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“It’s a terrible choice to make but also a necessary one”: Exploring player experiences with moral decision making mechanics in video games

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ABSTRACT

Video games offer a unique platform for players to engage interactively with morally challenging topics and dilemmas. Despite the growing popularity of games that offer such content, there is a paucity of research on the player experiences and the specific game mechanics that facilitate moral decision making. To address this gap, this research identifies key game mechanics that support moral decision making through a comprehensive review of related literature and qualitative survey responses from players ($n = 30$). The effects of these mechanics on players’ decision making processes and their overall impact on player experience were further explored through semi-structured, video-elicitation interviews ($n = 11$). This research develops a theoretical framework based on the findings from these two exploratory studies, culminating in a set of design guidelines to inform the future development of moral decision making games.

1. Introduction

Video games, as an interactive and expressive form of art, give players and game industry professionals a unique platform to navigate morally challenging decisions and dilemmas. Unlike other traditional media, video games offer a distinctive advantage by providing a safe environment for players to explore and experiment with various scenarios.

Despite the prevalence of games offering moral dilemmas, e.g. *Mass Effect* series (2007–2017) (Microsoft Game Studios, Electronic Arts, 2007), *Life is Strange* series (2015–2022) (Dontnod Entertainment, 2015) or *Detroit: Become Human (DBH)* (Quantic Dream, 2018), little is known about how effectively these games support moral decision making or what specific game aspects and mechanics facilitate or hinder players’ ability to make such decisions, as previous work largely focuses on individual games (e.g. Holl and Melzer (2021a, 2021b)) or individual mechanics (e.g. Formosa et al. (2022a), Ryan et al. (2023)). Moreover, the existing literature on morality in games has predominantly focused on the game content (e.g. Consalvo et al. (2019)) and outcomes, neglecting the valuable insights into players’ individual experiences (Holl et al., 2020).

This work aims to address the following research gaps in games research by scrutinising players’ experiences with moral decision making games and their mechanics. It does so through a two-part study involving an online survey and semi-structured interviews with the use of video elicitation. From this research, we offer the following novel contributions:

1. We provide an overview of prominent game mechanics that facilitate moral decision making in video games and how they augment other factors that affect decision making. Our research examines players’ receptivity to these mechanics, drawing on both their prior experiences and their in-the-moment responses. We analyse players’ preferences, their willingness to engage with these mechanics, reported issues, and the effects of these mechanics on their decision making processes.
2. We discuss the mechanics used in games to facilitate moral decision making and report on the experiences these mechanics promote. To our knowledge, this is the first study to provide an overview of players’ experiences with games featuring a prominent moral decision making component, examining how specific game mechanics support or hinder these experiences.
3. Based on these findings, we report on the implications for design and synthesise design guidelines to inform game designers and games user researchers about effective approaches for creating positive player experiences in the context of moral decision making in video games.

The implications of these contributions for games research are substantial, as a deeper understanding of gaming experiences, such as emotional challenge (Bopp et al., 2018; Denisova et al., 2020) and meaningful, eudaimonic experiences (Cole & Gillies, 2022; Oliver et al., 2016) within the context of morally difficult decisions is important for

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informing future research and design practices of morally challenging video games. This paper positions itself to explore and highlight the intricate relationship between specific game mechanics, player decisions, and emotional experiences, ultimately contributing to the refinement and advancement of game design practices create more emotionally resonant and impactful games.

2. Related work

2.1. Player morality

Influenced by both societal (Arli & Pekerti, 2017) and personal (Haidt, 2007) values, morality is an internal guidance system that an individual's decision making and consequent actions adhere to (Cohen & Morse, 2014). Ultimately, morality and moral decisions are inherent to everyday life and are essential for attaining eudaimonia – 'flourishing' or 'wellbeing' in Aristotelian ethics (Aristotle et al., 2004). Eudaimonia represents the highest human good, achieved through living a life of virtue and rationality. By making virtuous choices consistently, individuals cultivate a character that leads to a flourishing life, integrating personal and communal wellbeing.

A way to explore these moral decisions safely in art is by developing media that examines morally challenging themes and dilemmas. Moral dilemmas are an increasingly prominent narrative device in video games (Tancred et al., 2018), and games that give players the opportunity to engage in moral dilemmas via moral decision making are popular (Holl & Melzer, 2021a). For example, *Red Dead Redemption 2* (RDR2) (Rockstar Games, 2018) and *The Witcher 3* (CD Projekt Red, 2015), two games that feature moral decision making, each have sold over fifty million copies by Spring '23 (Kaser, 2023; Yaden, 2023).

Moral decision making games aim to foster an 'ownership of actions' (Heron & Belford, 2014) where players are encouraged to internalise the actions of their player character's (PC) deeds. While research suggests that players often use their own morals in games (Arrambide et al., 2022; Boyan et al., 2015; Iten et al., 2018; Weaver & Lewis, 2012), the relationship between in-game and real-life morality remains debated. Studies, such as Hodge et al. (2020b), show that players hesitate when tasked with immoral actions, suggesting a potential conflict with personal moral codes. However, this hesitation does not always translate into a direct relationship between in-game actions and personal morals – a phenomenon explained by moral disengagement theory (Bandura, 2015), which posits that players may distance their actions from internal moral values during gaming, rationalising engagement in immoral behaviour (Moore, 2015). Moral disengagement during play may result from the internalisation of the PC's acts (Cicchirillo, 2020). The 'Moral Disengagement in Violent Videogames' model proposed by Hartmann (2017) suggests that moral disengagement allows players to commit acts in games that they would not commit in real life. Game designers, aiming to induce moral disengagement, incorporate cues for players to comfortably engage in acts against their moral codes (Hartmann & Vorderer, 2010). Dehumanisation of characters, achieved through context (Holl et al., 2020) or character design (Hartmann & Vorderer, 2010), serves as an example of a moral disengagement cue in games. Overall, game design plays a leading role in shaping players' morality in games, emphasising the significance of this feature in games featuring prominent moral decision making components.

Ryan et al. (2019) stress the importance of designing moral decision making games that enable players to exercise their own morality, which encourages reflection and grants greater agency in carrying out moral decisions. For instance, *The Walking Dead* (TWDG) (Telltale Games, Skybound Games, 2012) employs enduring character relationships to emphasise the impact of players' decisions, challenging their perceptions of 'right' and 'wrong' in the context of nurturing these relationships (Ryan et al., 2019). However, the researchers acknowledge the challenge of creating games that provide the sophistication necessary for players to take in-game moral decision making seriously.

2.2. Moral decision making game mechanics

A variety of game mechanics have been employed to encourage moral decision making in video games. Although a comprehensive list of these mechanics does not exist, the current study's literature review outlines common mechanics found in moral decision making games.

2.2.1. Timers

Unlike passive forms of media, in moral decision making games the responsibility to make a decision is placed squarely on the player. To emphasise this burden, many games use time pressure (Bavelier & Green, 2019), often through various timer designs, from visual count-downs during gameplay (Hardin, 2016) to 'reminder' timers that inform players of an upcoming event (Palmer, 2015). Timers span across genres, being featured in platformers like *Super Mario Bros.* (Nintendo R&D4, 1985) and interactive cinematic games like *Detroit: Become Human*, serving as a narrative tool to prompt instinctive decision making in moral dilemmas (Fischer, 2023). This is particularly effective for moral decision making video games that feature interactive moral dilemmas.

While time pressure is known to impact decision making overall (Phillips-Wren & Adya, 2020), studies on *Detroit: Become Human* reveal that players largely adhere to their moral codes even when under time constraints (Holl & Melzer, 2021a; Holl et al., 2022). This reinforces the concept of players maintaining an 'ownership of actions' in moral decisions within video games (Weaver & Lewis, 2012).

2.2.2. Quick time events

Another mechanic that introduces time pressure into gameplay is Quick time events (QTEs) – cinematic sequences that the player interacts with by pressing specified buttons within a time limit (Domisch, 2013), such as a cinematic fight scene in the video game *Heavy Rain* (Quantic Dream, 2010). Unlike timers, which emphasise instinctive decision making and affect the narrative based on how quickly a decision is made, QTEs focus on reflexive actions tied to the physical execution of a decision.

A form of QTE is the button mashing mechanic, where players repeatedly press a button to perform an action (Bavelier & Green, 2019). As QTEs are cinematic, they offer limited decision making variations. In games like *The Walking Dead*, narrative progression depends on successful QTE completion, while games like *Until Dawn* (Supermassive Games, 2015) allow the player to fail the QTE, leading to alternate consequence, such as the PC death.

While not explicitly connected to moral decision making in video games, QTEs can be an effective mechanic to engage players in action-based moral decisions, such as fight scenes, or the consequences of their decisions. For example, in *Until Dawn*, players are presented with a choice, and once they have made their decision, they must execute it using QTEs.

Among players, QTEs are divisive (Millsap, 2021) and have faced widespread criticism in modern games (Scheurle, 2020). In academic literature, QTEs have been criticised for not being particularly morally salient: Ryan et al. (2019) argue that QTEs test reflexes rather than morality and relegating them to cinematic cutscenes can reduce player's moral engagement that they perhaps would have if acting upon their moral decisions during gameplay. However, it could be argued that this criticism does not work for cinematic games like *Until Dawn* and *Heavy Rain*, which blur the distinction between cutscene and gameplay.

2.2.3. Dialogue choices

Characters are another important aspect of a video game's narrative, guiding players through the story. Throughout the game, players often encounter non-player characters (NPCs) with whom they have opportunities to converse. These interactions frequently involve dialogue choices, which differ from cinematic dialogue in cutscenes as they allow players to select dialogue options from a list, creating a 'dialogue

tree' (Domsch, 2013). These dialogue choices can significantly impact the story in games with branching narratives, often seen in moral decision making games where the storyline is personalised based on player decisions (Papavlasopoulos et al., 2022). Alternatively, dialogue choices can be used to explore the game's lore or enhance relationships between the PC and NPCs. Despite the importance of dialogue choices, few empirical studies have explored players' experiences with them. In games featuring moral decision making, dialogue can be particularly important for player immersion (Mäyrä, 2017). Though repetitive or careless dialogue can break this immersive experience (Rennick & Roberts, 2021).

2.2.4. NPC feedback

In moral decision making games, NPCs are often depicted as multifaceted emotional agents with their own motivations and moral codes (Guglielmo & Klineciewicz, 2021). A representation of this complexity is the NPC feedback (approval) game mechanic. This mechanic involves NPCs judging player actions based on their beliefs, with judgements weighted on an approval scale that can be either explicit or hidden from the player. For instance, in *Dragon Age: Origins* (BioWare, 2009), an explicit 'approval rankings' mechanic is available in the in-game menu, showing to the player whether they gained or lost numerical approval points based on their actions. These points are influenced by moral decisions, specific dialogue choices, and giving gifts to NPCs. Conversely, in *Dragon Age: Inquisition* (BioWare, 2014), this approval system is hidden — players still gain or lose approval points through moral decisions and dialogue choices, but approval is only indicated through pop-up messages (e.g., 'Solas greatly disapproves') and subsequent changes to the NPCs' in-game dialogue.

Although empirical research on the effects of approval systems on players is limited, existing studies indicate that players often develop real emotional attachments to NPCs (Bopp et al., 2019; Coulson et al., 2012). This suggests that character approval mechanics in moral decision making games could effectively and engagingly enhance player interaction with the narrative, NPCs, and the morality of their decisions.

2.2.5. Morality system

Morality systems (also referred to as morality trackers or morality meters), another common narrative mechanic in moral decision making games, evaluate the morality of players' decisions using a weighted moral scale (Formosa et al., 2022b; Ryan et al., 2023). This scale categorises decisions as 'Good' or 'Evil', with some games utilising separate scales for each (Neely, 2019) and the player typically starts with a neutral score of zero and gains or loses morality points based on their actions in the game. Explicit representation, like the 'honour system' in *Red Dead Redemption 2*, shows players the moral weight of their choices through icons, sound effects, a visible scale or through visual changes to the PC (Formosa et al., 2022b). The consequences of these morality meters often affect the game world, impacting elements such as the PC's clothing, cutscene dialogue, and overall storyline outcome (Metz, 2023).

In general, receptivity to the morality meter mechanic is divided. Morality meters have been criticised for lacking nuance and not considering the wider context of the moral decision (Neely, 2019). Limited research has been conducted on players' perspectives of morality meters (Formosa et al., 2022b). However, Formosa et al. (2022b) found some participants to be critical of the lack of nuance morality meters offer. In their study, some participants used the meter to guide their decisions, while others ignored it and based their moral choices on their personal values. Similarly, Ryan et al. (2023) observed that for clear, intuitively moral choices the meter had little impact but for more ambiguous decisions the meter could sway player choices. Moreover, the meter's recommendations were consistent with players' moral intuitions, players were more likely to follow its guidance. Nonetheless, Ryan et al. (2019) argue that morality meters risk encouraging players to focus on scoring points rather than genuinely considering the morality of their decisions.

2.2.6. Meta choices

Meta-choices, a relatively new and rare mechanic, offer an unusual way to present moral decision making by placing the decision directly on the player (Hodge et al., 2020a). This mechanic extends moral decision-making beyond traditional in-game choices, prompting players to confront moral dilemmas that impact their real-world identity, social interactions, or perception of the game itself. Unlike standard choices that directly affect in-game outcomes (such as dialogue options or morality meters), meta-choices engage players on a more profound level by challenging them to consider the consequences of their actions both inside and outside the game. This can include decisions that carry implications for a player's profile, social standing, or moral values, as well as choices that break the fourth wall by requiring actions outside the game environment, such as deleting files or responding to meta-fictional elements. The most commonly discussed example in the literature is from *Spec Ops: The Line* (Yager Development, 2012). On the surface, this game in an on-rails shooter with no decision making mechanics, but as players progress through the game they are forced to commit a war crime. After this act, the game itself begins to directly address players, suggesting that they stop playing to prevent further atrocities. While this meta-choice has no in-game consequences (Heron & Belford, 2014) (unlike other mechanics, such as dialogue choices or morality meters, which do), players are still presented with a moral decision to consider. While research on the impact of meta-choices is limited, studies suggest that players generally do not cease playing when faced with such decisions (Hodge et al., 2020a).

2.3. Value of player experience

Examining player experiences and using these insights to guide game design is crucial for creating games that effectively engage the target audience. This is especially important for moral decision making games, given their emphasis on morality — a personal and unique concept for each individual (Haidt, 2007). Video games that excel in promoting moral decision making often do so by encouraging players to immerse themselves in diverse roles, fostering empathy, and prompting reflection on the consequences of their actions within the game world. This roleplaying element allows players to observe the impact of their decisions on themselves, other players, characters, and the virtual environment, effectively fostering emotionally challenging experiences. As roleplaying involves making decisions on behalf of the character and empathising with their choices and thoughts, this amplifies the significance and difficulty of choices through relatedness and attachment (Bopp et al., 2019, 2018).

Recent research has explored the emotional impact of video games, with studies by Bopp et al. (2016), Cuervo et al. (2024), Denisova et al. (2021), and Peng et al. (2020) shedding light on the diverse emotional experiences elicited when playing video games. This research highlights video games' ability to evoke a range of emotions, from exhilaration to reflection, especially through emotionally challenging aspects that includes reflection on difficult themes and decision making challenges like moral dilemmas where individuals are compelled to choose between sub-optimal options, fully aware that each choice will yield an undesirable outcome (Bopp et al., 2018; Denisova et al., 2020). This predicament often results in feelings of guilt and remorse.

