How Should I Respond to "Good Morning?": Understanding Choice in Narrative-Rich Games

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(a) (b) (c)

Figure 1: Three examples of choices offered to players from existing video games: (a) *Kinkoi: Golden Loveriche* (image © NekoNyan Limited, Hikari Field), (b) *Life is Strange* (image © Square Enix), (c) *Perfect Gold* (image © Yangyang Mobile)

ABSTRACT

Narrative-rich video games provide opportunities for players to make choices at key points in the game, generating malleability within the game world and its characters. In this study, we explore the types of choices that exist in such games, how choices affect player experience, and how players make decisions when presented with choice. We first conduct interviews with game developers and perform a video observation analysis of existing choices to develop an initial classification system. We then perform a series of semi-structured interviews with video game players to understand how different choices impact player experience. Our findings reveal that choices influence player experience at several levels of meta-gameplay, having impacts on the game itself, the player-game relationship, and the player outside the game. Furthermore, we identify several key factors that affect player decision-making when faced with choice. Finally, we discuss the potential of choice in developing impactful virtual experiences.

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in HCI**.

KEYWORDS

video games, choices, interactive narrative, player experience

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1 INTRODUCTION

The potential of games to deliver poignant, compelling stories - not unlike other forms of entertainment media - has long been discussed and researched [9, 26, 72, 101, 103, 112]. Video games have the potential to evoke a wide range of human emotions; they can make players laugh with joy, cry in sorrow, and ponder in contemplation [13, 14, 129]. Certain games have the potential to transport players into different worlds, situating them within the game in such a way that they themselves feel as though they are playing a character within a story [55, 102]. In doing so, these narrative-rich games can afford users wholly immersive, thought-provoking and emotionally-engaging experiences [23, 86].

However, what truly sets video games apart from other mediums of narrative media is the potential for interactivity [52, 75, 80, 127], referring to the understanding and reciprocity of actions between the game and the player [5, 67]. Several researchers have argued that interactivity is the key characteristic of video games that distinguishes it from other forms of narrative media, and it is considered a significant contributing factor in the meteoric rise in popularity of video games [52]. The combination of interactivity and narrative has led to the emergence of interactive narrative games, which place the player of the game as an agent of control. In such games, the player's actions and decisions have an influence on the events of

the story, the dialogue of characters, and other factors of the overall gaming experience [30, 75, 78, 86, 95, 127]. This provides the player with agency in constructing the story in the way that they want. Interactivity within narrative-rich games contributes to the lived experiences that users take away from the game [23], augments the engagement and dramatic quality of the game [37], and helps provide a greater sense of immersion and meaning within the game [23, 64]. The sum of these outcomes contribute to a heightened sense of appreciation, identification, and enjoyment for the player [4, 78, 96, 125].

One method of incorporating interactivity - this action-reaction loop - in video games is through the use of player decisions. Many modern, narrative-rich games allow users to make choices at key points in the game to alter the consequential outcomes (see Figure 1 for examples). In this study, we investigate the usage of choice as an interactive tool within present video games, and their overall effects on player experience. More specifically, we focus on three overarching evaluation goals - 1. classifying the types of choices present in current video games, 2. investigating how choice impacts player experience, and 3. understanding the characteristics of player decision-making when faced with choices. Discussion points parallel to these goals relate to the appropriate use of choices in video games and how game developers can use choice to develop certain types of desired experiences.

Past research into choices and player decision-making within video games often begins by framing the choice within a pre-existing framework, with the most prominent ones being "morality" or "meaningfulness" [62, 65, 126]. In doing so, the importance of these frameworks comes first and foremost - it is already assumed that moral and meaningful choices are important, and thus the potential outcomes of each investigated choice is already largely set. Overall, the primary goals and methodologies of these studies focus on how specific choices in video games fit within these frameworks. However, we find that the limitations of these studies are that they touch upon only a subset of existing choices and ignore the choices that do not fit within their deductive framework. Thus, our study takes a more inductive methodological approach, starting with minimal prior assumptions, and building up our findings with each subsequent qualitative method. In doing so, we aim to classify and investigate the impact of all manner of choices that exist in games. After conducting our studies, we relate our findings back within the context of past studies, tying them in within discussions of morality, meaning, and prosocial effects.

Our methodology involves several consecutive qualitative methods that work in tandem to iteratively build out and support our findings. We first perform a series of exploratory semi-structured interviews with 4 game developers, expanding upon our initial background knowledge in the area and to understand the thought-processes and approaches in creating choices in narrative stories. Thematic analysis performed on these interviews reveal initial themes regarding the effect of choice on player experience, as well as factors considered by game developers when creating choices. Combining these initial findings with observed differences in choices from a video analysis study of 56 existing choices from 16 games allows for the creation of a classification system for choice based on the impact on player experience. A series of semi-structured interviews with 14 video game players is then performed. Findings from our prior methods support the analysis of these interviews, ultimately allowing us to concretize our findings on how choices affect player experience, as well as generalize player decision-making when faced with choice.

2 RELATED WORK

To frame our study in the context of prior work, we look at past research into 1) interactive storytelling and narrative in games, 2) video game choice within the frameworks of "meaningfulness" and morality, 3) player motivation in games, and 4) prosocial outcomes of video games.

2.1 Interactive Narrative in Games

To understand the purpose and outcomes of choices as an interactive tool within narrative-rich games, we first consider the theoretical implications of interaction within games and technology. Interactivity has been defined as the relationship between input and feedback between the user and the technology [67]. Interactivity has been considered a core part of game design, but more recently has risen as a method to engage with story-based narrative-rich games [30]. Narratives are an important aspect of engagement in general, shaping personal identity in significant ways [18]. The use of interactivity in narrative-rich video games offers players agency, allowing them to control the actions and consequences within the game [2, 75, 78], and numerous past studies have looked into the outcome of interaction in video games. Interactive environments promote self-reflection, and provide the user with control over pace and activity [78]. As such, interactivity has been proposed as a way to intensifying game effects, as the constant state of participatory action and consequence results in a positive feedback loop for self-motivation [92, 127]. The works of Bailey et al. and Birk et al. demonstrated that interactivity in the form of character customization can create feelings of identification between the player and player character [4, 8, 34], possibly adding to the enjoyment of the game and contributing towards the feeling of a lived experience [23]. However, not all arguments for interactivity within games are positive. Garite argues that interactivity in games can manifest as a constant stream of demands for player behaviour, trapping players within a constant loop [80]. Voderer et al show that interactivity within narratives can negatively impact user feelings of empathy and engagement for individuals for lower cognitive capacity [124]. Lastly, Yoo and Pena show that interactive elements may negatively impact other game effects, such as recall and memory [132].

Within this study, we focus on one method of injecting interactivity within video games - the use of choice presented at key points throughout the game. We notice that few studies focus specifically on choice (as many focus on interactivity as a whole) and the ones that do specifically focus on a subset of choice revolving around meaningful or moral choice. During our investigation of the experiential outcomes of choice, we aim to frame our findings and discussion around prior work relating the possible outcomes of interactivity, essentially discussing the effectiveness of choice as an interactive tool for identification, immersion, and motivation within narrative-rich games.

2.2 Choice, Meaningfulness, and Morality

In order to frame the context of our results, we must first consider past work surrounding the impact of choices. In particular, past studies scaffold their discussion of choice around two interrelated concepts - "morality" and "meaningfulness". Starting with morality, researchers have suggested that video games are a suitable medium in encouraging ethical reasoning and reflection [108], as interactivity allows for the direct participation and contribution of a player as a key agent within a moral dilemma [62, 109]. Perhaps accordingly, a wealth of prior research has been done into the design and development of ethical gameplay [62, 107–109, 113, 117, 119]. The emotional and experiential response of players to ethical choice is rather well-studied. Weaver and Lewis found that players faced with moral choices typically revert to making decisions as if it were a real-life decision [126], a finding verified by numerous other similar studies [62, 68, 116]. This finding touches upon the tie between individuality and player decision-making. Weaver and Lewis also demonstrated that antisocial selections would increase a player's feeling of guilt, demonstrating that the decisions made at a moral level can affect player emotions [126]. Hartmann and Vorderer found that justifications for immoral choice, such as violence for a just purpose or reminder of artificiality of consequences could alleviate feelings of guilt [59]. As an extension to purely individualistic factors, Holl et al. found that player perceptions of moral decision-making can also depend on the variables of the game [62]. Although these studies show that users typically rely on moral intuition to make decisions, in times of enforced moral violation, users disengage from this intuition and make immoral decisions, not out of ethical corruption, but as satisficing decisions to advance the virtual experience [68]. In addition, Genovesi shows that even after a user makes a choice, the effect of the choice persists in engaging the player - players seek to understand the consequences of their decisions [46]. Ultimately, we see that moral choices have a significant impact on player experience within the game, and affect how players make and perceive such choices.

