive stories to account for the complex interactions between the player’s desire for narrative and system closure and the desire to see something new. Understanding how and why people replay interactive stories, and the relationship between these motivations and their understanding of both the narrative and the playable system, is not just of interest to people creating and studying interactive stories. This investigation can also provide a starting point for the development of a broader understanding of how people repeatedly interact with the types of computationally driven, dynamic systems such as social media platforms, recommendation systems and artificial intelligence that we encounter every day. As with storygames, these systems involve an underlying computational system that changes what people see each time they encounter the system, and these systems also attempt to engage the user and encourage repeat experience. While not games and not necessarily focused on narrative experiences, these systems do tend to involve voluntary, immediate reexperience with some degree of both cognitive and emotional engagement and response. Understanding why people want to return to and reexperience dynamic computational systems can help designers and researchers both to design more rewarding repeat experiences, and to design systems that empower people to decide for themselves when and whether they do or do not want to reengage with these systems, and thereby retain control over their use of interactive technology.

ACKNOWLEDGMENTS

This research is funded under the Singapore Ministry of Education Academic Research Fund Tier 1 grant FY2018-FRC2-003, “Understanding Repeat Engagement with Dynamically Changing Computational Media”.

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Received February 2021; revised June 2021; accepted July 2021.