Players also experience internal conflicts when gameplay objectives clash with their personal values and convictions or when a trade-off between gameplay advantages and their emotional attachment to certain characters needs to be made. Decision making challenge can also arise from players' reluctance to cause suffering to characters, either directly through their actions or indirectly through the broader repercussions of their decisions. These emotionally charged decisions often elicit strong emotional responses such as anger, fear, sadness, and tension (Bopp et al., 2018). Despite these challenges, players regard these difficult decisions as valuable, enhancing the relevance and meaningfulness of the game experience (Rogers et al., 2017).

Meaningful experiences are considered eudaimonic (Daneels et al., 2021), which, in contrast to hedonic experiences associated with fun and enjoyment (Rogers et al., 2017), elicit a wider range of emotions (Peng et al., 2020), including complex and often mixed feelings such as sadness, nostalgia, or bittersweetness. Players experience deep engagement with the story and characters, forming strong emotional connections and empathy towards in-game characters and their plights (Rogers et al., 2017). They often come away with a sense of appreciation for the game's themes, narratives, or messages, gaining new perspectives or insights into real-world issues and human experiences (Oliver et al., 2016).

Research on emotionally challenging and meaningful experiences in games is still emerging, and the effects of individual mechanics on these experiences are not well understood. Understanding how players experience moral decision making games and the factors influencing these experiences can provide valuable insights for researchers and designers. This knowledge can guide the creation of environments and narratives that effectively use specific mechanics to enhance the game's core message, particularly regarding players' perceptions of these mechanics and their impact on decisions and experiences.

3. Methodology

In our literature review, we identified several notable research gaps, particularly concerning the experiences of players engaging with different moral decision making mechanics in video games. While individual games and their moral choices have been studied in isolation, there is a lack of comprehensive research that collectively examines these mechanics across multiple games from the player's perspective. This study aims to fill this gap by exploring how players perceive and interact with moral decision making systems in a variety of games, thereby providing a broader understanding of these experiences within the gaming community.

We, therefore, propose the following research questions to address these identified research gaps:

RQ1: How do video games facilitate moral decision making?

RQ2: What are players' experiences and perceptions of game mechanics that facilitate moral decision making?

3.1. Research approach

To address our research questions, we conducted two complementary studies — an online survey to gather broad quantitative data and semi-structured interviews to facilitate an in-depth qualitative exploration. The design and analysis of each study are documented in Sections 4 and 5. Both studies' procedures were approved by the institutional ethics board.

We started by conducting an extensive review of related literature to examine the specific mechanics previously identified in research as facilitating moral decision making. To ensure a comprehensive understanding and uncover any potentially undocumented mechanics, we supplemented this literature review with an online survey (Study 1). The survey asked participants to provide examples of video games featuring prominent moral decision making components and to discuss the specific mechanics that facilitate these decisions (RQ1). The survey also aimed to gather initial insights into the experiences of players with these mechanics (RQ2). Based on the collected data, we identified several game mechanics and notable game titles that exemplify these mechanics. This enabled us to select games and scenarios for further investigation in the interviews (Study 2).

Building on the findings and recommendations from Study 1, Study 2 was designed to delve deeper into the experiences and perceptions of players regarding moral decision making mechanics (RQ2). We strategically selected well-known games like *Detroit: Become Human*

and *The Walking Dead* for their diverse and comprehensive coverage of mechanics for video elicitation and interviews. Our aim was to choose videos that, while succinct, effectively capture the essence of moral decision making within the games. We also developed questions for semi-structured interviews, informed by insights gained from Study 1. These interviews were designed to prompt participants to discuss their experiences with these mechanics and to articulate their perceptions of how these mechanics facilitate moral decision making, thereby addressing RQ2 in greater depth.

3.2. Data analysis

We explored themes in our data in both studies using Thematic Analysis (TA). When coding the survey data, we employed a combination of deductive and inductive approaches. Initially, we used deductive TA to code game mechanics based on our review of existing literature. The mechanics identified in the literature served as our initial codes (see Appendix C). If participants introduced any new mechanics not covered in the existing literature, we planned to create new codes for these. However, this was not necessary, as all participant-reported mechanics fit within the pre-existing codes. To explore participants' individual experiences with these mechanics, we adopted an inductive approach. We coded the interview data using inductive TA.

Inductive thematic analysis (Braun & Clarke, 2006, 2019) was particularly suited for our research as it is used to identify and analyse patterns or themes within data without imposing preconceived categories or theoretical frameworks. Instead, themes emerge directly from the data through a process of open coding described below. This data-driven approach is particularly useful for exploratory research like ours, where existing theories may not fully capture the phenomena under investigation.

The analysis for both studies was done by the first author who first familiarised themselves with the dataset by reading it multiple times, during which initial notes regarding data items of interest were created to aid with the coding process. Both semantic (explicit, surface-level content) and latent coding (interpretive, delving deeper into underlying, hidden meanings) were used to analyse the data. After initial coding, related codes were sorted together, and these groups were given preliminary candidate theme titles. We followed an iterative process to refine the codes and themes throughout the whole process up until the final reporting stage, which involved frequent discussions amongst co-authors, ensuring the themes accurately reflect the data and are robustly substantiated by multiple perspectives. However, due to the interpretative nature of the analysis, inter-rater coding was not carried out since it is not considered appropriate for this form of analysis (Braun & Clarke, 2016).

The data from each study were analysed separately. All themes and sub-themes we identified in our analyses of data from each study are provided in Appendix C. Upon completing the analyses, we reviewed the themes for overlap and consistency across both studies. Themes identified using an inductive approach were compared, and findings were merged based on conceptual similarity, alignment with research objectives, and relevance to the overarching research question. Common themes were unified, while unique themes were retained to provide additional context. Any discrepancies were resolved through discussion and consensus among the author team. This integration allowed for a more nuanced and comprehensive understanding of players' perception of and experiences with moral decision making mechanics in video games.

We present the merged themes in Section 6, categorised into five main themes and fourteen sub-themes (Appendix C), with representative quotes from both survey and interview data illustrating the findings. The quotes and references to participants from the first survey study will be denoted with SP (Survey Participant) (e.g. SP1) and the second interview study with IP (Interview Participant) (e.g. IP1).

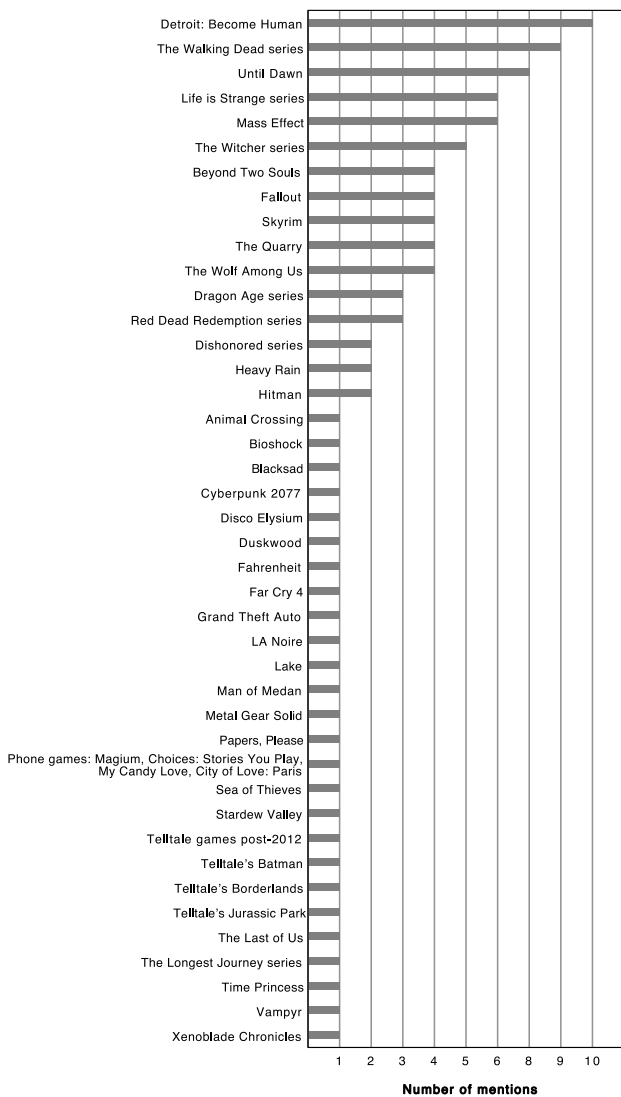


Fig. 1. The full list of all video game titles and their respective frequencies mentioned by the survey participants.

4. Study 1: Survey method

4.1. Participants

For the survey part of our study, we recruited participants via personal contacts, Facebook, X (formerly Twitter), and Reddit. Criteria for the survey stipulated participants must have played at least one game featuring moral decision making. A total of 143 participants engaged with the survey, of which 30 completed the survey: 10 male, 15 female, 1 gender-fluid, 3 non-binary, and 1 participant declined to disclose their gender. Participants ranged in age from 18 to 44, with the majority of participants in the 18 to 24 age category. They had spent an average of 16.9 years gaming. The most common video game recommended by participants was *Detroit: Become Human* (10) followed by the *Walking Dead* series (9) and *Until Dawn* (8). The full list of all games can be found in Fig. 1.

4.2. Survey design and procedure

In our survey, we asked participants demographics questions followed by questions about their experiences with games with prominent

moral decision making elements (see Appendix A for the full list of questions).

First, they were asked to provide examples of at least one video game they had played in which moral decision making was a prominent aspect. To avoid guiding participants with a particular definition of moral decision making, we did not provide one. Participants were then asked to provide reasons as to why they gave these games as examples of moral decision making to examine the types of moral decisions featured in the games they mentioned.

Participants were then asked a series of questions to describe their experience of a particularly morally challenging decision while playing a video game. All participants were asked to describe a personal experience of a morally challenging event in a video game. They were asked to provide (1) the title of the game and comment on how recently players had encountered a morally challenging experience in a video game; (2) the context surrounding the decision, in case the games they had chosen were unfamiliar to the authors; and (3) the game mechanics used to present this choice. Finally, to examine one's personal experience, participants were asked (4) why they thought the experience was challenging and how their experience made them feel.

5. Study 2: Interview method

5.1. Participants

For the interview part of the study, we recruited a total of 11 participants. Two participants were recruited through the email address they had provided in the survey and the remaining participants were recruited via Reddit.

5.2. Interview design

The interviews followed a semi-structured format, enabling specific questions related to the research questions, as well as further exploration of participants' responses (Goldman, 2020). The research questions and the data and themes from the survey guided the development of 24 interview questions, which can be found in Appendix B. Interviews lasted approximately one hour.

5.3. Video elicitation

The interviews was an adapted version of the video elicitation interview method. Traditionally, video elicitation interviews use previously recorded footage of participants to elicit discussion and to prompt participants to reflect upon their own experiences in comparison with the video clips (Li & Ho, 2019). However, it is also common to use video clips of third parties, like in Cunningham (2014), which was the video elicitation technique we opted in for in this study.

The video clips used in this study portrayed gameplay from four games: *RDR2*, *TWDG*, *DBH*, and *Spec Ops: The Line*. The links to these videos can be found in Appendix B. The choice of video clips used in this study was informed using the findings from the survey. A mixture of video games that were popular survey responses and less popular survey responses were used to ensure a wide scope of games. The video clips were also chosen based on the mechanics featured during the clip. For example, *Spec Ops: The Line* was not mentioned by the survey participants but was chosen prior to the survey as a demonstration of meta-choices. Participants were only shown most relevant excerpt of the full clip.

5.3.1. Red dead redemption 2

The video clip for this game was obtained from the YouTube channel MMAFRoO (2018). The clip is 52 s in length. In this clip, the player encounters a male NPC being attacked by wolves. The player kills the wolves. Upon killing the wolves, a morality meter appears at the bottom of the screen as well as an icon, that indicates their moral positioning increased. After the wolves are killed, the man begs for help. The player approaches the man, and options on the bottom right of the screen show actions the player can take. The player can give him whisky or medicine. Instead, the player shoots the man. After shooting the man, the morality bar and icon appear again to show the player's moral weighting decreased. The player rides away on a horse.

MECHANICS DEPICTED IN THE CLIP: a morality meter and an in-game choice prompt to aid the NPC.

5.3.2. The walking dead

The video clip for this game was obtained from the YouTube channel DaveGeeksOut (2012). This clip is 2 min 40 s in length. In this clip, the PC and other NPCs in a zombie apocalypse setting are locked in a room, including the child NPC Clementine. One NPC, Larry, suffers a heart attack and falls unconscious to the floor. In this setting, characters that die without receiving damage to the brain will reanimate as a zombie. During the video clip, characters discuss whether they should kill Larry or whether they should attempt CPR. The player is presented with the decision to either help Larry's daughter, Lily, attempt CPR on Larry or to help the NPC Kenny kill Larry. Throughout this scene, the player is able to engage using timed dialogue options. The player decides to kill Larry and is prompted to hold Lily back from her unconscious father through a button mashing prompt. Kenny kills Larry, and the NPCs discuss the ramifications of this decision.

MECHANICS DEPICTED IN THE CLIP: dialogue options, button mashing, timer.

5.3.3. Detroit: Become human

The video clip for this game was obtained from the YouTube channel randomChievos (2018). This clip is 3 min 12 s in length. In this clip the PC is an android called Connor, who is tasked with hunting rebellious androids (called 'deviants') with the NPC Hank, a human police detective. In this clip Connor finds two deviants, both called 'Traci' who have been accused of killing a client at the club they belong to. As Connor finds the Tracis, a long cinematic fight sequence occurs that uses QTEs. During the fight sequence, the player is presented with a timed decision to either shoot a Traci, or spare her. The player decides to spare her, and at the end of the clip the game notifies the player that the NPC Hank approved of this decision.

MECHANICS DEPICTED IN THE CLIP: QTEs, timer, NPC feedback.

5.3.4. Spec ops: The line

The video clips for this game were obtained from the YouTube channel The Best of Games (2021) and Video Game Moments (2012). In total, the clips were 4 min 48 s in length. In the game, the PC is an American soldier who has been tasked with finding surviving American soldiers in Dubai after a sandstorm. The first video is an 18 s clip, depicting the beginning of the game. The player points their gun at a stop sign, causing a dialogue line to play: "None of this would have happened if you just stopped. But on you marched, and for what?".

The second video clip is 4 min 30 s in length. In this clip, the player encounters many enemy soldiers that are blocking the path forward. The PC suggests using white phosphorus, a war crime, in order to clear the path. The PC's fellow soldiers condemn this act, stating "there is always a choice". The PC responds "no, there's really not" and fires the white phosphorus on the enemy soldiers below. At the end of the clip, the player discovers that they had also used white phosphorus on civilians.

MECHANICS DEPICTED IN THE CLIP: meta-choice.

5.4. Interview procedure

Interviews were conducted either on Zoom or on Discord, and were audio recorded using either the Xbox Game Bar software or Zoom's built-in recording feature.

Participants were presented with the information sheet and consent form prior to the interview. On the day, participants were first briefed on the interview procedure. They were then asked questions about moral decision making games in general (see Appendix B for a full list of questions and links to the clips), followed by the video elicitation portion of the interview. To ensure participants had a baseline familiarity with the selected games, we provided concise descriptions of each. Participants were informed of the content for each video, as they contained offensive material such as cursing and gore. The video clips were screen-shared to participants. To hide the titles of the videos from participants to prevent potential bias, the name of the browser tabs were overwritten using a Firefox browser extension. The YouTube window was also zoomed so that the video title was hidden.

All participants watched all video clips and each participant watched the video clips in the same order. After each video clip, participants were asked questions regarding the clip they had just watched.