In addition to generating feelings of moral significance, video games can also engender feelings of meaningfulness [91, 100]. Meaningfulness as a concept corresponds to feelings of relatedness and insightfulness within the game [91], often relating to the story, the characters, and the connections between the player and the game [91, 100]. Meaningful games lead to deeper feelings of appreciation [91], tapping into the gratification related with poignant and thought-provoking media experiences [90]. One method of imbuing meaningfulness within games is through the use of choice. Schulzke argues that choices are meaningful if, in addition to having an aspect of morality, they are also fairly balanced and have significant consequences [109]. Iten et al. extend on this finding, revealing three key characteristics players associate with meaningful choice - 1) shaping consequences and outcomes within the game, 2) affecting the fates of other characters, and 3) balancing moral options [65]. However, on the other hand, Nay argues inconsequential choices can still be "meaningful", as similarities in the outcome force the player to reflect on their position and character without shaping towards an end [88].

Ultimately, past work in choices and its relation to the concepts of morality and meaningfulness have demonstrated many interesting findings in regards to the impact of choice and player-decision making when faced with such choice. However, the limitations of these works is that they start with a framework and primarily consider choices that address these frameworks. In this study, the opposite approach is proposed. We begin with a broad representative set of choices that already exist and minimal prior assumptions; through a sequence of qualitative studies, we inductively develop and build up findings and themes regarding the impact and experiential outcomes of such choices. As such, we consider the effects of all choices as a whole, even those that may be deemed to have minimal meaningful or moral significance.

2.3 Player Motivation and Decision-Making in Games

To better frame and contextualize the motivations behind player-decision making when faced with choice, we first aim to understand the motivations underlying play as a whole. People play games because they are fun and enjoyable [7, 66] - but what factors constitute such concepts? Bartle viewed this question in the context of multi-user dungeons (MUDs), theorizing that the four key motivators for enjoyment are achievement in game, exploration of the game, socialization with others, and imposition on others [6]. Yee extended this initial classification system through a survey done on 3000 MMORPG players, revealing seven interconnected factors that oversee the motivations for play - achievement, chat, immersion, relationship, competition, escapism, and exploration [130]. Investigation of playstyle has also been performed to model player types based on player-game interaction modes [120], focussing on the preferred methods in which people interact with the game. This study showed that the category of "journey" - the ability to develop a player's character and their abilities - was the most favoured game dynamic. Overall, a number of studies have been done to synthesize player types through behavioural and motivational segmentation, offering diverse stratifications that underlie a player's reason to play [25, 54, 60, 111, 120]. From a more deductive approach, Przybylski et al. investigated the motivations of games within the framework of self-determination theory, finding that the appeal of video games comes from their ability to satisfy the basic human psychological needs of competence (demonstrating skill and receiving positive feedback), autonomy (affording player freedom), and relatedness (supporting social connectedness) [97]. These needs in their translated form within the game were found to be significant contributors to user enjoyment of a game [125].

Consideration of the player motivations and playstyles is important in understanding the perception of choice within games, and how players make choices. We contextualize the importance of choice provision around the core motivators and concepts discussed in prior research, with a focus specifically on freedom, immersion, and autonomy. In addition, ways in which different players make choices ultimately relate back to the discussion of what they aim to take away from the experience, tying back into the initial question of what makes games fun for different players.

2.4 Prosocial Outcomes of Video Games

Games, in addition to being fun and enjoyable experiences, can be used to induce specific outcomes. For example, games can be used to assist in exercise [32, 131], enhance learning [22, 45], maintain cognitive abilities [24], or promote community engagement [49], as just a few examples of their numerous applications [40]. In framing our discussion of the experiential impact of choices within games, we also aim to investigate some of the implications or potentialities of such experiential consequences, in particular, we focus part of our discussion on the subset of games called "serious games" - games designed for purposes rather than being purely vehicles of entertainment [35, 74, 115]. Within the context of this study, we primarily focus on games that serve as methods for self-reflection and prosocial development of empathy [63]. To motivate self-reflection as an potential outcome of player gameplay, we consider Mekler et al.'s past work, which concluded that 1) games are suitable vehicles for self-reflection and that 2) players find self-reflection as a worthwhile experience in addition to moment-to-moment gameplay [82].

The impact of empathetic games resulting in prosocial effects has been long studied. Sierra et al. show that empathetic interactions with virtual game characters can promote situational empathy, in addition to improving user experience and immersion [99]. Similar outcomes were found in studies by Gentile et al. [47], Greitemeyer and Osswald [50, 51], Saleem et al. [104], Happ et al. [57]. Studies have also been done into investigating what specific characteristics encourage prosocial outcomes. For example Morrison and Ziemke showed that player empathy can be affected by visual perspective [85] and Matsumoto et al. showed that prosocial effects arising from games can also be influenced by age group and other socioeconomic characteristics of the player [79]. Ultimately, we aim to see whether the use of choices within video games is another factor that could possibly influence the development of immersive, serious games for fostering empathy and self-reflection.

3 METHODOLOGY I

3.1 Interviews with Game Developers

As stated prior, our overarching research involves a number of empirical studies that build on top of each other to generate our results and findings. To start, we first perform a series of exploratory semi-structured interviews with 4 game developers, expanding upon our initial background knowledge in the area and to understand the thought-processes and approaches in creating choices in narrative stories.

3.1.1 Participant Recruitment. For this study, we aimed to recruit game developers who had already published or were close to publishing narrative-rich game(s). This allowed us to focus on experts who had a clearer focus and deeper understanding of choices in their game and how these choices fit within the overall context of the other game elements. An initial call for participants was posted on a university paid studies list, but the constrained reach of this list quickly became an identifiable problem. A more active approach to recruitment was then implemented - the researchers reached out to possible game developers through a variety of targeted online channels, including game-design focussed subreddits and developer Discord communities. We were ultimately able to recruit 4 game developers (2 females/2 males; mean age: 24.75, ranging from 20 to 29 years - see Table 1), whose experience incidentally covered a wide breadth of different game genres.

Table 1: Summary of Game Developer Interviewees

Participant ID	Age	Sex
D1	24	M
D2	26	F
D3	29	M
D4	20	F

The games developed by each of the participants were initially unfamiliar to the researchers. Thus, in order to give a more informed and relevant interview, the primary researcher performed preparatory work for each of the games. In the case of free games, the primary researcher played through a few hours of each game; for paid games, the primary researcher watched a few hours of each game through Let's Plays on Youtube. The primary researcher also read through other online resources for the games, including possible online communities, user reviews, and crowdsourced wiki pages. In each case, the researcher took notes regarding game-specific information, including the genre of the game, gameplay mechanics, and instances of player choice. The researcher also noted any critical qualitative information found online, which was subjectively defined as instances in which online posters expressed strong emotions towards the game.

3.1.2 Interview Protocol. Semi-structured interviews were conducted with each of the participants through remote video calls. Participants were first asked to read and sign a consent form, and audio recording of the interview was recorded with their permission. To establish rapport and to gain insight into what questions would be pertinent to participant experience, participants were first asked to describe their games at a general high-level. Questions then shifted into more detailed queries about specific design decisions, specifically around the development of choices and their predicted effect on player experience and behaviour. Ultimately, the primary purpose of the interview was to understand the space of choices in video games and the factors that influence the design of choices in video games. Each interview was approximately 60 minutes long, and interviewees were compensated with 10 dollars for their participation.

3.1.3 Data Analysis. Qualitative data analysis in the form of thematic analysis was performed on transcribed interviews [17]. In particular, we took a highly inductive approach to analysis, building primarily on the collected data and minimizing prior assumptions or frameworks. The exploratory nature of the evaluation lent itself better to this approach; we aimed to create an initial framework of findings that we could expand upon in later, more deductive methods. In order to conduct this analysis, we first performed an initial round of line-by-line open-coding to summarize the data. A secondary, more focussed coding round then followed, grouping the initial coded data into code categories. As part of this step, similar codes were clustered to generate an affinity diagram representing a hierarchical system of categorical findings across all interviewees.

The code categories that we formed at this point were "Effect on Game", "Effect on Characters", "Moral Significance", "Effect on Endings", "Tangible Rewards" and "Abstract Benefits". These categories formed the initial framing for emerging themes, which 1) helped motivate the development of a choice classification system and 2) formed the deductive framing for our later findings on the effects of choice on player experience. This entire qualitative data analysis process was completed by the primary researcher, but discussed with other authors to reflect on the data.

3.2 Video Analysis

A video analysis [71] of choices within existing games was done in order to verify the generalizability of the initial findings from the interviews across a broader variety of games, and to augment these findings based on possible observable factors in choices that may have been missed.

3.2.1 Game Selection and Observation Protocol. As our study focuses on all types of choices in video games, we aimed to investigate a wide variety of choices. An informed assumption from prior anecdotal knowledge was made - a wide variety of different games would correspond to a wide variety of choices. In order to find games that would suit our evaluation goals, we used Steam as a database for games, and filtered by "Story Rich" to obtain the narrative-rich games. In selecting a representative set of games, we focussed on several criteria.

- **Game Type**: We made a distinction between Pure Visual Novels and non-Visual Novel games. From our prior study, we found that game developers made a distinct separation between games that were primarily story-based (visual novels - text-based games with minimal other gameplay) and games that had a mix of story and gameplay elements. For example, one developer discussing the design for optional dialogue may differ - *"It doesn't work for visual novels, but for non-visual novels, that's acceptable."* We extend upon our pre-existing knowledge of visual novels with the more encompassing definition presented by Camingue et al. [20].
- **Rating**: Our study aims to reflect on the effect of games on player experience, and one metric that we hypothesized may be a good representation of player rating is the rating of the game. We make an anecdotally-informed assumption that games with positive player experience tend towards higher ratings, and vice versa. Thus, to understand how choices factor into both positive player experience, we primarily focus on both highly-rated (>90% on Steam rating) games, however, we consider low- to average-rated (<85% on Steam ratings) games in the exception when the game is popular.
- **Popularity**: Popularity was selected as a more tangential metric of player experience. We make an anecdotal assumption that games that are more popular tend toward a more controversial, impactful or novel player experience. Thus, we focus on both games that are highly popular (>500 reviews on Steam) and games that are less popular (<100 reviews on Steam).

We recognize that for all these games, the rating and popularity of the game may be largely due to other gameplay aspects outside of choices and that these metrics are constantly subject to change; nonetheless, we use these criteria as the basis to select a representative set of games. Thus, the combinations of our 3-dimensional criteria formed a matrix of 8 possible types of games (Visual Novel / Non-Visual Novel, Highly-Rated / Lowly-Rated, Highly-Popular / Less-Popular). From this matrix of 8 possible types, we exclude lowly-rated, less-popular games since they hypothetically offer less to our exploration of positive or impactful experience, leading to 6 investigated types of games. To prevent possible one-of outliers, we selected 2 games from each of these possible combinations, motivating the selection of 12 different games. In selecting the games, we also favoured games that were more closely tied to the personal experience of the researchers, in order to extend upon already existing personal knowledge about the games and their choices. For the few games that were inaccessible due to price, the researchers instead looked through online playthroughs (Let's Plays) on Youtube. The validity of this approach is motivated by the fact that our observation is done purely on the game media itself, rather than focussing on any aspect of external player response. The summary of games selected is shown in Table 2.

For each of the games, we extracted videos from just before to just after a choice in that game, up to five choices in a playthrough. Five was an arbitrary number chosen that would allow the researchers to grasp the types of choices within the game without necessarily needing to spend the time to play through the entire game. Some of these games had fewer than five choices; causing the total number of choices investigated to be 56. Observational notes were taken on the actions and dialogue proceeding, during, and following a choice, following a visual transcription method outlined by Ramey et al.[98]. This method would only allow us to capture the short-term effects of a choice; thus, to augment the details of the choice, we turned to additional details found on the crowdsourced walkthroughs and wiki pages, which have been shown to be reliable from past research [1, 33]. The combination of these sources allows us to capture a textual qualitative representation of each choice.

3.2.2 Data Analysis. With our textual representation of 56 choices, we conduct thematic analysis to understand the "dimensions" of choice - what criteria differentiates choices from one another. We perform two rounds of thematic analysis on this set of qualitative data. First, we start with a deductive approach, starting with a basic framework of categories and themes motivated from our prior concepts from the analysis of interviews with game developers. Following that, we conduct an inductive approach to analysis, aiming to remove any precognitive biases or assumptions. These approaches complement each other; the deductive approach allows for the framing of the findings within known findings, and the inductive approach allows us to capture the concepts or categories that may have been missed. To conduct this thematic analysis, we followed a similar methodology as before, starting with an initial round of line-by-line coding before a second round of focussed coding to generate categorical concepts. The union of code categories that we find from our two analyses are "Temporal Consequence", "Moral Consequence", "Humour and Flavour", "Optionality of Choice", "Reward and Benefit", "Constraints on Choice", and "Probabilistic vs Deterministic Outcome". The choices were coded based on these categories, and a second round of refinement was performed to remove redundant categories - ones that were too narrow or too

Table 2: Summary of Games Analyzed

Game	Game Name	Is Visual Novel?	Rating?	Popularity
G1	The House in Fata Morgana	Yes	High	High
G2	Senren Banka			
G3	Embraced by Autumn	Yes	High	Low
G4	Kinkoi: Golden Loveriche			
G5	Sakura Beach	Yes	Low	High
G6	Batman: The Telltale Series			
G7	Disco Elysium	No	High	High
G8	Life is Strange			
G9	Stardander Revenant	No	High	Low
G10	Corpse Party (2021)			
G11	Maplestory	No	Low	High
G12	Pathfinder: Kingmaker			

applicable to only an esoteric subset of choices (e.g. "Constraints on Choice" and "Probabilistic vs Deterministic Outcome"). These final set of categories formed the basis for the development of a classification system for choices based on their theorized effect on player experience (serving as the dimensions of choice). This step in the data analysis process was mainly completed by the primary researcher, but discussed with other authors to reflect on the data.

4 CHOICE CLASSIFICATION SYSTEM

From our prior methods, we ultimately find that all choices can mainly be classified by three important criteria.

- **Temporal Consequence**: A spectrum that describes how long the impact of the choice carries over in the story. In general, the developers indicated that there is a spectrum of how long the consequences of a choice carries over in a game. For example, D2 differentiates between two types of choices in their game: "personality choices" that affect the behaviour of the main character and have short-term consequences, and "important choices" which have long-term consequences down the road. D3 specifically mentions that for certain choices in one of their games *"[it] doesn't impact anything [within the story] … you can approach it the way you want to approach it"*.
- **Perceived Significance**: A spectrum that describes how significant the choice is on the world and the characters. This is a subjective measure based on the game, for example, in more serious games, this often implies a moral dilemma; but in some more lighthearted games, a significant choice may be choosing which character to romance. D3 differentiates between dialogue choices that are *"more fun ones"* that *"allow characters to learn more about other characters, discuss their hobbies, maybe sometimes discuss something plot related but not so important"* (oftentimes optional dialogues) and the more serious ones that *"discuss strategy"*, since *"it is a military story at the end of the day"*.
- **Reward and Benefit**: A description of the rewards or benefits that the decisions of choice could incur. Rewards and benefits could involve factors that affect gameplay, such as stat boosts or items. However, they may also refer to additional features or scenes, such as cutscenes or "computer graphics" (CGs). As an example reward system, D2 pointed towards the resource management system within their game; stating that choices may affect the resources that a player can gain and use which in turn affects future choices - *"You have limited resources you have to deal with when you make your decision"*.

These criteria are not necessarily fully independent, as we found a few strong correlations between them. For example, from D2's description of choices within their game, choices with high temporal consequences (important choices - for example, affecting your nation's resources or the affection of your subjects) that influence the entire ending of the story are perceived as more significant than choices with low temporal consequences (personality choices - for example, affecting how you word your answers or whom you spend free time with). Ultimately, this classification forms an initial basis for which we explore the effects of different types of classes of choice on player perception of experience.

5 METHODOLOGY II

5.1 Interviews with Video Game Players

With a refined understanding of the types of choices in video games and a few initial findings on the effect of choices on player experience, we continued on by performing semi-structured interviews with video game players.

5.1.1 Participant Recruitment. For this study, we targeted players who had familiarity with playing narrative-rich games with choice. Potential participants were identified through personal connections, posting on online listing boards, and messaging in dedicated video game-focussed Discord servers. All potential participants that responded were screened to be players who had completed narrative-rich games with some aspect of choice in the past. Due to the large number of respondents, we asked each player to send us a list of narrative-rich games they would be willing to discuss.

Table 3: Summary of Video Game Player Interviewees

ID	Age	Sex
P1	24	M
P2	34	F
P3	40	M
P4	22	M
P5	22	M
P6	23	M
P7	29	F
P8	24	F
P9	28	F
P10	31	M
P11	36	M
P12	19	F
P13	27	M
P14	23	M

We used this information to further narrow down the recruitment to players who have played a wider variety of narrative-rich games and expressed a deeper passion for such games within their responses, as we assumed these people would be more willing to speak in depth about their personal experiences with these games. Finally, we reached out to this final set of participants through email. We completed recruitment after conducting sufficient interviews to such a point in which we deemed that we were not learning any new information from additional interviews. Ultimately, this resulted in a total of 14 participants, as seen in Table 3 (5 females/9 males; mean age: 27.29, ranging from 19 to 40 years).