6. Thematic analysis of moral decision making in video games

Thematic analysis of data from both studies revealed several key themes that describe participants' experiences and perceptions of games with prominent moral decision making components and the mechanics that facilitate these decisions. These themes include: (1) Mechanics Facilitating Moral Decision Making, which captures six different game mechanics that facilitate moral decision making in video games; (2) Contexts for Moral Decision Making in Gameplay, examining the various circumstances in which players must make moral decisions during gameplay; (3) Factors Influencing Moral Decision Making, exploring the various personal and in-game factors that affect players' decision making in video games; (4) Perception of Mechanics and Their Influence on Decisions, discussing players' reactions to different mechanics and their perceived impact on in-game decisions; and (5) Player Experiences with Moral Decision Making Mechanics, focusing on how these mechanics are perceived, how they influence specific decisions, and the emotions they evoke. Themes 1 and 2 provide insights into answering RQ1, while Themes 3, 4 and 5 offer perspectives on RQ2.

6.1. Mechanics facilitating moral decision making

This theme reports on the mechanics which facilitate moral decision making in video games.

6.1.1. Strategic decision mechanics

Six survey participants encountered a **morality system** (e.g. a morality meter, a morality tracker, or an honour system). Two participants described morality trackers in numeric terms, suggesting a potential binary classification of 'good' or 'bad' as evaluated on a global scale by the game. For example, SP5's character's moral positioning on the morality tracker "would gain more towards the pacifist one" (DBH) after committing a peaceful act. This explicit weighting of actions may convey a judgement of player's actions: "the decisions are deemed immoral by the game" (SP4, DBH).

Four participants discussed an **NPC feedback** mechanic, where NPCs communicated their approval or disapproval of the players' actions. Unlike traditional morality systems, this (dis)approval operates on a smaller scale where NPCs closely connected to the player judge specific decisions rather than the game assessing the player's overall honour or morality comprehensively. This feedback often occurs "every time a decision is made [in the game]" (SP5, DBH), illustrating how this mechanic offered explicit feedback for the participant's choices. Much like the morality tracker, NPC feedback systems were often binary:

“[the PC’s] relationship with his partners grows negatively or positively” (SP5, DBH).

Both morality systems and NPC feedback frequently hinge on “choices made in dialogue” (SP23, Mass Effect 3), where players face **dialogue choices** that lead to either NPC approval or disapproval, or influence the game’s assessment of their honour.

The survey participants did not mention **meta-choice** in their responses.

6.1.2. Rapid response mechanics

Participants faced time pressure in decision making, with a **timer** mechanic heightening urgency. SP19 noted that decisions “had to be made in the moment” (TWDG) and SP3 expressed how “the time limits or QTE [...] affected [their] choices throughout the game because [they] would panic choos[ing] things”. QTEs were described as “probably the most emotionally charged out of these” (SP3, DBH).

6.2. Contexts for moral decision making in gameplay

This theme highlights the different circumstances within which players were required to make a moral decision during gameplay. The following subthemes outline specific choice categories that participants encountered.

6.2.1. Life or death

This sub-theme covers decisions that players have to make that result in homicide or fatal violence. Several participants discussed such in-game moral decisions involving binary life or death (rescue) scenarios. In particular, 20 participants relayed experiences where they had to decide whether to **kill or spare** an NPC, with some decisions integrated into gameplay rather than cutscenes or specific choice mechanics. For instance, “in [The Last of Us 2] you can choose to kill enemies or just sneak past them” (SP28). These decisions often centred on interpersonal conflicts, such as deciding whether to spare a character who betrayed the player’s team, e.g.: “A character had largely betrayed my team and nearly got me killed. The decision I had to make was whether to kill him or spare him when I found out” (SP30, Skyrim). Participants also faced choices with broader consequences, such as deciding the fate of an entire species in *Mass Effect*: “the player must decide whether to let it come to genocide and mass extinction or if to save races” (SP27). SP25 also described a life or death scenario which was conducted in mobile phone format: “the dialogue I had with the kidnapper/supposed killer was through [sic] chats and calls” (Duskwood), which highlights the breadth of approaches used to facilitate this decision.

While most kill or spare choices involved direct decisions by the player, some participants faced scenarios where their decision could also lead to an NPC killing another character: “Clementine escapes captivity and hits the kidnapper and you can kill him or Clementine can shoot [him]” (SP1, TWDG).

Thirteen participants discussed an instance in which they had to make a decision to either **save or sacrifice** an NPC, i.e. let an NPC either come to harm or die in some way. This decision, distinct from kill or spare scenarios, focuses on choosing whom to rescue, potentially leading to indirect NPC deaths based on player actions. For instance, “you can either disrespect the wish of someone and save a life or respect his wish and be responsible for the death of another” (SP11, TWDG). While the majority of save decisions were interpersonal, some extended to grander scales: “Saving your best friend or an entire town” (SP9, Life is Strange).

6.2.2. Virtue or vice

Participants encountered decisions involving helping or harming other characters, choosing between violence or peace, and deciding whether to commit a non-violent crime. These decisions are not as high stakes as the life or death ones and largely cover assaults or non-fatal offences.

Almost half of participants faced choices to **help or harm** NPCs or the PC. Examples included decisions about the extent of self-inflicted harm, offering objects to characters, or “deciding which members of your group of starving survivors to give food to” (SP21, TWDG). The spectrum of acts ranged from everyday tasks like “giv[ing others] money” (SP30) or the ability to “push a resident and that would cause them to become angry at you” (SP20, Animal Crossing) to more morally complex situations, such as choosing between “selling a child for money or bringing it back to its parents” (SP9, Fallout 4). Notably, some choices allowed players to perform purely altruistic acts, as seen when SP30 helped others “without knowing the reward”. The design of these decisions accommodates players less motivated by rewards, enabling them to make choices solely based on altruism. However, other instances of help or harm choices provided some sort of reward if the player chose to help. Some of these rewards are linked to the decision making mechanics outlined earlier in this section. For example: “if you do chores in your camp your honour goes up” (SP29, RDR2).

Certain decisions involve players choosing to **commit non-violent crimes**. In *Sea of Thieves* (Rare, 2018), this type of crime is tied to gain, while in *The Walking Dead*, stealing supplies becomes a moral dilemma: “the decision of whether to steal supplies [...] when the group I was a part of was starving” (SP12).

Five participants highlighted decisions requiring a choice between **making a violent act or being peaceful**, which was common in situations that could be described as unjust or unfair to the PC in some way: “choose whether my character led a peaceful or a violent demonstration against a system that had oppressed them, violently” (IP16, DBH).

6.3. Factors influencing moral decisions

This theme, derived from data across both studies, delves into the factors influencing how players make moral decisions. It examines the extent to which players adhere to their own moral perspectives or deviate from them to roleplay as the PC or explore different options. Additionally, it considers how narrative circumstances, character relationships, and the anticipated consequences for the game’s outcome shape decision making processes.

6.3.1. Acting virtuously based on personal morals

Most participants reported relying on their personal morals to guide their choices in both studies. For instance, nine survey participants highlighted their **commitment to personal values**. SP17, during their first playthrough of *Disco Elysium* (ZA/UM, 2014), “wanted to stick to my own personal morals and choose left-wing choices”, though they “seriously [questioned] if [they] should abandon [their] morals” when faced with a tough decision. Similarly, IP6 “prefer to play as characters who lean towards the morally good side of the morality spectrum” because they consider themselves “an altruistic and good person”.

Choosing to act on own morals often meant **favouring mostly morally ‘good’ decisions**: “I usually play as myself, which tends to mean I play like a really morally good character” (IP8). This tendency extended to helping NPCs, reflecting their real-life values. As IP1 stated, “the first thing I try to do in any game is try to help” – a view shared by most participants. IP6 added: “Whether it’s in a video game or in real life, I believe that whenever someone has the opportunity to help somebody else and keep somebody else out of harm’s way without a large amount of personal risk to themselves, they should always, always do it”.

6.3.2. Exploring different endings and choices

Four interview participants reported going against personal morals for reasons like fun or exploring different story outcomes. IP8 found *Skyrim* (Bethesda Game Studios, 2011) more enjoyable when engaging in “stuff that’s kind of messed up” while IP3 mentioned making personally disagreeable choices to **explore different game endings**: “If I’m replaying a game and trying to go for a different outcome that I hadn’t seen before, that might have required me to make a choice [...] I would not agree personally with”.

This tendency to explore different outcomes was also reflected in the widespread practice of engaging in multiple playthroughs of moral decision making games, as our participants were motivated by the opportunity to **explore various choices and their distinct narrative consequences** to “satisf[y] [their] curiosity” (IP11). Six participants reported that, during multiple playthroughs, for the first playthrough they typically use their own morals: “what I always do when I first play a game, I make decisions based on what I think I would make as I’m playing” (IP7). For IP11, their first playthrough means that “you play the best version of that character who is also the best version of yourself”.

Participants also discussed that, before making a moral decision, they considered the potential consequences of the available in-game choices. For example, SP17 discussed that as in *Disco Elysium* “often choosing the benevolent outcome leads to horrific consequences down the line”, they debated whether “deciding to do something I thought was bad and went against my personal morals” would be beneficial in order to get the best in-game outcome.

Ultimately, video games with strong moral elements are viewed as a **safe space for players to experiment** with various approaches to morally ambiguous situations and assume roles different from their own. Several participants highlighted the freedom to explore different choices and make moral decisions within games, appreciating the lack of real-life consequences. They: “[enjoyed playing such games] because it’s preparation for the real world. We are often put into positions of moral dilemma, and it’s good to have had practice”. As IP1 put it: “it’s like a safe environment where [...] you make decisions, but they won’t affect your life directly”.

6.3.3. Roleplaying

While the majority of participants used their own morals during decision making, some preferred to roleplay as the PC, which influenced their moral decisions. Some participants reported deliberately characterising the PC in a certain way and then roleplaying based on this characterisation. For example, SP3 “was purposely playing a character that did not believe synthetic life could truly be sentient” in *Mass Effect 3* and IP3 noted that they would “roleplay a character that is very different than the way I think I would have been”.

The decision to roleplay as the PC often depended on the specific situation the player was in: “if I’m really at a loss what I would do, like if it’s a strong conflict with my own morals, I will then try to see it from the character’s point of view” (IP1) or the character they played: “A character that has a set-in-stone personality, a set-in-stone set of motivations, a set-in-stone set of character relationships, and the game kind of encourages you to behave the way the character would” (IP6).

6.3.4. Character relationships and attachment

Character relationships also influenced the moral decisions of our participants. These relationships can be categorised into two main types: (1) relationships between characters, which includes relationships between NPCs themselves, as well as relationships between the PC and NPCs; and (2) the player’s attitudes towards characters. The second factor is distinct from the former, as the player may feel differently towards an NPC than perhaps the PC is written to feel towards them.

The **relationships between characters** influenced participants’ decisions. SP5 aimed to maintain friendly relations among all characters, struggling to balance “what’s ethically correct” with the risk of “having that one character drifting away” from the PC in *Detroit: Become Human*.

Similarly, SP21 chose to help Larry in *The Walking Dead* as it “felt like it showed Clementine the lesson I wanted to teach” and because the PC considered Larry’s daughter to be “a good friend”.

Participants’ **feelings towards characters** also played an important role. For some, these decisions were simple: “We ended up choosing to kill the character we liked the least” (SP24, *Skyrim*). However, most participants found decisions involving characters they had strong feelings for to be challenging. In *The Walking Dead*, SP19 found a save or sacrifice decision difficult as they “liked both characters a lot”. Similarly, SP15 found a kill or spare decision in this game to be “extremely challenging because [you] survive with all these characters for long periods of time”.

Some participants reported making decisions inorganically to gain NPC approval. For example, IP2 wanted “to get on [Hank’s] good side” in *Detroit: Become Human* and IP5 committed an act of harm “to make [Snow] happy” in *The Wolf Among Us* (Telltale Games, 2013).

Additionally, six participants **considered the emotions and well-being of NPCs** in their decision making. Some made decisions on behalf of other characters to fulfil their wishes: “I decided to pull the plug on the pod to respect his/her wish to die” (SP1, *Mass Effect*), or “The decision was hard because Kenny tells Clem that he wanted to die from a previous near-death experience” (SP15, *TWDG*). Others aimed to protect NPCs from distressing events, such as SP3 feeling “it was unfair for the androids to endure the unfair treatment” in *Detroit: Become Human* and SP21 shielding NPCs from witnessing “the brutal death” of another NPC in *The Walking Dead*.

6.3.5. Context and narrative

Participants justified morally ambiguous choices based on the context of the game. For instance, the kill or spare decision in the *RDR2* clip was controversial — IP6 justified the player’s action as a mercy killing due to the NPC’s suffering, though IP10 critiqued the method of execution despite understanding the intention: “I don’t believe a twelve-gauge shotgun was the way to go”.

Participants’ perception of the decision were also shaped by the historical setting. In *Red Dead Redemption 2*, five interview participants noted that the 19th century’s medical limitations justified the player’s lethal choice: “during the period that the game takes place in, he might not be able to get the proper medical attention” (IP7). The reactions to player decisions in *Detroit: Become Human* and *The Walking Dead* were similar, with the majority supporting the players’ actions in both but for different reasons. Contextual factors like the presence of a child NPC in *The Walking Dead* were pivotal in shaping opinions: “It’s a terrible choice to make but also a necessary one, especially ‘cause you play as Clementine’s protector, you know? You have to do whatever it takes to protect the kiddo” (IP9). Similarly, the survival implications in a zombie apocalypse setting influenced their perception of the player’s actions: “They probably don’t have the means to really help him medically speaking. Because if he’s having a heart attack, they won’t be able to just help him” (IP1).

Furthermore, the context in which the meta-choice took place also influenced the perception of players’ decisions. For some participants, the setting of a warzone in *Spec Ops: The Line* allowed participants to contextualise an extreme action like war crimes, though two objected on moral or tactical grounds: “If they didn’t use the bomb or whatever attack that they had, the other enemy soldiers would’ve killed them and whatever their mission here was to do” (IP7) though some noted that “it makes tactically or strategically absolutely zero sense. This was completely unnecessary” (IP10).

6.4. Perception of mechanics and their influence on decisions

Out of all the mechanics depicted in the video clips, participants were most supportive of mechanics related to characters and narrative, particularly praising the NPC feedback mechanic for its **nuanced approach to moral consequences**. IP11 valued the ambiguity of the

NPC feedback system's moral weighting: "It doesn't say this is good or this is bad, it says this is how it affects your relationship with this person". Furthermore, IP7 liked that the NPC feedback **reflected NPCs own personalities and moral codes**: "with games with karma systems, everybody judges you for decisions that you make. In [DBH] Hank could have a completely different opinion than another character does about the actions that you take".

The NPC feedback mechanic could also help players to make a decision, as in *Detroit: Become Human*, where, as IP6 explained, their desire for Hank's approval influenced their decision to spare the android NPC: "I thought to myself: Well, 50% of me wants to shoot, 50% of me doesn't want to shoot, but then a 100% of me wants Hank to be my friend, and I know that if I shoot [the android NPC], he's just gonna hate me even more".

Participants were generally supportive of morality systems. Many appreciated systems that fit their character's role without limiting narrative exploration. For instance, IP5 valued the 'safe' dialogue options in *The Walking Dead*, as they matched their desire to be sympathetic to NPCs: "Even when he's relenting he just says 'maybe you're right', not like 'yeah screw him' you know, or something like that ... I would've felt safe saying any of those, that terminology would definitely soften the blow of having to make that hard decision".