Many of the games mentioned by the participants were initially unfamiliar to the researchers. This was not a major issue, as we expected participants to introduce and discuss the games during the interview; however, in order to ask more informed questions, the primary researcher performed initial preparatory work by performing initial research into each of these games. This included reading the synopsis of the games, briefly watching online playthroughs, and reading game-specific forums and wiki-pages. Particular attention was paid to any instance of choice that came up when browsing these resources. The researcher took unstructured notes regarding important information from these resources to motivate the structure of the interview.

5.1.2 Interview Protocol. Semi-structured interviews were conducted through remote video calls. Prior to each interview, participants read and signed a consent form. Audio recordings of the interviews were recorded with permission, otherwise the interview was transcribed directly during the interview. The interview was conducted in two main parts. During the first half of the interview, participants were asked about the narrative-rich games they had played in the past. To establish context, players were asked to first describe the game, before discussing how choices played a role in the game. Questions primarily focussed on how players perceived choices, how these choices affected their overall experience, and what kind of decision-making process players went through in order to make a decision when faced with choice.

In the second half of the interview, participants were shown videos of specific curated choices, as well as provided the context for these choices within the game and the synopsis of the game (up to that point) as a whole. This was done to have a standard comparison point across responses for all the participants, since each participant had a different set of narrative-rich games they had personally played prior. Thus, to investigate the effect of all types of choices as dictated by our classification system, we showed them a set of choices that covered all possible differences in the 3 criteria discussed prior. For each specific criteria, a representative choice for each extreme was randomly chosen (random sampling with replacement) among the ones investigated to avoid any personal bias, and the videos used were the same ones used during the prior video analysis. One choice was drawn twice, leaving a set of 5 choices as shown in Table 4.

After showing the participants each of the videos, we asked questions regarding their perception of the choice, the perceived consequences and significance of the choice, and what factors would play into their decision-making. Overall, each interview was approximately 60 minutes long, and interviewees were compensated with 10 dollars for their participation.

5.1.3 Data Analysis. Similar to prior methods, thematic analysis was used as an analysis technique to better understand the effect of choice on player experience, and to grasp an understanding of player decision-making. We performed a round each of both deductive and inductive analysis. Deductive analysis explored how the data fit within our current structure and knowledge of the types of choices that exist, as well as initial findings regarding hypothetical player experiences which we obtained from the game developer interviews. Inductive analysis was done to gain a deeper understanding from the player's perspective on how choices are perceived, how choices affect the overall experience, and how players make decisions when faced with choice. An initial round of line-by-line coding was followed by a subsequent round of coding to group the codes into categories through affinity diagramming. The combination of both analyses revealed the code categories of "Player Emotions", "Gameplay Effects", "Player Understanding of Consequence", "Player Persona", "Reinforcement of Persona", "Engagement with Friends", "Online Communities", and "Differences from Reality". These categories would then form the framing for the themes and findings, discussed in the next section. The data analysis was completed by the primary researcher, but discussed with other authors to triangulate perspectives.

6 FINDINGS

6.1 Choices and Player Experience

6.1.1 Choices and the Player-Character Relationship. Perhaps most notably and most obviously, choices within the game impact the relationship between the player and the characters and story of the game. During the interview, almost all of the choices described by participants outlined a decision that would alter the actions and behaviour of a character, thus, we specifically focus on the effect of choice on the relationship between the player and the player characters (PCs) and the player and the non-player characters (NPCs). It is important to differentiate the PC from the player themselves,

Table 4: Summary of Sampled Choices Presented to Interviewees. Italicized text refers to the speaker name.

Choice ID	Game	Prompt/Previous Line(s)	Choices
C1	Kinkoi: Golden Loveriche	Music, fashion, and fencing. Maybe I should do one of the same?	(a) Sylvie, take me with you. (b) Reina, what is it you actually do? (c) Swordplay sounds manly and adventurous.
C2	Embraced by Autumn	I have to pick somebody, though. I can't keep Madame Dubois waiting. Who should I choose?	(a) Claudine (b) Luce (c) Mirabel (d) Celine
C3	Maplestory	You can call one friend for the last time.	(a) Cygnus (b) Neinheart (c) Mihile (d) Eckhart etc...
C4	The House in Fata Morgana	*???*: Good morning, Master	(a) ...Good morning… (b) .....
C5	Disco Elysium	*Klassje*: "I couldn't say. In truth, so far, mostly drinking."	(a) "Why don't I remember being a cop, or anything else?" (b) "Who in their right mind would let *me* be an officer of the law?" (c) Try "The Expression" on her - let her know you want her. Physically. (d) "I should get going now." [Leave]

in many cases, participants described the PCs as separate agents with separate goals and motivations from themselves. For example, several participants detailed ways in which the PC would be different from them, for example, one participant described the PC of *Indiana Jones and the Fate of Atlantis* as *"he's a really great guy that thinks on his feet, I may not be as good as is"* (P2). Sometimes players even came into conflict with the PC, for example, one participant mentioned that *"I've definitely had games where I completely disagree with the protagonist."* (P10), citing *Red Dead Redemption 2* as an example in which the PC's constant self-deprecation was a source of tedium for the player.

Although the degree of player autonomy varies by game, players are typically unable to fully control the motivations, personality, or overarching storyline around a PC. For instance, one participant mentioned that *"in Skyrim, [the PC] can't suddenly align with the malevolent beings… I think that if it conflicts too much with pre-established lore, it should not be a thing"* (P4), demonstrating the limitations of the game in terms of providing the player with complete freedom in pursuing the narrative. However, instances of choice do provide the user with full control over the PC's actions, breaking the usual mold. During the exact moment of choice, the player's selection and PC's actions are, at a meta-level, synonymous - whatever choice the player selects to occur is whatever must occur within the game, whether that is an action the PC should take or a line of dialogue that the PC must say. Within the instance of singular choice, the PC's actions and the player's selection are one and the same. Thus, in this instance, the player inevitably imbues some personalized aspect of themselves into the narrative story, and in doing so, generates a relationship with the PC.

The interactivity of choice entails an action-reaction loop, thus the player's choice will have subsequent effects on the story world and the NPCs that inhabit it - the player's choice forms an inevitable connection between the player and the NPCs as well. These effects can be as major as completely changing the fate of the world (e.g. *"in Dark Souls 3 … you basically single-handedly decide the outcome of the world at the end of the game"* (P4)) or as minor as simply changing a few lines of dialogue. The outcomes or consequences of the effects are thus forged by the player, for example, when choices cause the PC to develop friendship with NPCs, these are friends forged by proxy due to the player. Thus, the game directly frames the player as an agent within the game that determines the outcomes and consequences; choices inevitably cause the interweaving of the player, the PC, the NPCs, and the overarching game world as they are all fundamentally affected in dependent manners by the decisions the player makes.

When players make choices, they inevitably make them with some personal purpose, imparting some "aspect" of themselves into the game. This "aspect" is personalized to the player and can differ across players, and can be something like playing their own perceived self (*"I try to make good choices as a nice person"* (P7), *"I tried to do the right thing that I would do in real life"* (P11)), playing their idealized self (*"I would like to be a character I want to be, or someone I really admire"* (P2)), playing their anti-self (*"I think I would play the person who's not like me in real life."* (P8)), playing as

a chaotic overseer (*I mostly like the pure chaos route* (P14)), etc. Thus, the PC represents not the player themselves, but what we deem the **"player persona"**, an intermediate link between player and PC representing the abstract concept of how they want to play the game. This idea of "player persona" extends upon past research in player identification. Van Looy et al. proposed perceived similarity (playing as their perceived self) and wishful identification (playing an idealized self) as influencing factors towards self-identification [121]. However, we notice that in narrative-rich games, a player can still engage in methods of relation to a player they may not self-identify closely with [19], through the possible player personas. The relationship between player and PC, as well as its subsequent impact on the world and characters, can impact external factors such as player enjoyment and immersion [15, 61, 76].

While the player persona affects how players make choices, the effects of choices also reinforce the player persona, forming a positive feedback loop. For example, if the player makes a character for their PC to perform an action that is morally good, this will cause the NPCs and the world to react accordingly to reinforce or assert that the PC is "good". For example, P1 mentioned that choosing to save a group of enslaved NPCs in the *Witcher 3* - a moral action - will cause the game to prop up the PC as a *"savior"* and *"hero"* by these same NPCs, reinforcing this concept of morality. In a similar vein, playing as an immoral, evil persona will lead to the opposite outcome. Thus, the action and feedback loop from choice in these narrative-rich games concretizes the player persona and responds to it in a feedback loop.

6.1.2 Choices, Autonomy, and Immersion. There was a shared sentiment among all interviewees that choices promote autonomy, as each player has full control over their decision when presented with choice. Autonomy has been shown in prior studies to be a key motivator for the desire for playing games, but what are the particular outcomes of autonomy that make it a desirable motivator? Participants described the outcomes of autonomy - the ability for players to select their own choice - as creating various feelings of meaningfulness (*"But it just feels more meaningful - the control you have over how the story progresses, where you're going to go when or how you're going to do something"* (P3)), fulfillment (*"I find that the more choices that those kinds of games have for a player's experiences, the more fulfilling the experience could be… you really do get to create your own experience"* (P4)), and immersion (*"helps people immerse themselves into the role playing character"* (P11)). Meaningfulness and fulfillment have been discussed in depth in prior literature regarding choice, thus, we centre the present finding around immersion, self-identification, and its relation to player persona.

Immersion is tied to feelings of self-identification [15, 61], which was found to occur when players use a persona that is representative of themselves (e.g. as a perceived self). The use of choice within games is a way to reinforce the persona and to develop immersion. Our interviews showed that, when users are more immersed within the game, they tend to feel a stronger connection with the PC. For example P6 mentions that *"choices make you be able to pull yourself into like the view of whoever you're playing. You feel like you control the character, have a stronger connection to the character, and might feel like you are able to self-insert yourself as well"*. When this occurs, players stated that their choices in the game are more representative of the choices they would actually make in real life, and that they would tend to think more earnestly about the in-game choice, e.g. P7 mentioned that they would think more deeply about making a serious choice *"if I'm really invested in it like The Witcher and I really feel for the characters … as I felt a very personal connection to them"* (P7). On the other hand, when immersion is less present, players feel a sense of detachment from the PC, causing them to feel more indifferent towards their choices, and thus the characters and story of the game. For example, P1 mentions that when they are unable to self-identify with the PC in the game, they feels more detached from the game in general, e.g. *"I tried to play the opposite of me and I can't - I don't find the same enjoyment from the game … I make completely different choices, I feel more detached from the character and the choices I'm making"* (P1). Overall, choice can be used as a tool to generate self-identification and immersion, which can consequently affect the relationship between player, player persona, and PC.

6.1.3 Choices, Personalized Playthroughs, and Social Effects. Each choice in a game shapes the story in unique and different ways. Players noted that this feature of choice makes playthroughs of such games feel unique and personalized, e.g. *"You're able to be the story-maker instead of just a listener. You're really controlling the story"* (P8) and *"You really do get to create your own experience"* (P4). Past research has shown that personalized stories contribute to higher enjoyment [73], a sentiment echoed in our interviews. One game developer stated that in developing their game, they had aimed to create personalized experiences, hoping that *"each player gets something out of [their game], and that something is unique to them"* (D3). From our interviews, we found that personalized narratives for each player also promote social effects - players are eager to see the experiences of others and to compare and contrast the decisions made. For example, one player mentioned that the choices promote discussion with their local community of friends, in that *"each player can have their own definitive experience that they can talk to friends that have also played the game, and they can compare and contrast their experiences and understand why someone would choose something different."* (P4). Similar effects were found for several other players and developers as well, for example *"Like reading a book or watching television, … I talk about the plot with my friends online."* (P6). In addition, one game developer mentioned this social aspect as a key factor within their own gaming experience and thusly something they wanted to incorporate within their own published game as well - *"I love to talk with my friends who played [Dragon Age] and just watch what their epilogues were. It was funny that we never picked the same people as the Divine in Dragon Age ... It was just individually, considering the playthrough we did, we considered that this character was best in each case, and that's what I wanted to add with choice [in my game]"* (D2).

Social effects were not restricted to the local friend community either; some players also discussed the social effects at a broader community scale. For example, several participants cited watching gameplay of Let's Plays on Youtube, whereas a few also brought up other community platforms such as Reddit and Steam. The general motivation for reaching these social platforms was to view how other players experienced the game, e.g. *"What happens if this choice*

was made, what about other people's experiences? See what they felt, how they thought of it" (P5) and *"I would look at other people's opinions as well and what they would think of the situation"* (P14). Certain games have systems which illustrate the choices of others sewn directly into the game itself, for example in *Life is Strange*, players can see the global percentages for choices selected at the end of every chapter (Figure 2). However, online conversation is still important at understanding not just the decision made, but the reasoning and thought that goes into each choice, and the reaction to unique outcomes.

Players expressed feelings of validation when others picked the same choices as them, corroborating prior studies on personalization theory which found that a personalized experience allows for not just the reflection of personal identity, but also the membership of oneself within a group [11]. On the other hand, when others selected different choices from the player, it nonetheless allowed for the understanding of the rationale and decision-making of why other players preferred these certain other choices, allowing the player to empathize with their decision, regardless of whether or not they agreed. Social factors can play a key role in decision-making [10, 118], and the provision of additional social information can allow for an attenuation of defense motives, allowing players to view their selected choice as not always necessarily the "right" choice when hearing alternative motives and rationales [21].

Figure 2: In *Life is Strange* (image © Square Enix), players can view the global percentages of decisions (accumulated over all past players) for each choice in the game.

6.1.4 Choices and Perceived (Virtual) Consequences. As established, choices lead to consequences in the virtual world. Players stated that they generally have a sense of consequences within games when presented with choice - as they generally map to similar situations in real life (e.g. *"Usually the choices are sort of obvious … Like in a real dating situation."* (P12)), can draw upon other positive transfer effects from past experience (e.g. *"it's relatively easy to tell what each of the choices may lead to .. it's more from intuition and past experience"* (P6)), and are set out in rather explicit fashions (e.g. *"Usually it's set out in a very explicit way."* (P10). Thus, even prior to making the choice, players typically already establish a mental model of the outcome. The mental model of consequence may not actually match the outcome that actually occurs, which can be a point of frustration for the players, for example, P7 mentions that *"that's honestly a frustration at times with some games because if you choose a dialogue option and it doesn't always align with what happens"* and P11 mentions that *"either I misinterpret or the game misleads or tries to surprise me. And I don't like that"*. This is a common understanding within human-computer interaction as a whole [89]. However, sometimes players recognize that this disconnection between user intention and game response is sometimes done intentionally, with the goal of inciting a sort of literary motif, i.e. "the illusion of choice" [70]. For example, one participant mentioned, when discussing the choices in *Bioshock Infinite*, that *"You can pick either one; it doesn't actually make any difference. I think the gimmick of that game was that things were always set in stone."* (P10).

Thus, participants generally noted that they have a mental model of outcomes when faced with choices, and in general, players indicated that they select the choices that meet the consequence of whatever player persona they aim to imbue in the world. However, there exists one additional factor in consequence that impacts how players perceive and make choices - the **permanence** of the choice for a playthrough. Consequences in many games are impermanent per playthrough - users can often choose to save-and-reload at any point during the playthrough to select a different choice. Players often do this to view the outcomes that may have occurred when breaking persona. For example, P5 mentioned that *"it got me curious, what would happen? How does the story progress if I choose the other action instead? There are lots of save chapters, which I had in the back, which I came back to see what it's like"*, even though they mentioned that they always play games from a "paragon-like" persona. P7 mentioned that *"I'll save right before it if I know it's coming and replay if I don't like the outcome."*. P10 casts a negative light on such behaviour, using the negatively-connotated term *"save-scummed"* to describe these actions, despite admitting that they also engage in this activity. The only types of game which avoid this effect are real-time multiplayer games - from our game observations, we noticed that the MMORPGs *Maplestory* and *New World* do not offer a save-and-reload feature for choices, meaning that any choice made is permanent for the rest of the game, unless a user wants to completely start over.

The ability to save-and-reload to get a preferable outcome creates a dichotomy between real-life and virtual choice - players are able to see what may have happened had they picked a different choice, and then select the most suitable one. In such a manner, there may exist a divergence in intention when selecting choices - is the player making a choice out of curiosity, in order to see the outcome or is the player making a choice because it fits within the player persona and there is a concrete intention to continue with those consequences? In the former case, the choices players make are less significant in terms of representing their persona persona; thus, save-and-reload offers another dimension to choice and user perception of consequence within video games. Within game development, this offers a trade-off. Past research has showed that save-and-reload encourages exploration and instrumental play, but attenuates the significance of consequences and discourages choice as a pure representation of player intention [113, 114]. If, as in many cases, the player is playing as a perceived self or idealized

persona, this causes the immersion that arises from strong self-identification to be broken as well, and users may subsequently not be as invested in making a serious decision.

6.2 Player-Decision Making

The cumulative summation from all our studies and prior findings reveal 4 main factors that work in conjunction to impact how players make decisions.