Participants mentioned the morality tracker influencing the morality of players towards specific behaviour. They discussed the honour system in *RDR2* influencing players to act morally, contrasting to games without such a mechanic, like *Grand Theft Auto* (Rockstar North, 2013) – actions lack moral repercussions. Some appreciated how the morality system guided players towards **recognising good and evil actions**: "could be seen as something trying to influence the player's morality into thinking this was good act this was an evil act, which serves to take a little bit of ambiguity out of the situation for player" (IP10), while IP8 felt **encouraged to continue making positive choices**. Conversely, IP11 saw potential for exploiting the morality tracker rather than incentivising players to make good choices: "it's a system that's going to be exploited and abused by people who are trying to be the worst".

However, some participants critiqued the morality system mechanic in *Red Dead Redemption 2* for its lack of nuance for the weighting of certain moral decisions. IP6 noted a decision to kill an NPC associated with violent crimes resulted in a low honour score, regardless of the NPC's past, suggesting a disconnect between the player's moral judgement and the game's. Furthermore, participants highlighted how the game's morality scale failed to account for the complexity of moral decisions. Particularly in *Red Dead Redemption 2*, IP2 pointed out: "Every decision can affect people in different ways. [...] For the guy that was in pain, maybe it was a good decision, but for his family [...] – a bad decision. So it's interesting to see how decision is weighted" (IP2). Similarly, IP3 remarked: "if I had shot him thinking, oh, I'm putting him out of his misery [...] then I might be a little confused or annoyed to see the bar drop in the other direction".

Some participants also reported that they would not engage with the meta-choice mechanic as perhaps the developers had hoped. Five participants noted that they would not stop playing even when faced with a meta-choice like the one in the *Spec: Ops The Line* clip – effectively, not willing to engage with this type of mechanic. Participants expressed a determination to play on, viewing it as just a game: "I don't see anyone of a normal disposition to quit a game because a stop sign was there" (IP4) and that they would "emotionally suffer if I keep going but I'll probably have more of a good time" (IP6). This indicates a willingness to engage with challenging content despite potential discomfort.

The QTEs and button mashing mechanics were generally well received, but for some, their approval of the mechanics had conditions. IP3 accepted QTEs "as long as they're somewhat forgiving of mispresses on keys" and "when they're expected" (IP11) but sometimes were seen as potentially frustrating. Some also criticised button mashing mechanics for the lack of **challenge involved** in this: "I don't necessarily enjoy button mashing [...] they're not hard to do those prompts if you've been playing games your whole life" (IP7).

Six interview participants mentioned that the button mashing in *The Walking Dead* was a device used to "**force the player to follow through**" (IP9) with the choices they made, mirroring the intensity of the scenario: "It's like a challenge to the players saying — you made the decision to restrain the character, attempt to restrain the character" (IP7).

The timer and QTE mechanics promoted a sense of urgency — they compel players to act swiftly, often based on **own instincts** and morals rather than thoughtful deliberation about what the PC would do in a situation: "[The timer] certainly forces you to make moral decisions" (IP8).

Some appreciated the immediacy these mechanics imposed, highlighting a more instinctual decision making process: "it's nice to have moments where you can't let yourself think" (IP1). The timer mechanic was described favourably as "a way that the game can enforce consequences for your decisions" (IP11). Many participants noted that induced stress during decision making was enjoyable: "this experience definitely stressed me out, but in a good way" (SP18) or "Even if there is an element of stress or surprise, even in that moment it is really enjoyable" (IP2).

This sentiment was not universally shared. Some participants felt that the integration of timers and QTEs forced them to "lock into decisions" (IP2) prematurely. They expressed feeling pressured by the limited time, which **led to hastily choices without considering the consequences**: "not enough time to really think through all the implications" (IP3). The urgency of the QTEs depicted in the *DBH* clip was discussed as potentially influencing players to make the decision to shoot the android NPC, rather than spare her, as shown in the clip: "When you're playing these quick time events, you'll see it'll just flash you X or square or circle or triangle and you have to react very quickly. And so when you get a choice, it can be hard to hold back and say wait, wait, wait, what am I doing?" (IP11).

The timer mechanic, in particular, was described as making participants feel "very tense" (SP19) and "anxious" (IP3, IP9) as it pressured players to make quick decisions, such as hastily choosing dialogue options *The Walking Dead*.

In contrast, the absence of a timer was seen as **allowing for more deliberate decision making**, giving players: "time to think about what action you believe is best, and what its consequences should be" (SP12). Similarly, in *Detroit: Become Human*, the slowing down of time during critical decisions was noted as a beneficial aspect, offering players "more time to actually think about [the decision]" (IP3).

6.5. Player experiences with moral decision making mechanics

This theme explores players' receptivity to and experiences with moral decision making mechanics, including any issues encountered, player preferences, and willingness to engage with the demonstrated mechanics. It also examines the emotions these mechanics evoke, their influence on decisions, and the players' feelings about the choices themselves.

6.5.1. Sense of agency

Participants discussed the significance of player agency in moral decision making games, emphasising their **desire for genuine choices** that influence the narrative and the game's world. They highlighted the engaging aspect of facing consequences for their actions, noting: "if you have consequences, it's always a better experience" (IP4), and the enjoyment of seeing the narrative evolve as a reaction to different choices: "I like to see the ways the story can change" (IP3). The narrative structure of *Detroit: Become Human* was praised for its interconnecting storylines and potential character outcomes, enhancing engagement: "characters can die, things can change, there's three different storylines going on at the same time that all eventually interconnect, it's very engaging" (IP7). Yet, some found the ramifications for bad moral choices in games like *Fallout: New Vegas* (Obsidian Entertainment, 2010) unappealing, because "there are pathways in the game that no longer become accessible to you [...] there's more pressure to know that making poor choices will affect the actual gameplay [...] and makes it more stressful" (IP8).

The influence of decisions on the game world and NPC relationships was also a focus, with mechanics like the morality meter in *Red Dead Redemption 2* being appreciated for visualising the impact of player actions: “[it was] nice to have just to keep track of your decisions, and kind of see how it affects other people” (IP2). A similar sentiment expressed by IP8 regarding the NPC approval system in *Detroit: Become Human*: “I like knowing that decision making has a meaningful impact”.

There were some reservations regarding the morality system mechanics. For instance, IP8 opposed the idea of morality systems blocking story paths, and IP7 preferred no lasting impacts from unseen decisions in role-playing scenarios: “In a situation where you’re roleplaying as yourself I would prefer if there were no long-term effects if other people didn’t see [a decision] just because it makes more sense”.

However, criticisms arose regarding the lack of tangible effects of decisions on the narrative, game world, or NPCs in some games. For example, IP2 felt that the player ultimately has no influence upon the narrative of *Spec Ops: The Line*, even if they do make the meta-choice to stop playing, “as all the decisions have already been made, it’s just you’re not picking up the game”. This led to feelings of manipulated agency and frustration over the ineffectiveness of player choices, particularly with regards to the “dialogue choices [have] no actual impact on the gameplay. In some ways, I feel like it’s a bit emotionally manipulative of the game” (IP8). Same was noted about QTEs: “feels like it’s kind of useless because [...] you can fail pretty much all of them, and it doesn’t really make that much of a difference” (IP2, DBH).

Participants were **seeking freedom in their decision making to explore various consequences and paths within the game’s universe**, preferring games that offer diverse choices reflecting different moralities and outcomes. For instance, one can characterise the PC in *Red Dead Redemption 2* in a certain way: “if you wanted to play like a cold-hearted gunslinger that doesn’t care at all you could do that if you wanted to. Or if you wanted to play more of a good guy you have that option too [...] So I like kind of having that freedom” (IP9).

However, there was discontent with games that appeared to limit this freedom, forcing players into specific decisions or presenting illusory choices that do not alter the game’s direction or outcome. IP6 felt like *The Walking Dead*’s dialogue options were “pushing you towards a certain option” of saving the NPC, instead preferring games to give the player “at least three or four options, with each one having like its own pros and cons”.

The overarching sentiment was one of ethical compromise and dissatisfaction in situations where there were no ‘good’ options to choose from, leading participants to feel that the decisions they encountered ultimately left them with no real choice. In some games, decisions required the player to choose “the lesser evil” (SP11; SP27). SP24 noted that this lack of a good choice impacted their completion of *Far Cry 4* (Ubisoft Montreal, 2014): “this game I ended up not finishing as I thought both factions were equally immoral”. A similar sentiment was expressed regarding the meta-choice in *Spec Ops: The Line*: “If the choice is between doing it and just not playing the game at all, it’s not really a choice [...] I mean, if your other option’s to just not play, then that’s not a choice” (IP3). Finally, IP11 shared their distress over forced actions in *The Last of Us*: “I thought I genuinely had a choice, but the game ran on rails, and you have to commit those murders [...] I was just screaming while I was doing these terrible things”.

6.5.2. Realism and immersion

Immersion was deemed “really important, because if the player isn’t immersed then they aren’t gonna care about the choice in general” (IP9). Many participants stipulated that making moral decisions in a video game enhances immersion, for example: “games that give you the ability to make choices [are] a lot more immersive for me as a player” (IP9). For IP2, the ability to make decisions in such games meant that “the outcome of a story is so much more personalised, so it just feels more immersive”, while for IP5 decisions made the game world “feel like a living world”.

Certain mechanics were perceived as enhancing immersion and engagement with the game content. Some participants described the timer in *The Walking Dead* and *Detroit: Become Human* as ‘realistic’, fitting well with the scenarios depicted. IP1 stated that “there would be like a metaphorical timer as well if you were in that situation” and “if this were happening in real life, you would have only a few seconds to make a decision” (IP9).

The possibility of pausing the game was seen differently, however, with some believing it reduced immersion and tension: “[it] doesn’t make you feel like you’re actually in the room doing stuff” (IP6), whereas others viewed it as an opportunity to carefully evaluate decisions: “it would give you a second to stop and think about the different possibilities and try to rationalise like what can happen with both choices” (IP9).

The morality system in the *RDR2* clip was described as unrealistic, especially when the game does not consider the context of an action’s location affecting its moral judgement: “if you choose to shoot him, that other people will know what happened” (IP7).

The analysis also highlighted the interplay between realistic and immersive mechanics. The meta-choice in *Spec Ops: The Line* was largely viewed as an accurate portrayal of military decisions in real life: “it still simulates how military leaders are forced into decisions as well” (IP1). Though, IP4 suggested that in a real-life military situation “you would be breaking the law” if choosing not to follow orders, and thus the inability to make a decision in-game reflected real life. This decision was also deemed immersive by IP5, as “in real life you can just stop and not do it”. IP5 also regarded the morality tracker from the *RDR2* clip to be both realistic and immersive, because “the worse your reputation people do treat you differently”, which “makes [the game world] more alive to me”.

Participants found timers and button mashing mechanics particularly immersive. In the *TWDG* video clip, some noted that these mechanics enhanced their connection to the protagonist’s experience — it “adds to the pressure that the character’s feeling. So I definitely think it helps with immersion” (IP5). Similarly, they were described as emulating the physical actions associated with the player’s decision: “It’s a good imitation of the struggle you would go in this scenario to hold this person back” (IP1). Button mashing allowed players to immerse themselves into the character’s mind: “Making you mash the button to hold Lily back, it really put you into Lee’s mind, because Lee is not enjoying what he’s doing” (IP6) and to “empathise with [the PC]. Not just sympathise, but empathise, since now you are, like them, you’re both struggling” (IP6). Similarly, for *Detroit: Become Human*, IP10 noted that “you had a very limited amount of choice as Connor would’ve had a very limited amount of time to make a choice”. This immersion into the physical act of restraining a character is a particularly good example of how games can use their mechanics to immerse players.

6.5.3. Reflection on moral decision

Participants reported engaging in reflection, both during and after making morally challenging decisions. SP6 stated that a decision was difficult for them to make “because you have to decide ultimately what you believe in” while making the decision. Some participants referenced games intentionally encouraging players to reflect upon moral decisions. SP8 remarked upon how *The Walking Dead* “pauses and allows the player to gather their thoughts and reflect on their decisions” after prompting them to decide whether to save an NPC or leave her to die (the ‘life or death’ decision). Similarly, SP12 mentioned that *The Walking Dead* “tests you in thinking about what you value most”. For SP12, the NPC, Clementine, aided their reflection as she “was like a moral compass”. Participants expressed feeling conflicted as they found their morals being challenged: “it was certainly a hard mission to play because I was going against what I think I actually believe” (SP13).

Some participants also declared thinking about decisions in retrospect. For some, the decision they made resulted in the feelings of remorse and guilt. For SP11, while they “felt remorse right after the decision [...] after some time I realised that the other option probably would

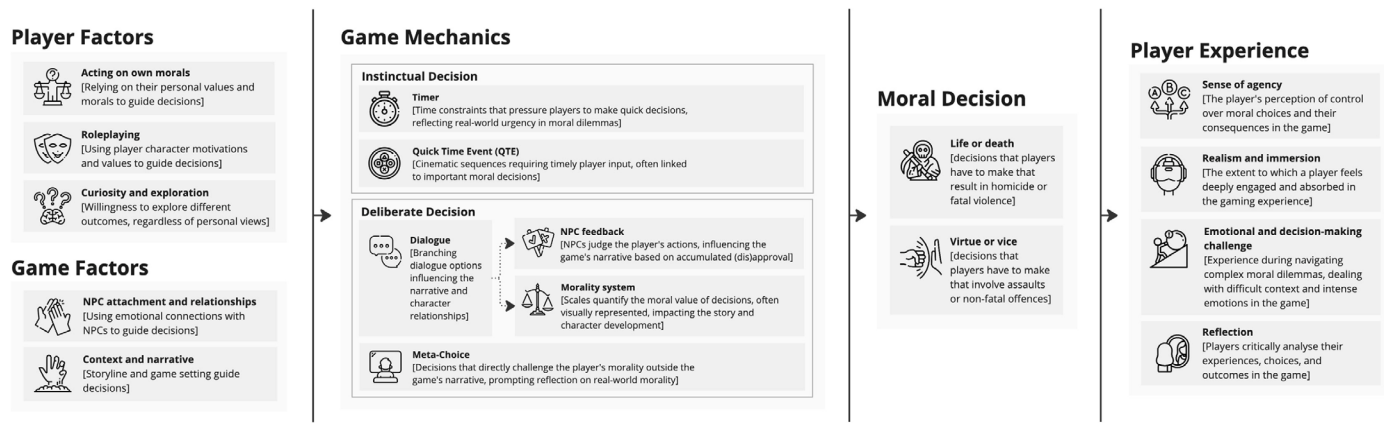


Fig. 2. A diagram illustrating the Interactive Moral Decision Making Framework.

have resulted in the same feeling". SP14's guilt "was only solidified by the subsequent in-game dialogue", while SP9 felt guilt later: "Only later on, I found out that it was actually possible for the character to live through the entire game, making me somewhat regret my choice".

On the contrary, some participants felt pleased in some way after making a decision. For instance, SP2 "became happier as a result of having made [the decision]" and similarly SP21 "ended up happy with this choice in [their] playthrough".

While reflecting upon their experiences, some participants compared their decisions to the real world. For SP12 "looking at this decision in retrospect [...] makes me feel like I was immoral when comparing my rationalisations then with what I value most while engaged with the current real life world now". Similarly, a decision made in *Papers, Please* (3909 LLC, 2013) made SP28 "think about what i'd [sic] do in real life" and, in general, the game broadened their perspective by making them "think about why some people might make certain decisions in order to keep their family safe in real life". For two participants, their experiences in-game allowed them to reflect upon their own morality. SP10's experience with *The Walking Dead* meant that they "learned to be a better person and care about loved ones more", while for SP12, their experience was "a revelation to me of how easy it was to fall into conformity of social roles, as it can happen even while playing video games".

7. Interactive moral decision making framework

In this section, we examine the findings from both the qualitative survey and the semi-structured interviews in context of the research questions, as well as in the wider scope of existing literature regarding this topic.