- **Player Persona**: The conceptualization of the player represented onto the PC (e.g. *"I go more along kind of the Paragon path and I try and do things that are generally good"* (P7))
- **Perceived Player-Game Relationship**: The existing relationships between the PC and virtual agents (story, world, and NPCs) (e.g. *"this group of people that may have been enslaved unfairly and they're looking for a hero, and you're like I can be that guy, I can be a savior for them"* (P1))
- **Individual Mental Model of Consequences**: The player's model of temporal and significance consequences for each possible decision when faced with an instance of choice. Aspects of reward, benefit, and significance fall under this category. (e.g. *"I know what the consequences might be for a character. I know that, for instance, this is a good choice and this is the bad choice"* (P10))
- **Permanence of Consequences**: Whether the choice is permanent per playthrough or not. Another way of wording this is whether or not the player can save-and-reload the choice within the same playthrough. (e.g. *"I think I explicitly went back and save-scummed it basically after I realized you get the special item."* (P10)).

These 4 factors often have relationships and correlations in practice. For example, as discussed before, the impermanence of consequences can weaken the impact of the player persona when selecting a choice. In addition, empathetic NPCs can enforce immersion, which strengthens the connection between the player and their player persona [81]. Ultimately, it is the personalized combination of these 4 factors working in balance that affect the way people make choices.

6.3 Revisiting the Classification System for Choice

6.3.1 Morality and Decision-Making: "The Correct Way to Play" . From our findings, we discover that one factor that plays into a player's mental model of the consequences of choice is the player's past experience. A player's prior experience of similar choices within different games and an understanding of those consequences can influence them to make educated assumptions of choices they may be seeing for the first time. This experience is not even solely limited to playing previous games, for example, P10 mentions that *"I don't think I've ever played one of these games, but I'm aware of the idea of it ... it is poking to say, 'this is just your fantasy of dating someone'"* when discussing a presented choice in a dating simulator, showing that educated assumptions can be made even just through awareness of the genre.

One possible outcome that may arise as a result of this relationship between prior and present choices is an overdependence of prior assumptions when faced with choice. This was particularly apparent in one common assumption among several players - that moral decision-making leads to rewards. For example, one participant notes that *"It seems to be that good moral choices are rewarded better in games. If you play the bad character, it's kind of limiting in your experience"* (P1). Within our classification of choice, we drew a distinction between the perceived significance and the reward of a choice. However, due to the way ethical choices are presented, players form mental associations between choices with perceived morally-significant dichotomies and choices with rewards. P1 indicates that they feel compelled to constantly make moral choices, because making the immoral choices would have negative gameplay effects. This transforms the interactivity of choice into an illusion; although the player can still make the immoral choice, they feel as though they are compelled to make the moral choice. P7 reinforces this idea, stating that, before making any singular choice, *"I'll even look up the endings because I don't want to make the wrong choice."*. One developer noticed that there would be people asking for the specific "answers" to the choices to get certain endings for their game, e.g. "a lot of people played it and they asked about how do we get the [specific] endings" (D3), resulting in the formation of guides. In these cases, although choices are present, their engagement and interactivity effects are attenuated, since players feel that there is a correct way to play. Thus, the positives effects of interactivity are likely to be limited as well, such as user engagement and immersion. In addition, as players feel a loss of autonomy and freedom, which are key motivators for the enjoyment of the game [97, 125]. One game developer indicated that this would defy the spirit of choice for them, "It's not a real choice for me if one choice will lead you to the good thing and one choice will lead you to the bad thing, I think a good choice is that a choice that leads you to path A or path B but both are equally valid in terms of what you feel" (D2).

Another participant noted that, when faced with choices with moral dichotomies, *"I tried to do the right thing that I would do in real life, make and try to make the NPCs happy. Because I find that if you do that, then you get the most rewards out of it."* (P12). This shows an interesting outcome, because although the first sentence shows that this player's decision making leans towards the player persona as their perceived self, the second sentence shows that this player's decision making is dependent on their perception of consequence and reward for the choices. This shows that the choices made by players with vastly different decision-making methods can become indistinguishable from each other. As these decision-making factors are tied to player experience, it becomes difficult to draw distinctions in player experience as well. For example, a player who makes choices tending towards a persona feels more engaged and immersed within the story than a player who makes decisions for rewards. However, if both these players constantly make the morally good choice, it ultimately makes experiential factors for these types of players difficult to distinguish as well.

These outcomes arise due to a common assumption that links two characteristics of choice that would otherwise be distinct. To alleviate these negative outcomes, game developers must make choices that counteract this assumption. However, this opens up a complex argument involving not only ludological studies, but ethics as well - Should immorality be rewarded? If a person wants to make a decision to torture or kill, should they be rewarded within the context of the game, or must they be punished for doing so? It is not

unheard of to be rewarded for immorality in games, for example, *"So Deus Ex, … if you wanted to kill everybody in the game, it also rewards you that way"* (P11). One game developer discussed this dilemma in depth during their interview *"we all can agree that killing people is bad, and it was a really difficult question to setup because I didn't want my game to become some sort of moral punishment where every time you make a bad choice you have bad consequences, and everytime you do a nice thing, you have nice outcome"* (D2), citing that it may cause the game to feel more *"boring"* in that case. However, prior research in ethics almost always argues against rewarding immorality and for rewarding morality. Cox argues that active reward for immorality within games leads to the teaching of a moral standard "almost universally considered deplorable" [29]. From a non-ludological perspective, philosophers such as Plato have explored the value of morality and virtue as being aspects of self-reward and harmony [12, 43]. Overall, the decision to universally reward morality and punish immorality can be viewed as an ethically necessary outcome that sacrifices some aspect of player-experiential factors.

6.3.2 Temporal Consequence and Reward: The Ending as a Reward. Within our classification of choice, we presented temporal consequences and reward of the choice as distinct factors, however, findings from our interviews allow for the argument that temporal consequences of a decision are inevitably tied to reward. To motivate this discussion, we must better define the concept of reward. During the interviews, there was a strong implication among participants that the term "reward" within the context of choice would be some aspect that would help them within the gameplay, e.g. *"a better reward from completing a quest."* (P4). When discussing questions about rewards in games, many participants brought up items: *"I'm fairly sure the leader of the Brotherhood congratulates you and he keeps you a special chest piece or something like that"* (P10) or unlock mechanics and stats: *"I'll have to reroll my stats at the very end just to start over and have an effective character"* (P11). Prior research into rewards within games has looked at what classifies as a reward and the various types of reward forms [38, 39, 84, 94]. For example, the concepts of "virtual item granting" and "unlocking of game mechanics" (as described by Wang and Sun [56]) largely covers the prior descriptions of rewards that were often brought up in the interviews. Phillips et al. broadened the definition of video game rewards as "positive returns that would reinforce player behavior within a video game" [94]. Within this wider definition, we can view consequences and outcomes within games as a possible reward for choice.

We found that participants would describe endings and outcomes (the "positive return") with similar terms as item or game mechanic rewards - as things they would make choices (player behaviour) in order to attain. This was most evident in "dating simulator" type games, where each ending typically involves the PC entering a romantic relationship with one of the NPCs. Participants stated that *"there are narrative reasons to go into a certain order of routes."* (P6), *"you choose to get a positive response from them"* (P10), and *"you want to pick the choice that gives you the highest chance to get the best ending"* (P12). Furthermore, by making a choice that pushes them towards a specific outcome, the game would provide feedback to the player to reiterate the potential of this outcome. For example, making a choice with the intention of aiming to enter a relationship with a specific NPC would cause the game to respond by engaging in scenes en route towards a relationship, ultimately reinforcing the initial intention and behaviour.

In these cases, the selection of choice is motivated by consequence - users are making choices in aiming to obtain a future intrinsic reward (in this case, the outcome or ending they desire) instead of purely focussing on local present factors such as the player persona or the player-character relationships. In such a way, choices that have consequences that affect an outcome can be viewed from the similar perspective of a choice with more tangible, traditional gameplay rewards, such as an item or stat boost. As a result of interactivity, essentially every choice has some aspect of feedback and consequence, even if it is extremely minor, thus it is impossible for any choice to not offer an intrinsic reward. However, it is evident to see there is a considerable difference in the perceived reward of a choice that changes the entire direction of the ending versus a choice that changes a few lines of dialogue. Similar to prior arguments, leaning into consequential considerations within decision-making weakens the impact of player persona, and its associated effects such as immersion and engagement.

7 DISCUSSION

7.1 Prosocial Effects

7.1.1 Empathy for Virtual Agents. Recent studies have investigated the use of games, and at a more broader level, virtual experiences, as mediums for generating empathy [28, 41, 44, 58]. Arguments have been made for the impact of virtual perspective-taking to create similar empathetic outcomes within real life [41, 42, 77], for example, Paiva et al. showed that emphatic virtual agents can afford users the capacity to respond empathetically as if they were in the same situation [93]. Overall, it is theorized that considering the perspective of others through virtual environments allows for the increase in empathetic capacity [122]. However, the degree of empathy generation hinges on several factors. Sierra et al. show that congruence in the appearance and expressions of a virtual agent could lead to higher levels of player empathy [99] and Morrison and Ziemke show that the perspective of control that the player has over the PC influences the degree of empathy [85]. At a meta-review level, Santos et al. investigate past approaches and factors for generating empathy across virtual interactions, showing the importance of empathic virtual agents and collaborative learning environments [106].