Overall, decision making mechanics influenced participants' moral perceptions of both their own decisions and those made by players in the video elicitation clips. The moral assessment of decisions was shaped not only by the game mechanics, however, but also by broader in-game narrative elements. These included the specific context in which decisions were made and the actions of NPCs, which collectively influenced participants' views on the morality of decisions.

Based on our findings, we propose the following model (illustrated in Fig. 2) that describes the game mechanics that facilitate moral decision making (Section 7.1); the process by which players make choices that involve moral considerations within the context of video games (Section 7.2); and subjective experience of the player as they engage with moral decision making in video games (Section 7.3); thereby answering both RQ1 and RQ2. This framework suggests that various game mechanics have differing levels of effectiveness in facilitating players' decision-making when confronted with moral choices in games.

These decisions are influenced not only by the mechanics themselves but also by player-specific factors, such as personal morals, as well as game-specific factors. Consequently, these moral decisions impact multiple aspects of the player's overall experience, including immersion and perceived agency.

Throughout this section, we aim to explain our findings and link them with existing frameworks and models from media psychology and games research to further our understanding of how moral decisions are presented, perceived, and resolved in gaming environments. This integration helps us to identify key factors that influence moral decision making, such as narrative context, character attachment, and gameplay mechanics, and to propose strategies for designing games that effectively engage players in meaningful ethical reflection (Section 8).

7.1. Moral decision making mechanics

7.1.1. Timer

Participants responded positively to the inclusion of the timer mechanic, finding it realistic and enhancing immersion by replicating real-time pressure and physical actions. The latter was described as allowing them to empathise with the characters' feelings. However, timers also induced anxiety and stress, even through video clips, although some participants viewed this added tension as a positive aspect of gameplay (player experiences are discussed in more detail in Section 7.3).

Timers were perceived as inhibiting careful moral consideration, promoting instinct-driven decisions, which aligns with research that identified time pressure to not influence moral judgement (Kroneisen & Steghaus, 2021; Tinghög et al., 2016) but fostering instinctive decision making (Fischer, 2023; Holl et al., 2022). Furthermore, Kroneisen and Steghaus (2021) found time pressure decreased consideration of consequences when making a decision, suggesting that timers in moral decision making games prompt players to act on their own moral instincts (the influence on decisions is discussed in more detail in Section 7.2).

Participants had mixed feelings about time pressure though. Some appreciated that timers forced decisions, while others preferred unlimited time to consider the morality and consequences of their choices. Unlimited time to make a decision increases perceived challenge, but this could impede the overall gaming experience. Bopp et al. (2018) illustrates this with an example from *The Walking Dead*, where even without a time limit, players faced a challenging decision between two terrible options, resulting in feelings of guilt and remorse. This finding aligns with our own observations.

7.1.2. Quick time events

Participants generally favoured QTEs and button-mashing mechanics, albeit with certain conditions. For QTEs, the forgiveness of mistakes and predictability were crucial. However, some participants found these mechanics either too easy or frustrating, trumping their perceived challenge – a factor linked to positive player experience (Denisova et al., 2020). Additionally, some questioned the relevance of these mechanics to gameplay, citing their limited impact on narrative progression and their potential to hinder the sense of agency and control, which can also hinder their overall experience (Guo & Lo, 2023).

While often seen as less intellectually demanding, button mashing can still affect decision making by requiring players to commit to actions once initiated. This mechanic simulates a physical struggle, demanding quick reflexes, persistence, and determination, which influences the player's perceived investment in their choices. For example, sustained button mashing to push back an enemy creates a scenario where players must decide whether to continue exerting effort or change tactics.

This immersive emulation of the PC's struggle was described as fostering empathy through the adoption of NPC perspectives by making rapid choices under pressure. However, this can lead to stress and the potential regret of missed opportunities. The efficacy of the button-mashing mechanic, however, hinges on the QTE difficulty. An excessively challenging QTE can lead to a perceived lack of control over the PC, undermining the intended immersive experience.

7.1.3. Morality system

Overall, participants found the morality system to be immersive due to its tangible impact on the game world and NPC relationships, enhancing the sense of influence and liveness within the game world. Consistent with previous research (Ryan et al., 2023), the morality system proved helpful in navigating ambiguous situations, though it was less beneficial for straightforward decisions. Players seeking specific game outcomes (e.g. if roleplaying as a low morality character) may rely on morality meters to guide their decisions, focusing more on game mechanics than personal morals.

Related to this, participants observed that morality trackers have the potential to be misused, rather than fostering genuinely moral behaviour. This aligns with Ryan et al. (2019)'s critique, which argues that these systems risk being reduced to mere point-scoring systems rather than serving as instruments for meaningful moral reflection.

Participants also raised some issues regarding the mechanics's realism, for example, a decision affecting the morality meter (and subsequently influencing the game world and NPC reactions) despite there being no witnesses to the act. They also noted that the systems they encountered were often overly simplistic and expressed concerns regarding the criteria used by the game to evaluate morality scores and decisions. For instance, the lack of nuance due to its binary weighting of morality was a shortcoming, as it did not consider, for example, that killing an evil character outside of combat was ultimately a moral act – a limitation noted in the wider literature (e.g. Neely (2019), Smith et al. (2003)).

7.1.4. NPC feedback

Participants generally were receptive to the NPC feedback. This mechanic, which is the most under-explored amongst all mechanics, adds a significant layer to decision making by showing immediate or delayed consequences of actions on NPC relationships and the game's narrative. Players must consider how their choices will affect their standing with various characters and the overall story. An example of this is choosing to help or harm an NPC, which might alter their behaviour towards the player in future encounters, influencing the player's long-term strategy.

Participants appreciated the moral ambiguity this mechanics offered, as it, unlike the morality systems discussed earlier, did not categorise actions as universally good or bad but rather focused on the (dis)approval of an individual NPC. This preference over a universal morality system might be linked to the emotional connections participants formed with NPCs. Moreover, ambiguous NPC feedback mirrors the complexity of real life decisions that often have multifaceted consequences, which makes the game's moral choices feel more authentic and emotionally challenging.

The interaction and feedback from NPCs, especially those with whom participants had established strong bonds, were frequently regarded as beneficial in decision making processes. This was particularly true in scenarios where participants perceived all available options as sub-optimal.

7.1.5. Dialogue choices

This interactive mechanic was not frequently discussed by our participants independently of other narrative mechanisms, such as NPC feedback and morality meters, possibly due to the overlap in their functionalities. Nonetheless, its primary distinguishing feature lies in its impact on the player's perception of agency. Dialogue choices often affect NPC (dis)approval or the game's perception of the morality of the PC's decisions. Over time, these choices can significantly influence the game's overall outcome.

Dialogues that present opposing choices have been demonstrated to enhance players' identification with their character (Bowey et al., 2019). These dialogue choices shape the narrative and character relationships, requiring players to carefully consider the implications of their verbal interactions. This process demands foresight and an intricate understanding of the game's social dynamics. For instance, selecting a dialogue option that may lead to an NPC's disapproval can result in strained relationships or altered storylines. Players who exert more cognitive effort during this decision making process experience higher levels of transportation into the narrative (Bowey et al., 2019).

7.1.6. Meta-choice

Meta-Choice, such as deciding whether to continue playing after a morally challenging event, compel players to reflect on their willingness to engage with difficult content. This tests their commitment to the game and the moral boundaries they are willing to cross. For instance, players might be prompted to stop playing or continue despite moral discomfort, adding a meta-layer to their decision making process.

The meta-choice mechanic in *Spec Ops: The Line* was least well received amongst our participants who showed reluctance towards using it. Similar findings by Hodge et al. (2020a) indicated minimal willingness to quit a game when confronted with a meta-choice. However, previous work lacked qualitative insights into players' reasons for this reluctance. A survey by Lange (2014) showed that, despite discomfort with meta-choices, over half of participants never refused to perform an act in a video game, emphasising players' determination to continue playing even in challenging scenarios. For participants in the current study, the morality of the scenario presented alongside the meta-choice was contextualised as being 'just a game'.

The hesitancy to engage with meta-choices stemmed from the perception that players had no tangible influence on the game during such decisions. Participants viewed the meta-choice as devoid of meaningful player impact on the game world, akin to linear games where substantial moral decisions are absent. This disengagement may result from the passive nature of the meta-choice, where players merely observe the in-game character, lacking active involvement in making a moral decision of committing a war crime (Heron & Belford, 2014).

This type of mechanic has received significantly less attention compared to others, but there are instances in different games that resonate with this concept, which could be explored in future studies. For example, some games offer achievements or trophies for performing immoral actions that players might hesitate to attach permanently to their

profiles. In *Dishonored* (Arkane Studios, 2012), for instance, players can earn achievements for completing missions without killing anyone or for choosing to eliminate targets non-lethally. However, there are also achievements for more violent actions, such as killing multiple characters in creative ways, which some players might find conflicting with their moral stance, leading them to avoid these achievements altogether.

Other games toy with this idea too, such as *Undertale's* (Toby Fox, 2015) use of meta-fiction, where the game remembers players' previous actions across multiple playthroughs, affecting the narrative and how characters interact with the player. Similarly, *Doki Doki Literature Club* (Team Salvato, 2017) pushes the boundaries of meta-choice by requiring players to delete actual game files to alter the game's outcome, blurring the line between in-game decisions and real-world actions.

Additionally, making moral decisions that are visible to others can create a form of meta-choice. In *Mass Effect*, for example, players must make numerous moral decisions that influence the game's story and character relationships. When these decisions are made in a public setting, such as during a live stream, the player's choices are subject to the scrutiny and judgement of the audience, adding an additional layer of pressure. Similarly, in games like *The Witcher 3: Wild Hunt*, players can choose to romance different characters, and these choices might be influenced by the presence of a real-life partner or friends watching the gameplay, introducing a complex interplay between in-game actions and real-world relationships.

Multiplayer games like *Baldur's Gate 3* (Larian Studios, 2023) further complicate moral decision-making by introducing the perspectives and opinions of other players. In this game, players must often collaborate on decisions that affect the group's progress, such as choosing whether to spare or kill an NPC. The knowledge that these decisions are being observed and judged by fellow players adds a layer of meta-awareness to the decision-making process, as players might weigh their choices against the expectations of the group or the potential impact on their in-game reputation.

These examples highlight how moral decision-making can transcend the in-game environment, breaking the fourth wall and influencing players' real-world identities and social interactions. By introducing moral dilemmas that extend beyond the game itself, these mechanics have the potential to challenge players to consider the broader implications of their in-game actions, making the experience more personally significant.

7.1.7. Context for moral decisions

In addition to the decision making mechanics, players' views of the morality of the decisions were shaped by the broader narrative context of the depicted games and the NPCs involved. For instance, life or death scenarios often amplify the emotional impact of morality trackers and dialogue choices.

Most participants were influenced by the time period and setting in which the game took place (such as the Wild West and a zombie apocalypse), and in particular the medical technology available within the context. For example, shooting an NPC in a 19th century setting was deemed to be a mercy killing due to the medical technology of the era. Similarly, the context of a warzone allowed some participants to not condemn a war crime committed by the PC in *Spec Ops: The Line*. We argue that these contextual cues do not lead to moral disengagement discussed in our related work, but help with reflection because they prompt players to critically evaluate the moral implications of their actions within a historically and situationally accurate framework. The immersion in a specific time period or catastrophic scenario compels players to consider the realistic limitations and harsh realities faced by characters, thereby fostering a deeper understanding and contemplation of moral dilemmas. This reflective process is further enhanced as players navigate the consequences of their actions, encouraging them to

question and reassess their own moral beliefs and the moral boundaries within different contexts, which was also observed in our findings.

Regarding the influence of NPCs, the character of Clementine in *The Walking Dead* clip particularly influenced players to either agree with the player's acts, or be able to understand why the participant committed this act in order to protect a child NPC. This importance of context upon the perception of moral decision making in games is supported by wider psychological research, that has found context is a particularly important aspect of moral judgement (Jin & Peng, 2021; Ryan et al., 2023; Schein, 2020) and that an individual's moral perception of a situation continually develops as more context is learned (Andrejević et al., 2020).

7.2. Influence on decision making

Building on the previous discussion of individual game mechanics, this section explores how these mechanics, combined with the broader game context and external factors like players' personal morals, influence decision making processes.

Participants were motivated to play moral decision making games, viewing them as safe spaces for making impactful moral decisions that could have serious real-life consequences. Most participants reported playing these games multiple times to explore different choices and outcomes, driven by branching narratives and replay value, which is consistent with the findings from Gamito and Martinho (2021).

During initial playthroughs, and more generally, our participants reported using personal morals and choosing morally praiseworthy actions (as also seen in Boyan et al. (2015), Iten et al. (2018), and Weaver and Lewis (2012)), which can be explained by their feelings of guilt over immoral acts or perceived game punishment for such behaviour (Lange, 2014).

Some participants, however, deviated from this approach either due an explicit choice to roleplay a certain type of character or in-game factors like narrative context or NPC relationships. Some participants admitted making decisions contrary to their moral values during roleplay or in uncertain situations, indicating potential moral disengagement (Joeckel et al., 2012). They also acknowledged considering or making decisions against their morals also to gain NPC approval, influenced by their emotional connections with NPCs. This connection between players and NPCs is suggestive of media equation theory (Reeves & Nass, 1996) – a theory that posits consumers of media respond to fictional environments and characters in the same way they respond to the real world. Overall, this study's findings resonate with prior research (Bopp et al., 2019; Coulson et al., 2012), indicating that players form genuine emotional connections with NPCs.

We propose that video games can reinforce personal morals through immersive mechanics, with some being more effective than others in facilitating decision making. Different mechanics support various player motivations in morally challenging situations. For instinctual decision making, mechanics like timers and QTEs create immediate pressure, leading to rapid, intuitive decisions even when they have ambiguous outcomes or lasting consequences. This phenomenon can be explained by the social intuitionist model (SIM) (Haidt, 2001, 2007; Haidt & Joseph, 2004), which posits that moral judgements are primarily driven by intuitive reactions rather than rational processing, and under increased pressure, decisions are more likely to reflect intuitive morality. These mechanics, eliciting quick moral reactions, are effective in high-tension scenes but less so for reflective decision making, which can lead to disappointment of players seeking contemplation.

For more deliberate decision making, narrative mechanics like NPC feedback, dialogue choices, and morality systems effectively encourage players to engage in long-term planning and reflect on their decisions and their consequences, as exemplified by *Detroit: Become Human*. Immediate feedback from NPC feedback and morality systems aids in understanding moral implications and encourages reflection, directing players' decisions towards specific options. However, the decisions

should not be forced, as this can compromise positive experiences and identification with the character (Ferchaud & Beth Oliver, 2019). Moreover, a lack of nuance in these mechanics was noted to diminish the depth of moral reflection.

All three narrative mechanics challenge players with complex which have far-reaching effects on the game's world and narrative progression. So, games which track decisions not only within the game but across different titles in the series, e.g. *Mass Effect*, encourage consideration of long-lasting reputations effects, promoting intuitive moral decisions (Matthews, 2018).

Personal morals and roleplaying can significantly influence how players interact with these moral decision mechanics. For example, players motivated by personal morals were more likely to be influenced by NPC feedback systems, as they seek validation of their values. NPC feedback systems and dialogue choices are particularly affected by the player's moral perspective and emotional investment in NPC relationships. Participants, however, found NPC feedback to be more ambiguous than morality meters, making their decision making less straightforward.

Meta choices challenge players by placing moral decisions outside the in-game context, prompting deeper moral contemplation. However, this mechanic proved ineffective, as many participants indicated they would not stop playing, suggesting potential moral disengagement. Unlike NPC feedback and morality systems, which continuously remind players of their choices' impacts, meta choices do not reduce moral disengagement effectively. More work is thus needed to make these meta choices impactful, as players are not willing to engage with this mechanic.

7.3. Player experience

Our exploratory work provides preliminary insights into players' experiences with moral decision making in games. Participants highlighted immersion, a sense of agency, and reflection when discussing specific decision making mechanics and morally challenging scenarios. This section will relate these experiences and participants' emotional reactions to broader player experience theories, such as perceived challenge and meaningful, eudaimonic experiences.

In crafting a gaming experience, the responsibility lies with the creators to empower players with agency over their encounters. Achieving this involves a profound understanding of designing an environment and narrative seamlessly supported by specific mechanics, ensuring they enhance rather than distract from the central message (Denisova et al., 2021). This entails a keen awareness of how players perceive these mechanics in connection to their decisions and overall experiences.

Some of the mechanics we explored involved players making choices that may impact the game's outcome or have short-term narrative consequences. The perception of choice and the ability to meaningfully influence the game world relates to the perceived sense of agency (Guo & Lo, 2023) – an experience that can enhance player engagement, immersion, and overall satisfaction with the gameplay.

Previous research indicates that adopting the perspective of an NPC enhances immersion (Ho & Ng, 2022). This perspective-taking may explain why participants found various game mechanics particularly immersive. For example, timers and QTEs facilitate empathy by requiring players to make rapid decisions, mirroring the urgency experienced by the character, thereby fostering a sense of realism and situational involvement. These mechanics do not only increase the emotional and decision making challenge, but also highlight the high performative challenge associated with the speed and reaction times of players, as well as the precision and accuracy of performing actions (Denisova et al., 2020).

Furthermore, participants reported heightened empathy and immersion through mechanics that provide feedback based on the player's actions, such as well-designed morality systems and NPC feedback

mechanisms, allowing players to connect emotionally with game characters. Bonding with characters make choices more meaningful and thus harder (Bopp et al., 2019, 2018) due to emotional challenge involved in these decisions (Denisova et al., 2020). On the contrary, our participants noted that these bonds can also make certain decisions easier, as they have a clearer picture for the outcome they want for the NPC they like.

Immersion fosters a deeper connection with characters and the narrative, influencing players to act in accordance with their views or the character's personality they are roleplaying. Conversely, a lack of immersion may lead to players acting inconsistently with their own morals or the character's personality, as the sense of detachment diminishes the coherence of in-game decisions.

Using personal morals in decision making can create deeply immersive experiences where the narrative feels more personalised and impactful. Some players may roleplay characters with different moral frameworks, exploring diverse moral landscapes and challenging their viewpoints. Adopting a character and then deciding how the character should act forms part of the emotional challenge (Denisova et al., 2020). In both cases, the interplay between personal morals and roleplaying enhances the complexity and emotional depth of the gameplay, fostering a more engaging and thought-provoking experience.

Our participants reported feeling conflicted when gameplay goals clashed with their personal values and convictions, mirroring the findings from Bopp et al. (2018). Similarly, feeling torn between gameplay advantages and one's attachment to certain characters enhances the perceived decision making challenge (Bopp et al., 2018; Denisova et al., 2020).

Emotionally challenging games evoke a wider range of emotions (Bopp et al., 2018; Peng et al., 2020), often resulting in intense negative emotions such as stress and guilt – emotional reactions also reported by our participants as a result of engaging in moral decision making, particularly for decisions they deemed to be immoral, consistent with prior research (Mahood & Hanus, 2017; Whitty et al., 2011). Although guilt tends to diminish with repeated immoral acts in games (Grizzard et al., 2017), the emotionally challenging nature of moral decisions may intensify players' reactions when acting immorally while also acting as a catalyst for players to engage in eudaimonic experiences.

Participants also reported reflecting on their morals during or after making moral decisions, thinking about their choices and the consequences outside the game, and projecting these onto real-world situations. These reflections were unprompted, which offers complementary findings to the work of Mekler et al. (2018), who observed no instances of higher-level transformative and critical reflection where players change their lives due to a game.

These reflections can be facilitated through certain mechanics. For example, NPC feedback and morality systems provide immediate feedback, allowing players to understand the moral implications of their choices and encouraging reflection. While some games offer feedback on the consequences of moral decisions, there is potential to integrate more robust reflective feedback systems that encourage players to introspect and evaluate their choices. This could involve in-game mechanisms for journaling, dialogues with NPCs that prompt self-reflection, or periodic moral assessments that track and analyse the player's decisions over time.

Reflection, as well as dealing with difficult content based on moral choices, is considered an essential aspect of emotionally challenging (Bopp et al., 2018; Denisova et al., 2020), meaningful (Oliver et al., 2016; Rogers et al., 2017), and eudaimonic experiences (Cole & Gillies, 2022; Daneels et al., 2021). Our participants noted that they "like knowing that decision making has a meaningful impact" (IP8) – what players perceive as 'meaningful' varies on an individual basis as well as based on the in-game context (Oliver et al., 2016).

Our work, therefore, contributes to our understanding of how moral decisions in games providing positive experiences despite their often emotionally challenging nature (cf e.g. Bopp et al. (2016)). Further research is needed to explore how these games facilitate perspective taking and empathy towards certain characters, and what they consider meaningful in the context of moral decisions in games, which can help advance this area of research even further.

8. Design guidelines

These design guidelines were created using the most pertinent themes uncovered during data analysis and are intended for the creation of moral decision making games. They emphasise the importance of maintaining harmony between narrative, environment, and mechanics, allowing players to fully immerse themselves in the intended experience without disruption. The focus is on enabling players to navigate morally difficult decisions, ensuring that the emotional challenge remains at the forefront of the gaming encounter.

8.1. Prioritise the NPC feedback mechanic

Our participants had a strong receptivity to the NPC feedback mechanic. They particularly enjoyed the nuanced moral weighting of this mechanic, tailored to individual NPCs' personalities and moralities rather than adhering to a simplistic 'good' or 'bad' weighting system. Furthermore, participants in the current study discussed their connections with NPCs, and previous studies have found players create real emotional attachments to NPCs (Bopp et al., 2019; Coulson et al., 2012). Therefore, emphasising the NPC feedback mechanic holds promise for enhancing immersion and engagement with the game's moral decisions, as players develop meaningful relationships with NPCs.

8.2. Only include QTEs that relate to the narrative

QTEs and button-mashing mechanics were most appreciated by our participants when directly tied to the physical actions or consequences of the PC's decisions. However, instances where QTEs lacked meaningful consequences were perceived as unnecessary. Thus, it is recommended to integrate QTEs and button-mashing mechanics as integral narrative features. Specifically, button mashing could be used to confront players with challenging moral decisions they have previously made. Additionally, it is recommended to incorporate narrative consequences for failing these mechanics. For instance, a failed QTE resulting in the player character's injury could lead to significant narrative repercussions later in the game.

8.3. Facilitate replayability through branching narratives

Our participants were drawn to moral decision making games primarily for their immersive narratives. They expressed a particular fondness for exploring branching storylines through multiple playthroughs. Therefore, it is strongly recommended to incorporate branching moral decisions in which players can have a tangible influence on the narrative, leading to substantial changes in the story trajectory. This recommendation would encourage players to conduct multiple playthroughs of the game, catering especially to those who are motivated by the prospect of replayability in moral decision making games.

8.4. Use timers to emphasise stressful decisions

Participants demonstrated a strong affinity for timer mechanics, particularly in scenarios designed to evoke stress, such as kill or spare decisions. Timers were noted to enhance immersion and heighten emotional engagement, effectively immersing players in the intensity of the moment. Therefore, game designers are encouraged to integrate timer mechanics strategically to induce stress in players during high-pressure situations. However, if the objective is to foster moral reflection instead, the use of timers should be avoided. Participants reported that timers hindered their consideration of moral decisions, a sentiment supported by previous research (Kroneisen & Steghaus, 2021; Phillips-Wren & Adya, 2020).

8.5. Allow for nuance in morality system weighting

Participants exhibited strong receptivity to the morality system mechanic, emphasising a preference for nuanced systems that exert tangible influence over the game's world and narrative. It is advisable to eschew simplistic numerical 'good' or 'bad' morality systems in favour of those tracking both moral and immoral decisions separately (Lange, 2014). Moreover, context should be a key consideration for the morality system when assessing decisions. For instance, if a player commits an immoral act without witnesses, and the morality system impacts the game world, refrain from using this act to affect the player's morality system weighting.

9. Implications

This research produced a series of design principles anchored in the authentic experiences of players. This study was able to bring forward the experiences of real video game players, specifically those who appreciate games involving moral choices, to formulate guidelines that reflect their encounters with such games. By delving into the players' personal experiences and viewpoints, the study incorporated elements of game narratives, such as character dynamics, and individual gaming preferences, like engaging in multiple playthroughs, to inform design guidelines. These guidelines are tailored to accommodate players' unique preferences, offering a pathway for them to engage with these games on their own terms. This approach shifts away from the traditional reliance on game reviews, which typically highlight issues, towards leveraging a set of design guidelines derived directly from the lived experiences of players dedicated to moral decision making games.

10. Limitations and future work

The scope of our findings is somewhat limited by the number of participants recruited, potentially affecting the generalisability of the results. Additionally, the brevity of some survey responses necessitated the inclusion of quotes from a select few participants. To enrich our understanding of the moral decisions made by players across a broader array of games, future research would benefit from a larger and more diverse participant pool.

A prevalent feedback from interviewees was the lack of sufficient context behind the player's motivations in the provided video clip, hindering their ability to make informed judgement about the morality of the depicted decisions. This limitation is inherent to the methodology of video elicitation interviews, particularly when relying on third-party YouTube clips rather than videos specifically created for the study. To more effectively address RQ2, future studies might consider having participants engage directly with the games in question.

Exploring players' perspectives on specific game mechanics warrants in-depth investigation through a mixture of experimental studies and qualitative approaches to offer further insights into how players perceive and engage with various mechanics, providing a nuanced understanding of their preferences and challenges.

Particularly, meta-choices have received little attention within the literature. Further investigation could explore why players seem particularly non-receptive to this decision making mechanic.

Another mechanics to examine is the moral choices in gaming, which, as seen in our study, are often presented as binary decisions with clear-cut consequences. Incorporating dynamic moral systems that adapt to player behaviour and evolve over time could potentially offer a more realistic and engaging moral experience. These systems should account for contextual factors and character development, providing a more immersive moral landscape.

Moreover, while games often focus on individual decision making, incorporating mechanics that simulate social influence and peer pressure could enhance the moral decision making experience. This could involve interactions with NPCs or other players that challenge or reinforce the player's moral beliefs, encouraging reflection and critical thinking.

Our data did not reveal instances where mechanics such as in-game achievements or trophies influenced player decision-making, though we hypothesise that these factors could shape decisions. Future work should, therefore, explore the impact of player decisions that prioritise power and optimisation over moral considerations.

Finally, our participants discussed their critical reflections on broader societal and ethical issues as a result of playing these games — an experience which was not observed previously by [Mekler et al. \(2018\)](#). We hypothesise that participants who choose morally challenging games are more likely to reflect on these issues. This may be because such games present difficult themes that encourage contemplation, or because individuals inclined to consider moral issues are drawn to these games due to their eudaimonic traits, which are discussed in [Huta and Ryan \(2010\)](#), [Oliver and Raney \(2011\)](#), and [Possler et al. \(2023\)](#). Future research could investigate this potential 'chicken and egg' issue to determine if the games themselves stimulate moral reflection or if reflective individuals are more likely to select these games.

11. Conclusion

Our work offers insights into how video games facilitate moral decision making and players' experiences of playing these games. It also examines the distinct mechanics used in these games, highlighting their appeal or deterrent for players. Based on our findings, we propose several design guidelines for the creation of such video games: (1) Prioritise the NPC feedback mechanic; (2) Only include QTEs that relate to the narrative; (3) Facilitate replayability through branching narratives; (4) Use timers to emphasise stressful decisions; and (5) Allow for nuance in morality system weighting.

Feedback on game mechanics indicated a strong preference for elements like countdown timers and NPC feedback systems, while expressing reservations about the lack of nuance in the morality tracker mechanic. QTEs and action-based challenges received positive marks for being forgiving of mistakes and seamless incorporation into gameplay. Players favoured dialogue options that presented a spectrum of moral choices, while meta-choice mechanics garnered less enthusiasm.

Ultimately, while certain mechanics influenced participants' perception of morality to some extent, the overarching context of the game significantly augmented this perception. This highlights the importance of carefully crafting the setting and narrative elements to effectively convey moral dilemmas and engage players in meaningful decision making experiences.

CRedit authorship contribution statement

Sophie Wright: Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Alena Denisova:** Writing – review & editing, Supervision, Project administration, Methodology, Conceptualization, Formal analysis.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

Appendix A. Survey materials

The survey was designed to learn more about their motivations to play games with moral decisions (RQ2) and their experiences with these games (RQ1).

A.1. Demographic questions

First, participants were asked a series of demographic questions to help describe the sample:

- Age [18–24; 25–34; 35–44; 45–54; 55–64; 65+]
- Gender [text entry box]
- How often do you play games? [every day, several times a week, once a week, etc.]
- How many years have you been playing games? [text entry box]

A.2. Open-ended questions

Next, participants were presented with the following open ended questions designed to address **RQ1** and **RQ2**:

1. Please provide names of games you have played that you consider to have prominent moral decision making elements. The definition of decision making can be broadly applied, so please provide examples that you think are suitable. If you have played any lesser known or independent games that you think are applicable, please write them down.
2. Why did you choose these games?
3. Please provide an example of some moral decision making that occurs in your chosen games.
4. Please describe a personal experience of a particularly challenging moral decision you had to make while playing a game. Please provide the title of the game and an estimation of how long ago this experience occurred.
5. Please provide context for this decision (What led up to this decision being made? Did it have any consequences?), and the game mechanics used to present this choice.
6. Why did you think this experience was challenging?
7. How did this experience make you feel?

At the end of the survey, we collected email addresses of participants who expressed interest in taking part in the interview, which were not linked to the main survey data.

Appendix B. Interview guide

The interview guide was designed for approximately 60 min and divided into five segments: Introduction, Interview Questions, Video Elicitation – Traditional Mechanics, Video Elicitation – Meta-Choice, and Wrap-Up. Each segment included primary questions (denoted by Latin numerals) designed to address **RQ2**, which investigates players' experiences and perceptions of game mechanics that facilitate moral decision making. The interviewer also posed additional ad-hoc questions if the participant introduced topics of interest that warranted further exploration.

B.1. Introduction [5 min]

The interview began with an introduction where the interviewer, welcomed the participant and explained the purpose of the study on moral decision making in games. The participant was asked to review the consent form to ensure they understood and agreed to the terms. The interviewer emphasised the voluntary nature of the interview and informed the participant that the conversation would be audio recorded solely for transcription purposes. The participant was assured that they can withdraw from the study at any time by informing the researcher, who will then end the meeting and delete the recording. Participants were also informed that they could also choose to skip any questions. Finally, they were also made aware that the video clips shown during the interview might contain violent content, cursing, gore, or distressing scenes and so they were encouraged to inform the researcher if they feel uncomfortable at any point, and the video will be stopped. After addressing any initial questions, the recording of the interview commenced.

B.2. Interview questions [55 min]

Next, participant was asked general questions about their gaming habits and their general views on moral decision making in video games.

B.2.1. Questions about gaming habits [10 min]

1. How often do you play games that contain moral decision making?
2. Do you deliberately seek out games that contain moral decision making?
3. Do you enjoy moral decisions in games?
4. Why do you/don't you play games with moral decisions?
5. When making decisions in games, do you roleplay as the player character? Or do you make choices based on your own feelings?