From our interviews, many participants discussed feelings of empathy or consideration for the virtual agents within the narrative-rich games, e.g. *"I think I can still care about them and empathize with them realizing they're video game characters"* (P7). Within these games, many participants indicated that they spent time deliberating over their personal decisions and how they may affect the virtual characters. For example, when discussing the game *Detroit Become Human*, a game in which the protagonist (a police robot) must confront other deviant androids who have developed autonomy and emotions, P5 mentioned that *"whatever choices I made as that robot, I tried to understand the defective robots, I understand, they are showing human emotion, even though I'm really working against these robots … these robots actually have human emotions. They're not just blind robots who follow instructions: they have emotion, they*

feel love, hatred, hurt". In a separate example of empathetic play, a player cited a difficult decision in which they had to select between one of two NPCs to save in *The Telltale Series: Walking Dead - "you can choose to save either like Carly or Doug. And they both have their own personality, they are both different and they have different traits"* (P13). Game developers cite this as a goal when developing the NPC dialogue as well, e.g. *"You can like [the characters] without liking them as if they were a real person"* (D3), and that by engaging throughout the narrative, you find that certain characters may act in ways that *"Not that they're necessarily evil, but that they may have been naive in a way that may have been hurtful to others"* (D3), which may violate initial assumptions prior to engagement with choice. Ultimately, choices played a role in encouraging players to consider the consequences of their actions on virtual agents - ultimately realizing that their decisions have outward-reaching effects towards others and consequentially generating empathy towards these virtual agents. We have previously argued that players view the PC as an extension of themselves through a player persona. When faced with choice, players dig into this player persona as a factor of decision-making, encouraging immersive and engaging play and developing empathetic effects. Thus, we propose that choice can be a useful tool in developing empathetic effects for virtual agents in games and experiences.

7.1.2 Community; or Empathy for Other Players. In our findings, we discussed how choices can promote social discussion within a community. In doing so, players can hear the perspectives of others about their rationale and decision-making processes when making choices, creating feelings of empathy and understanding. Social discussion, and the generation of empathy that arises through it, can have potential serious implications and applications. Within the interviews, players mentioned that many games today have potential moral and political tendencies, for example *"games deal with concepts like colonialism, independence, freedom, and rebellion and stuff like that … I've disliked the idea of just when people say that games can't or shouldn't be political"* (P10). As a specific example, *Fallout New Vegas* was described as a game that allows the player to align with a governance faction based loosely on different political systems. One player mentioned that *"In Fallout New Vegas, I believe that everyone should be able to be function in a society but they shouldn't have to fight over which one is better, so that's why I chose the NCR, which kind of offers that, compared to the Legion, where it's like everyone has to work towards the state and the betterment of it, where its at what point does an individual's individuality get stripped away, like that's just eliminating the idea of a person at that point. But I don't quite agree with the Wild Card where everyone just gets to do their own thing and all hell can break loose at any point, so I find that the NCR strikes the middle ground."* (P4). This demonstrates that the choice of this user strongly resonates with their personal perception, their player persona in this choice revolves around their own perceived beliefs. However, this user also stated that *"Like, in Fallout New Vegas, I play NCR almost every time, but a couple of my friends play with the Legion, so it's kind of interesting to hear why they would do that and vice versa"* (P4), representing the communal sharing of beliefs and rationale that was discussed prior.

Research has shown similar findings - that games, and the choices within them, can potentially underpin political and moral bases [53, 69, 87, 110]. Nardone states that realism-based games entice players to engage in pedagogic reflection on the ethical and political statements within them [87]. Johnson and Craig argue that the popularity of dystopian settings within narrative-rich games reflect the "political unconscious" of contemporary settings [69]. In addition, from our background research, we additionally find a wealth of studies that have looked into games as potential vehicles for ethics and morality [107, 113]. As some interviewees stated, sometimes it was difficult to understand why people would make such serious decisions opposite from their own - *"I'm not too sure [why people would make those choices]. I don't know, maybe it's just interesting for people to choose the other dialogue"* (P5). From our findings, we develop the hypothesis that the social discussion arising from the use of choices in games, especially ones dealing with difficult questions regarding moral or political leanings, can help bridge the gap in developing a system of shared empathy for players who may not share the same perspectives and viewpoints.

7.2 Giving Meaning to Non-Meaningful Choice

We revisit the concepts of moral and meaningful choice, and how our initial classification of choice and our subsequent findings fit within the framework of "morality" and "meaningfulness". We recall that much of the present discussion on choice is within the context of choices that are either "moral" or "meaningful". Moral choice imparts some sort of moral dilemma; meaningful choice extends on moral choice by adding the additional characteristics of "consequence" and "sociality". Meaningful choice is important in player experience, as it has been shown to generate added appreciation and enjoyment for the game. However, not all choices which exist fit within this framework on meaningfulness. Therefore, what is the purpose of including such choices in games? To begin considering the question, we consider what makes a choice more meaningful within our classification system, and thus conversely, what makes a choice less meaningful.

To reiterate, our classification system of choices consists of 3 variables - temporal consequence, perceived significance, and reward and benefit. We visit each of these variables in order. Firstly, one key aspect of meaningful choice is the existence of long-term consequences and long-term control over the narratives. Thus, this means that for meaningful choice, temporal consequence is a significant factor. Meaningful choice also has a social effect, impacting not just the PC, but also the NPCs that the PC has bonded with throughout the story. It also encompasses the concept of morality and moral dilemmas - where the choices balance between the fate of the NPCs or the PCs. Within our classification system, this would fall under perceived significance - the perceived impact of the choice on the world and its characters. Thus, for meaningful choice, perceived significance is also a significant factor. Returning to our prior discussion on the relationship between temporal choice and outcome as a reward, we recognize that by virtue of temporal consequence being a significant factor, rewards in the form of consequences are present as well in meaningful choice.

Thus, as we have quantified meaningful choice as a choice with high temporal consequence, high perceived significance, and considerable intrinsic rewards, we consider **"non-meaningful choice"**