B.2.2. Video elicitation — traditional mechanics [25 min]

This was followed by a discussion of various video clips illustrating moral decisions in games, starting with those using traditional mechanics. Participants watched several clips, each lasting no more than four minutes, and were then asked to share their thoughts on the content of each video.

Red Dead Redemption 2 Clip The first clip shown was from the video game *RDR2*. Participants were informed that in this game, the player assumes the role of an outlaw in the Wild West. Before each clip, the researcher warned participants of any sensitive content that might be depicted. For instance, the initial clip contained gun violence and mild gore. The researcher ensured participants were comfortable before proceeding with each video.

[Show clip 1: Red Dead Redemption 2; 11:07 to 11:59]

1. How do you feel about the player's actions in this clip?
2. What do you think about the game mechanics used to present this decision?
3. So, while playing the game, the player would have known about the honour system and the opportunity to give NPCs items. So with that in mind, do you think these mechanics influenced the player's actions in this clip?
4. Have you encountered these mechanics before?
5. How likely are you to play a game that includes these mechanics?

Telltale's The Walking Dead Clip Next, participants watched a clip from *Telltale's The Walking Dead*. In this game, characters who die without sustaining brain damage will reanimate as zombies. Participants were informed that the clip is tense and contains some gore and cursing, and they were asked if they were comfortable proceeding.

[Show clip 2: The Walking Dead; 2:29 to 5:02]

1. How do you feel about the player's actions in this clip?
2. What do you think about the mechanics in this scene?
3. Do you think these mechanics influenced the player's actions in this clip?
4. Have you encountered these mechanics before?
5. How likely are you to play a game that includes these mechanics?

Detroit: Become Human This part of the interview concluded with a clip from *DBH*. Participants were informed that the game is set in a near-future world where humanoid robots, which serve humans, are common. Some of these robots begin to develop sentience and are referred to as 'deviants'. In the clip, the player character is a police android assisting a police officer named Hank in stopping the deviants from rebelling. Participants were cautioned that the clip implies a character has experienced abuse, though the abuse is not shown on screen.

[Show clip 3: Detroit: Become Human; 0:32 to 3:44]

1. How do you feel about the player's actions in this clip?
2. What do you think about the game mechanics in this scene?
3. Do you think these mechanics influenced the player's actions in this clip?
4. Have you encountered these mechanics before?
5. How likely are you to play a game that includes these mechanics?

B.2.3. Video elicitation — meta-choice [15 min]

Finally, participants were shown two video clips from the game *Spec Ops: The Line*, where the player assumes the role of an American soldier. The first clip occurs early in the game, while the second is set around the halfway point. Participants were cautioned that these clips contain gore and depictions of war. If they felt uncomfortable, they had the option to skip watching the clips, in which case the researcher would describe the premise to them instead.

[Show clip 4: Stop sign foreshadowing; 0:01 to 0:19]

[Show clip 5: White phosphorus scene; 0:09 to 4:38]

1. How do you feel about the player's actions in this clip?
2. Unlike the other games shown today, in this game there are no explicit choices for the player to make. Instead, it is implied that the player could have avoided this act by choosing to quit the game in the initial stop sign clip. This is called a meta-choice — the responsibility to make a choice is explicitly placed on the person playing the game, rather than the playable character. How do you feel about this type of choice?
3. Have you encountered meta-choices before?
4. Would you play a game that includes meta-choices?

B.2.4. Wrap-up

The interview concluded with the researcher expressing gratitude for the participant's time and contributions. The session ended after addressing any remaining questions the participant had.

Appendix C. Codebook

In the [Table C.1](#) below, we provide an overview of all themes, subthemes, and corresponding codes, accompanied by descriptions and illustrative quotes from participants' responses.

Table C.1
Overview of themes, subthemes, codes, descriptions, and illustrative quotes from participants' responses.

Theme name	Subtheme name	Code	Description	Example quote
Mechanics Facilitating Moral Decision Making	Rapid Response Mechanics	Timers	Time constraints that pressure players to make quick decisions, reflecting real-world urgency in moral dilemmas.	"a timer running down, and so a decision had to be made in the moment" (SP19)
		Quick Time Events (QTEs)	Cinematic sequences requiring timely player input, often linked to important moral decisions.	"QTE also affected my choices throughout the game because I would panic choose things" (SP3)
	Strategic Decision Mechanics	NPC Feedback	Mechanics where NPCs judge the player's actions, influencing the game's narrative based on accumulated (dis)approval.	"Every time a decision is made, his relationship with his partners grows negatively or positively" (SP5)
		Dialogue Choices	Branching dialogue options influencing the narrative and character relationships.	"The dialogue I had with the kidnapper/supposed killer was through chats and calls" (SP25)
		Morality Systems	Scales that quantify the moral value of decisions, often visually represented, impacting the storyline and character development.	"[RDR2] scores your moral actions through an Honour system" (SP29)
Meta-choice	Decisions that directly challenge the player's morality outside the game's narrative, prompting reflection on real-world morality.	No instances		
Contexts for Moral Decision Making in Gameplay	Life of Death	Kill or Spare	Players need to decide whether to kill or spare an NPC or group of NPCs.	"Trying to resuscitate a man or destroying his head to prevent reanimation" (SP9)
		Save or Sacrifice	Players need to decide whether save an NPC or group of NPCs.	"makes you choose whether you prefer saving his human partner or keep chasing the criminal" (SP5)
	Virtue or Vice	Help or Harm	Players are faced with a choice in which they can help or harm an NPC.	"Selling a child for money or bringing it back to its parents" (SP9)
		Commit Non-Violent Crimes	Players are faced with a choice to commit a non-violent crime.	"decision of whether to steal supplies from a lit-up, opened car or not when the group I was a part of was starving" (SP12)
Peace or Violence	Players are faced with a choice between acting violently and acting peacefully.	"deciding whether to confront injustice peacefully or with violence" (SP13)		
Factors Influencing Moral Decision Making	Acting Virtuously Based on Personal Morals	Commitment to Personal Values	Players act in accordance with their personal morals when faced with decisions in games.	"I'm going to most likely act on instinct and on my own morality" (IP1)
		Favouring 'Good' Choices	Players act altruistically, helping NPCs and avoiding harm.	"I usually play as myself, which tends to mean I play like a really morally good character" (IP8)
	Exploring Different Endings and Choices	Explore Various Choices and Consider Their Consequences	Players explore different decision making approaches by considering the potential consequences, weighing the immediate and long-term impacts of their choices on the game's narrative, characters, and ultimately endings.	"If I'm replaying a game and trying to go for a different outcome that I hadn't seen before, that might have required me to make a choice [...] I would not agree personally with" (IP3)
		Safe Space to Experiment	Players experiment with various approaches to morally ambiguous situations in a 'safe space'.	"it's like a safe environment where, you know, you make decisions, but they won't affect your life directly" (IP1)
	Roleplaying		Players take on the role of the PC, making decisions based on the character's personality and motivations rather than their own morals.	"I was purposely playing a character that did not believe synthetic life could truly be sentient" (SP13)
	Character Relationships and Attachment	Relationships Between Characters	Decisions are affected by the in-game relationships between NPCs, where players aim to influence these relations in some way.	"after he learned I killed his other friend in self-defense [...] complicates the choice even further" (SP7)
		Feelings Towards Characters	Decisions are affected by players' feelings towards NPCs, where players aim to influence the relations between their PC and other NPCs.	"extremely challenging because [you] survive with all these characters for long periods of time" (SP15)
	Consider NPC Emotions and Wellbeing	Decisions are influenced by players' relationships with NPCs and their concern for NPCs' emotions and wellbeing.	"after finding his/her will in a log I decided to pull the plug on the pod to respect his/her wish to die instead of being revived/being kept alive as a vegetable" (SP1)	
Context and Narrative		Morally ambiguous choices are justified based on the game's context and narrative setting.	"The game does take place in the Wild West. So if you were viciously attacked by a wolf, and you weren't right in a doctor's office, chances are you're not going to survive" (IP6)	

(continued on next page)

Table C.1 (continued).

Theme name	Subtheme name	Code	Description	Example quote	
Perception of Mechanics and Their Influence	Mechanics Supporting Deliberate Decision Making	Nuanced Approach to Moral Complexities and Consequences	Mechanics support or hinder players' interaction with morally ambiguous situations where decisions have layered consequences.	"if I had shot him thinking, oh, I'm putting him out of his misery ... then I might be a little confused or annoyed to see the bar drop in the other direction" (IP3)	
		Reflecting NPC Personalities and Fitting the Character Role	Mechanics (not) fit with NPCs' distinct personalities and motivations that enhance the story.	"with games with karma systems, everybody judges you for decisions that you make. In [DBH], Hank could have a completely different opinion than another character does about the actions that you take" (IP7)	
		Recognising Good and Evil Decisions	Mechanics prevent from or guide through moral decisions by highlighting the implications without enforcing a clear right or wrong path.	"It doesn't say this is good or this is bad, it says this is how it affects your relationship with this person" (IP11)	
	Mechanics Supporting Instinctual Decision Making	Nudging in a Specific Direction	Mechanics steer players towards certain decisions, encouraging morally positive actions or allowing for player exploitation.	"would definitely be something that would encourage me to keep making the choices I was making and would disincentivise making crappy choices" (IP8)	
		Alignment with Game Context and Narrative Intensity	Mechanics fit into the game's context and narrative, adjusting to reflect the scenario's intensity, whether it involves high-stakes action or thoughtful deliberation.	"I think it's a good imitation of the struggle you would go in this scenario to like hold this person back" (IP1)	
		Managing Difficulty and User Error	Mechanics (not) allow for recovery from mistakes and managing the difficulty level to keep interactions engaging without becoming frustrating or overly simplistic.	"I don't necessarily enjoy button mashing [...] they're not hard to do those prompts if you've been playing games your whole life" (IP7)	
		Committing to and Locking into Decisions	Mechanics (not) introduce a level of commitment to decisions, adding weight and consequence without being overly punitive, while balancing the permanence of decisions to avoid frustration from premature commitment.	"I think, adding kind of like the timer and the quick time events and button mashing, it kind of forces you to lock into a decision. And once you're in there, it's kind of hard to go back from it" (IP2)	
	Player Experiences with Moral Decision Making	Sense of Agency	Balancing Quick and Thoughtful Decisions	Mechanics (not) balance moments where players need to make quick decisions with opportunities to think through their choices, enhancing engagement.	"time to think about what action you believe is best, and what its consequences should be" (SP12)
			Desire for Genuine Choices	The experience of agency is enhanced or hindered by the (lack of) visibility of decisions' impacts on the game's narrative and world, making choices feel significant and meaningful.	"you really get the feeling in [RDR2] that your actions are meaningful, and actually have an impact" (IP6)
		Seeking Freedom in Decision Making	The experience of agency is enhanced or hindered by the perceived freedom to explore different narrative paths and outcomes based on players' decisions.	"if you wanted to play like a cold-hearted gunslinger that doesn't care at all you could do that if you wanted to. Or if you wanted to play more of a good guy you have that option too ... So I like kind of having that freedom" (IP9)	
Realism and Immersion	Immersive Experience	Immersion is enhanced or hindered by decision making mechanics which either deepen the player's connection to the story or make the game feel static.	"it adds to the pressure that the character's feeling. So I definitely think it helps with immersion" (IP5)		
	Sense of Realism	Perceived realism is enhanced or hindered by decision making mechanics that either enhance authenticity or disrupt the game's believability.	"in this context, it still simulates how military leaders are forced into decisions as well [...] So I think it makes it very realistic in this scenario." (IP1)		
Reflection on Moral Decision		Reflection is promoted or diminished by decision making mechanics that either encourage thoughtful engagement and self-examination, enhancing the depth and meaning of the gameplay experience, or lack visible consequences or depth, leading to a more superficial and less engaging experience.	"looking at this decision in retrospect ... makes me feel like I was immoral when comparing my rationalisations then with what I value most while engaged with the current real life world now" (IP12)		

References

- 3909 LLC (2013). *Papers, please*.
- Andrejević, M., Feuerriegel, D., Turner, W., Laham, S., & Bode, S. (2020). Moral judgements of fairness-related actions are flexibly updated to account for contextual information. *Scientific Reports*, *10*(1), 17828. <http://dx.doi.org/10.1038/s41598-020-74975-0>.
- Aristotle, Barnes, J., & Thomson, H. T. J. A. K. (2004). *The nicomachean ethics: Aristotle*. Penguin Classics.
- Arkane Studios (2012). *Dishonored*. United States: Bethesda Softworks.
- Arlı, D., & Pekerti, A. (2017). Who is more ethical? Cross-cultural comparison of consumer ethics between religious and non-religious consumers. *Journal of Consumer Behaviour*, *16*(1), 82–98. <http://dx.doi.org/10.1002/cb.1607>.
- Arrambide, K., Yoon, J., MacArthur, C., Rogers, K., Luz, A., & Nacke, L. E. (2022). "I don't want to shoot the android": Players translate real-life moral intuitions to in-game decisions in detroit: Become human. In *Proceedings of the 2022 CHI conference on human factors in computing systems*. New York, NY, USA: Association for Computing Machinery, ISBN: 9781450391573, <http://dx.doi.org/10.1145/3491102.3502019>.
- Bandura, A. (2015). *Moral disengagement: How people do harm and live with themselves*. Worth Publishers.
- Bavelier, D., & Green, C. S. (2019). Enhancing attentional control: lessons from action video games. *Neuron*, *104*(1), 147–163. <http://dx.doi.org/10.1016/j.neuron.2019.09.031>.
- Bethesda Game Studios (2011). *The elder scrolls V: Skyrim*. Bethesda Softworks.
- BioWare (2009). *Dragon age: Origins*. Electronic Arts.
- BioWare (2014). *Dragon age: Inquisition*. Electronic Arts.
- Bopp, J. A., Mekler, E. D., & Opwis, K. (2016). Negative emotion, positive experience? Emotionally moving moments in digital games. In *Proceedings of the 2016 CHI conference on human factors in computing systems* (pp. 2996–3006). <http://dx.doi.org/10.1145/2858036.2858227>.
- Bopp, J. A., Müller, L. J., Aeschbach, L. F., Opwis, K., & Mekler, E. D. (2019). Exploring emotional attachment to game characters. In *Proceedings of the annual symposium*