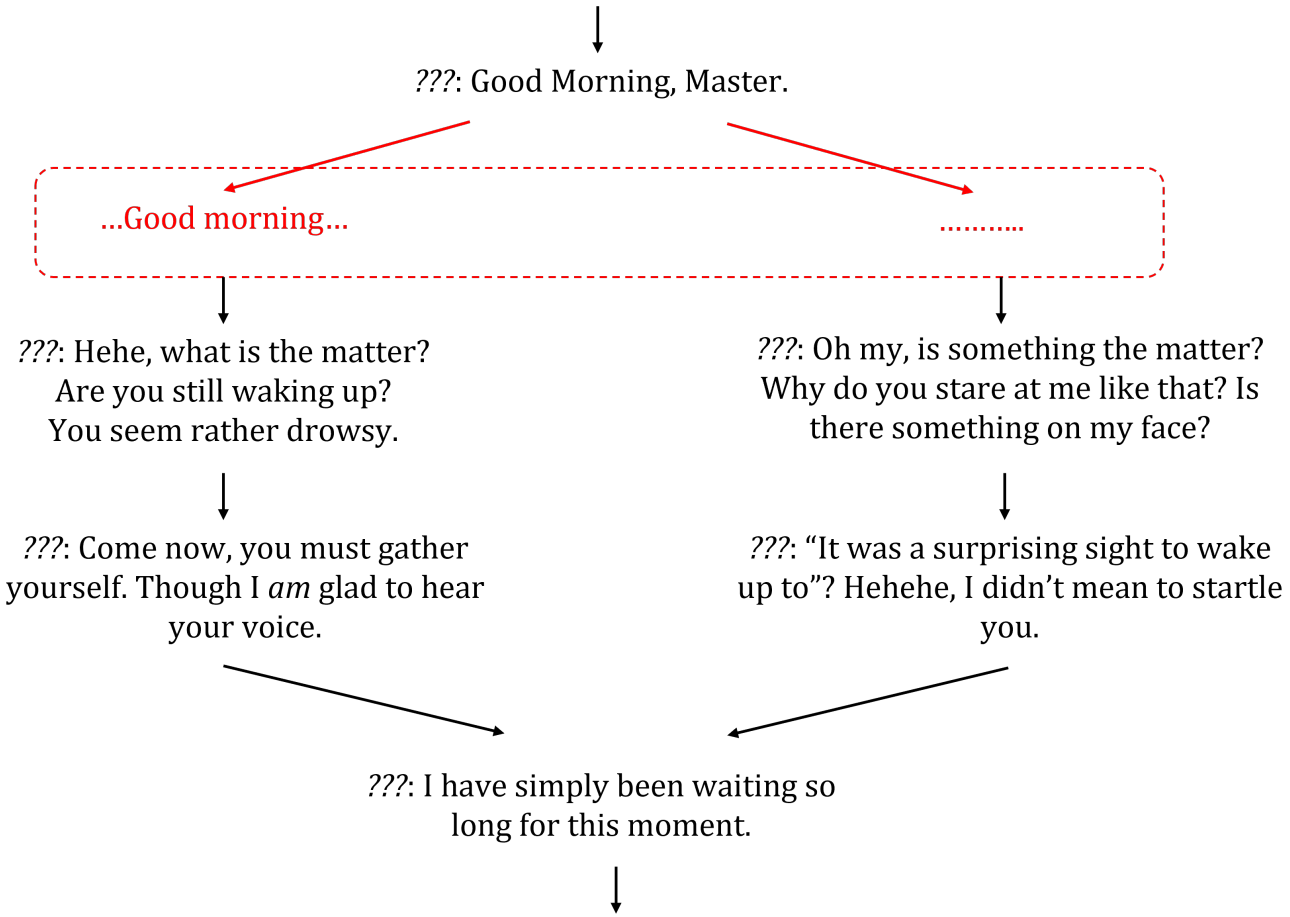

Figure 3: The dialogue flowchart for the first choice in the game *The House in Fata Morgana*. Players can make the decision highlighted in red (choosing between "...Good morning..." and "....."). After two additional scenes of dialogue, the choices converge back to the same path. Ultimately, this incurs a inconsequential effect in a game with a player-reported average playtime of over 33 hours [123]

as the opposite - choices with low perceived significance, low temporal consequence, and (thus) low intrinsic rewards. Such choices definitely exist in present games, in particular, we can select an example from a common choice that was shown to all participants - the first choice in the game *The House In Fata Morgana*, in which the player can choose to respond to "Good morning, master" with either saying nothing or reciprocating with a greeting. A diagrammatic view of the dialogue flowchart is seen in Figure 3.

Almost every participant perceived this choice as largely inconsequential, for example, *"I feel like it's gonna be a very minor difference in terms of the dialogue"* (P13), *"My first impression is that my choice doesn't matter. It doesn't really matter if I pick the morning or nothing."* (P11), *"I just don't see how it would relate to more, or other gameplay aspects"* (P7), *"I think it would be a couple lines of dialogue are different"* (P4), *"[the decision between] the two choices are not really impactful"* (P5). However, almost every user also stated that they would make the decision as they would in real-life - *"if someone was to talk to me, I would feel like I would typically respond in that type of situation."* (P13), *"I guess I would say good morning, just because it's like such a habit to say back to someone"* (P12), *"I guess. reflexively, if they said good morning to me. I would say good morning back."* (P7), *"Good morning, because that's what I'm used to saying, if someone would say that to me"* (P3), *"I'd probably say good morning because that's what I'd actually do."* (P4)

From this, we form a hypothesis on the benefit of non-meaningful choice, considering how it fits within the context of our decision-making framework. With a minimal concept of perceived reward and consequences, users are forced to lean on local factors like their player persona and player-character relationships in order to make the decision. As shown, many players rely on the persona as their perceived self for this choice, indicating that they would respond as they would in a similar situation in real life. This causes many of the players to view themselves as the PC, reinforcing their persona of perceived self, and reinforcing this persona for later choices as well. Non-meaningful choice essentially equates to a ludological analogue of small talk, which has been shown to be able to build rapport and to bridge divides across agents [36]. Perhaps in a similar manner, non-meaningful choice forces the closure of

the gap between the player persona and the player themselves, which ultimately allows for the highest feelings of immersion and participatory engagement.

7.3 Learning from Games - General Extensions

Overall, we find that choices afford game developers a level of control over the player experience within narrative-rich games. Game developers can use choices for purposes such as encouraging self-identification of the player with the PC and increasing player empathy with virtual agents. The specific mechanisms of the choice can play a part in affecting player interactions as well, for example, increasing the permanence of a specific choice (through removing save-and-reload) features may force users to think more deeply about the consequences of their choice and its impact on the NPCs and the virtual world. Providing users with the global statistics of a particular choice can increase their feelings of identification within a group while also encouraging thoughtful introspection of other choices. We find that choices, along with the minute details that go into building the choice, can serve as powerful tools for game developers to adjust the experience in the way that they desire.

Although many of the findings may be esoteric to game design specifically, we understand that choices are fundamental to interactive technology in general. Thus, we hypothesize that several of the findings may be more applicable to general interactive systems. For example, virtual prosocial applications, such as the United Nations VR initiative [48], may benefit from choice in order to establish deeper self-identification and empathy with the agents in the experience. The Moral Machine is an example of an application aimed at capturing an ethical snapshot through moral choice [3]. A possible extension of their project may have involved asking users why they made specific choices, and then presenting these rationales to users that have made the opposite choice. This would help users understand and better empathize with users that make dissenting ethical decisions from themselves.

One novel finding of our study regards non-meaningful choice - choices that do not fall within the past frameworks of meaningfulness and morality. We find that these choices can decrease the gap between player and PC within games, and thus, we believe that these can similarly be applied in other interactive systems, such as assistive tools, UI/UX design, and chatbot design. Similar to games, methods of self-representation in other virtual mediums, e.g. the Internet, may arise in the form of virtual personas [83, 105]. The use of non-meaningful choices on such systems can build a level of closeness between the user's virtual persona and their real person. For instance, an assistive software tool asking a user how their day has been (regardless of the tool's intended purpose) may help create intimacy between software and user. Nonetheless, similar to games, a balance is required such that the real purpose of the software is not forgotten [16].

8 LIMITATIONS

We identify that there still exist several limitations within the scope of our study. Firstly, difficulties in recruiting game developers resulted in a limited number of participants as well as the ages of the participants skewing young. To address the first point, we attempted to counterbalance the limited number of participants by conducting comprehensive and thorough interviews with the developers that did choose to participate. However, the age skew may be a more significant limitation, as many of the game developers mentioned that they were newer to game design, with many having only recently completed their games. Video game industries, design philosophies, and intended outcomes change rapidly over time [27, 31, 128], a sentiment echoed by players as well: *"for an older game, I probably have to go through a walkthrough to know what I'm doing because those tend to have really convoluted routes … for most modern games, it's relatively easy to tell what each of the choices may lead to"* (P6). A similar problem appears when we consider the selection of games we selected for video analysis - many of the games leaned towards recency. Thus, it may be more appropriate to frame the context of our findings and discussion as a trend encapsulated towards more modern ludological philosophy towards the use and perception of choice in games.

We also outline improvements in our methodology that could have been done to better meet the requirements of our evaluation goals. In particular, during our interview study with players, choices were presented and introduced with short video clips. However, the full context of the choice within the game, as well as its consequences, were lacking. In an attempt to provide context, the researcher gave the user a brief overview of the events of the game leading up to the choice. Nonetheless, alternative methodologies such as having the participants actually play through the full game would have likely been better at helping them grasp the full context, but at the cost of time and accessibility. We additionally understand that many of our findings and discussion points are solely grounded in qualitative findings from our interviews and video analysis study. With more time, potential extensions could be conducted by performing quantitative experiments to triangulate our findings. For example, to test the effect of non-meaningful choice, we could provide the user games with and without these choices and quantitatively compare their experience using a post-game questionnaire with Likert scale-type questions.

9 CONCLUSION

In this study, we performed a comprehensive overview of choices in narrative-rich video games. We first conducted exploratory semi-structured interviews with game developers to grasp a sense of the dimensions of choice. Coupled with a video analysis study of existing choices in video games, we were able to extract three key dimensions of choice that affect experience - temporal consequence, perceived significance, and rewards and benefits. We then conducted interviews with players to understand how choices affect player experience and what factors affect how players make choices. From our findings, we discover that choices reinforce the relationship between players and the characters of the game, in which the player forms a relationship with the PC through a concept called player persona. We find that autonomy, player persona, and self-identification are related, and altogether leads to increased feelings of immersion and engagement. However, these feelings of immersion are attenuated by a weakening of consequences brought upon by save-and-reload implementations, which allow players to undo any choice until it fits their preference. With our findings, we outline four key factors that affect player decision-making - player

persona, player-game relationship, mental model of consequences, and permanence of consequences. Overall, we argue that choices in narrative-rich games can take advantage of their immersive and empathetic nature to have the potential within serious games in developing prosocial effects, as they encourage feelings of empathy towards both virtual characters and towards other players. Lastly, we discuss one effective method of developing these immersive effects - the use of simple, inconsequential, "non-meaningful" choice, ultimately showing that it can sometimes be important for games to simply ask players how they would like to respond to "Good Morning".

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