- on computer-human interaction in play (pp. 313–324). <http://dx.doi.org/10.1145/3311350.3347169>.
- Bopp, J. A., Opwis, K., & Mekler, E. D. (2018). “An Odd Kind of Pleasure”: Differentiating Emotional Challenge in Digital Games. In *Proceedings of the 2018 CHI conference on human factors in computing systems* (pp. 1–12). New York, NY, USA: Association for Computing Machinery, ISBN: 9781450356206, <http://dx.doi.org/10.1145/3173574.3173615>.
- Bowey, J. T., Friehs, M. A., & Mandryk, R. L. (2019). Red or blue pill: fostering identification and transportation through dialogue choices in rpgs. In *Proceedings of the 14th international conference on the foundations of digital games* (pp. 1–11). <http://dx.doi.org/10.1145/3337722.3337734>.
- Boyan, A., Grizzard, M., & Bowman, N. (2015). A massively moral game? Mass effect as a case study to understand the influence of players’ moral intuitions on adherence to hero or antihero play styles. *Journal of Gaming & Virtual Worlds*, 7(1), 41–57. <http://dx.doi.org/10.1386/jgvw.7.1.41.1>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <http://dx.doi.org/10.1191/1478088706qp0630a>.
- Braun, V., & Clarke, V. (2016). (Mis) conceptualising themes, thematic analysis, and other problems with fugard and potts’ (2015) sample-size tool for thematic analysis. *International Journal of Social Research Methodology*, 19(6), 739–743. <http://dx.doi.org/10.1080/13645579.2016.1195588>.
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589–597. <http://dx.doi.org/10.1080/2159676X.2019.1628806>.
- CD Projekt Red (2015). *The witcher 3: Wild hunt*. Poland: CD Projekt.
- Cicchirillo, V. J. (2020). The impact of video game character viewpoints and task on perceptions of cognitive and similarity identification. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 14(4), <http://dx.doi.org/10.5817/CP2020-4-2>.
- Cohen, T. R., & Morse, L. (2014). Moral character: What it is and what it does. *Research in Organizational Behavior*, 34, 43–61. <http://dx.doi.org/10.1016/j.riob.2014.08.003>.
- Cole, T., & Gillies, M. (2022). Emotional exploration and the eudaimonic gameplay experience: a grounded theory. In *Proceedings of the 2022 CHI conference on human factors in computing systems* (pp. 1–16). <http://dx.doi.org/10.1145/3491102.3502002>.
- Consalvo, M., Busch, T., & Jong, C. (2019). Playing a better me: How players rehearse their ethos via moral choices. *Games and Culture*, 14(3), 216–235. <http://dx.doi.org/10.1177/1555412016677449>.
- Coulson, M., Barnett, J., Ferguson, C. J., & Gould, R. L. (2012). Real feelings for virtual people: Emotional attachments and interpersonal attraction in video games. *Psychology of Popular Media Culture*, 1(3), 176. <http://dx.doi.org/10.1037/a0028192>.
- Cuerdo, M., Baskaran, D., & Melcer, E. (2024). Exploring how emotional challenge and affective design in games relates to player reflection. In *Proceedings of the 19th international conference on the foundations of digital games*. ACM, <http://dx.doi.org/10.1145/3649921.3650023>.
- Cunningham, I. (2014). Strategic interaction in player-sport official encounters. *Procedia-Social and Behavioral Sciences*, 155, 304–311. <http://dx.doi.org/10.1016/j.sbspro.2014.10.297>.
- Daneels, R., Bowman, N. D., Possler, D., & Mekler, E. D. (2021). The ‘eudaimonic experience’: A scoping review of the concept in digital games research. *Media and Communication*, 9(2), 178–190. <http://dx.doi.org/10.17645/mac.v9i2.3824>.
- Denisova, A., Bopp, J. A., Nguyen, T. D., & Mekler, E. D. (2021). “Whatever the emotional experience, it’s up to them”: Insights from designers of emotionally impactful games. In *Proceedings of the 2021 CHI conference on human factors in computing systems* (pp. 1–9). <http://dx.doi.org/10.1145/3411764.3445286>.
- Denisova, A., Cairns, P., Guckelsberger, C., & Zendle, D. (2020). Measuring perceived challenge in digital games: Development & validation of the challenge originating from recent gameplay interaction scale (CORGIS). *International Journal of Human-Computer Studies*, 137, Article 102383. <http://dx.doi.org/10.1016/j.ijhcs.2019.102383>.
- Domsch, S. (2013). *Storyplaying: Agency and narrative in video games* (pp. 13–48). De Gruyter, <http://dx.doi.org/10.1515/9783110272451>.
- Dontnod Entertainment (2015). *Life is strange series*. France: Square Enix.
- Ferchaud, A., & Beth Oliver, M. (2019). It’s my choice: The effects of moral decision-making on narrative game engagement. *Journal of Gaming & Virtual Worlds*, 11(2), 101–118. <http://dx.doi.org/10.1386/jgvw.11.2.101.1>.
- Fischer, F. (2023). *A different take on turn timers*. Game Developer.
- Formosa, P., Ryan, M., Howarth, S., Messer, J., & McEwan, M. (2022a). Morality meters and their impacts on moral choices in videogames: A qualitative study. *Games and Culture*, 17(1), 89–121. <http://dx.doi.org/10.1177/15554120211017040>.
- Formosa, P., Ryan, M., Howarth, S., Messer, J., & McEwan, M. (2022b). Morality meters and their impacts on moral choices in videogames: A qualitative study. *Games and Culture*, 17(1), 89–121. <http://dx.doi.org/10.1177/15554120211017040>.
- Gamito, S., & Martinho, C. (2021). Highlight the path not taken to add replay value to digital storytelling games. In *Interactive storytelling: 14th international conference on interactive digital storytelling, ICIDS 2021, Tallinn, Estonia, December 7–10, 2021, proceedings 14* (pp. 61–70). Springer, http://dx.doi.org/10.1007/978-3-030-92300-6_6.
- Goldman, A. (2020). Gathering data on human-computer interaction: Semi-structured interviews. *Ariel*.
- Grizzard, M., Tamborini, R., Sherry, J. L., & Weber, R. (2017). Repeated play reduces video games’ ability to elicit guilt: Evidence from a longitudinal experiment. *Media Psychology*, 20(2), 267–290. <http://dx.doi.org/10.1080/15213269.2016.1142382>.
- Guglielmo, G., & Klineciewicz, M. (2021). “As if it was moral”: The use of non-player characters (NPCs) to explore morality in video games.
- Guo, Z., & Lo, C.-H. (2023). An empirical framework for understanding a player’s sense of agency in games. *International Journal of Human-Computer Interaction*, 1–20. <http://dx.doi.org/10.1080/10447318.2023.2241286>.
- Haidt, J. (2001). The emotional dog and its rational tail: a social intuitionist approach to moral judgment. *Psychological Review*, 108(4), 814.
- Haidt, J. (2007). The new synthesis in moral psychology. *science*, 316(5827), 998–1002. <http://dx.doi.org/10.1126/science.1137651>.
- Haidt, J., & Joseph, C. (2004). Intuitive ethics: How innately prepared intuitions generate culturally variable virtues. *Daedalus*, 133(4), 55–66.
- Hardin, B. (2016). *Timer conveyance in games*. The Gamer’s Experience.
- Hartmann, T. (2017). The ‘moral disengagement in violent videogames’ model. *Game Studies*, 17(2), URL <http://gamestudies.org/1702/articles/hartmann>.
- Hartmann, T., & Vorderer, P. (2010). It’s okay to shoot a character: Moral disengagement in violent video games. *Journal of Communication*, 60(1), 94–119. <http://dx.doi.org/10.1111/j.1460-2466.2009.01459.x>.
- Heron, M., & Belford, P. (2014). ‘It’s Only a Game’ – Ethics, Empathy and Identification in Game Morality Systems. *The Computer Games Journal*, 3, 34–53. <http://dx.doi.org/10.1007/BF03392356>.
- Ho, J. C., & Ng, R. (2022). Perspective-taking of non-player characters in prosocial virtual reality games: Effects on closeness, empathy, and game immersion. *Behaviour & Information Technology*, 41(6), 1185–1198. <http://dx.doi.org/10.1080/0144929X.2020.1864018>.
- Hodge, S. E., Taylor, J., & McAlaney, J. (2020a). Designing meta-choices in a purpose made game to explore anti-social choices. In *2020 7th international conference on behavioural and social computing* (pp. 1–5). IEEE, URL <https://ieeexplore.ieee.org/document/9348325>.
- Hodge, S. E., Taylor, J., & McAlaney, J. (2020b). Is it still double edged? Not for university students’ development of moral reasoning and video game play. *Frontiers in Psychology*, 11, 1313. <http://dx.doi.org/10.3389/fpsyg.2020.01313>.
- Holl, E., Bernard, S., & Melzer, A. (2020). Moral decision-making in video games: A focus group study on player perceptions. *Human Behavior and Emerging Technologies*, 2(3), 278–287. <http://dx.doi.org/10.1002/hbe2.189>.
- Holl, E., & Melzer, A. (2021a). Kill or spare—moral decision-making in video games. In *Entertainment computing-ICEC 2021: 20th IFIP TC 14 international conference, ICEC 2021, Coimbra, Portugal, November 2–5, 2021, proceedings 20* (pp. 88–99). Springer, http://dx.doi.org/10.1007/978-3-030-89394-1_7.
- Holl, E., & Melzer, A. (2021b). Moral minds in gaming. *Journal of Media Psychology*, <http://dx.doi.org/10.1027/1864-1105/a000323>.
- Holl, E., Steffgen, G., & Melzer, A. (2022). To kill or not to kill—an experimental test of moral decision-making in gaming. *Entertainment Computing*, 42, Article 100485. <http://dx.doi.org/10.1016/j.entcom.2022.100485>.
- Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735–762. <http://dx.doi.org/10.1007/s10902-009-9171-4>.
- Iten, G. H., Bopp, J. A., Steiner, C., Opwis, K., & Mekler, E. D. (2018). Does a prosocial decision in video games lead to increased prosocial real-life behavior? The impact of reward and reasoning. *Computers in Human Behavior*, 89, 163–172. <http://dx.doi.org/10.1016/j.chb.2018.07.031>.
- Lin, W. Y., & Peng, M. (2021). The effects of social perception on moral judgment. *Frontiers in Psychology*, 11, Article 557216. <http://dx.doi.org/10.3389/fpsyg.2020.557216>.
- Joeckel, S., Bowman, N. D., & Dogruel, L. (2012). Gut or game? The influence of moral intuitions on decisions in video games. *Media Psychology*, 15(4), 460–485. <http://dx.doi.org/10.1080/15213269.2012.727218>.
- Kaser, R. (2023). *Red dead redemption 2 has sold more than 50 million copies*. GamesBeat.
- Kroneisen, M., & Steghaus, S. (2021). The influence of decision time on sensitivity for consequences, moral norms, and preferences for inaction: Time, moral judgments, and the CNI model. *Journal of Behavioral Decision Making*, 34(1), 140–153. <http://dx.doi.org/10.1002/bdm.2202>.
- Lange, A. (2014). ‘You’re Just Gonna Be Nice’: How Players Engage with Moral Choice Systems. *Journal of Games Criticism*, 1(1), 1–16.
- Larian Studios (2023). *Baldur’s gate 3*. Belgium: Larian Studios.
- Li, B. Y., & Ho, R. T. H. (2019). Unveiling the unspeakable: Integrating video elicitation focus group interviews and participatory video in an action research project on dementia care development. *International Journal of Qualitative Methods*, 18, Article 1609406919830561. <http://dx.doi.org/10.1177/1609406919830561>.
- Mahood, C., & Hanus, M. (2017). Role-playing video games and emotion: How transportation into the narrative mediates the relationship between immoral actions and feelings of guilt. *Psychology of Popular Media Culture*, 6(1), 61. <http://dx.doi.org/10.1037/ppm0000084>.
- Matthews, N. (2018). The interplay between morality and video games. In *Evolutionary psychology and digital games* (pp. 106–117). Routledge.
- Mäyrä, F. (2017). Dialogue and interaction in role-playing games. *Dialogue Across Media*, 28, 271.

- Mekler, E. D., Iacovides, I., & Bopp, J. A. (2018). "A game that makes you question..." Exploring the role of reflection for the player experience. In *Proceedings of the 2018 annual symposium on computer-human interaction in play* (pp. 315–327). <http://dx.doi.org/10.1145/3242671.3242691>.
- Metz, J. J. (2023). *Red Dead Redemption 2: Ways Honor Actually Affects The Story*. Microsoft Game Studios, Electronic Arts (2007). *Mass effect series*. Bioware.
- Millsap, Z. (2021). Here's How Video Game Quick Time Events Became SO Popular.
- Moore, C. (2015). Moral disengagement. *Current Opinion in Psychology*, 6, 199–204. <http://dx.doi.org/10.1016/j.copsyc.2015.07.018>.
- Neely, E. L. (2019). The ethics of choice in single-player video games. In *On the cognitive, ethical, and scientific dimensions of artificial intelligence: Themes from IACAP 2016* (pp. 341–355). Springer, http://dx.doi.org/10.1007/978-3-030-01800-9_19.
- Nintendo R&D4 (1985). *Super mario bros.*. Japan: Nintendo.
- Obsidian Entertainment (2010). *Fallout: New vegas*. Bethesda Softworks.
- Oliver, M. B., Bowman, N. D., Woolley, J. K., Rogers, R., Sherrick, B. I., & Chung, M.-Y. (2016). Video games as meaningful entertainment experiences. *Psychology of Popular Media Culture*, 5(4), 390.
- Oliver, M. B., & Raney, A. A. (2011). Entertainment as pleasurable and meaningful: Identifying hedonic and eudaimonic motivations for entertainment consumption. *Journal of Communication*, 61(5), 984–1004. <http://dx.doi.org/10.1111/j.1460-2466.2011.01585.x>.
- Palmer, J. (2015). *Time for a timer! - Effective use of timers in game design*. Game Developer.
- Papavlasopoulos, A., Papadopoulou, A., Floros, A., & Giannakouloupoulos, A. (2022). Entropy as a transitional in-game variable. *Technologies*, 10(4), 88. <http://dx.doi.org/10.3390/technologies10040088>.
- Peng, X., Huang, J., Denisova, A., Chen, H., Tian, F., & Wang, H. (2020). A palette of deepened emotions: exploring emotional challenge in virtual reality games. In *Proceedings of the 2020 CHI conference on human factors in computing systems* (pp. 1–13). <http://dx.doi.org/10.1145/3313831.3376221>.
- Phillips-Wren, G., & Adya, M. (2020). Decision making under stress: The role of information overload, time pressure, complexity, and uncertainty. *Journal of Decision Systems*, 29(sup1), 213–225. <http://dx.doi.org/10.1080/12460125.2020.1768680>.
- Possler, D., Daneels, R., & Bowman, N. D. (2023). Players just want to have fun? An exploratory survey on hedonic and eudaimonic game motives. *Games and Culture*, Article 15554120231182498. <http://dx.doi.org/10.1177/15554120231182498>.
- Quantic Dream (2010). *Heavy rain*. Sony Computer Entertainment.
- Quantic Dream (2018). *Detroit: Become human*. Sony Interactive Entertainment.
- Rare (2018). *Sea of thieves*. Microsoft Studios.
- Reeves, B., & Nass, C. (1996). The media equation: How people treat computers, television, and new media like real people. *Cambridge, UK*, 10(10).
- Rennick, S., & Roberts, S. G. (2021). Improving video game conversations with trope-informed design. *Game Studies*, 21(3), URL http://gamestudies.org/2103/articles/rennick_roberts.
- Rockstar Games (2018). *Red dead redemption 2*. USA: Rockstar Games.
- Rockstar North (2013). *Grand theft auto V*. Rockstar Games.
- Rogers, R., Woolley, J., Sherrick, B., Bowman, N. D., & Oliver, M. B. (2017). Fun versus meaningful video game experiences: A qualitative analysis of user responses. *The Computer Games Journal*, 6, 63–79. <http://dx.doi.org/10.1007/s40869-016-0029-9>.
- Ryan, M., Formosa, P., & Tulloch, R. (2019). Playing around with morality: Introducing the special issue on "morality play". *Games and Culture*, 14(4), 299–305. <http://dx.doi.org/10.26503/todigra.v3i2.72>.
- Ryan, M., McEwan, M., Formosa, P., Messer, J., & Howarth, S. (2023). The effect of morality meters on ethical decision making in video games: A quantitative study. *Computers in Human Behavior*, 142, Article 107623. <http://dx.doi.org/10.1016/j.chb.2022.107623>.
- Schein, C. (2020). The importance of context in moral judgments. *Perspectives on Psychological Science*, 15(2), 207–215. <http://dx.doi.org/10.1177/1745691620904083>.
- Scheurle, J. (2020). In defense of the quick-time event: QTEs can be very effective when used well.
- Smith, S. L., Lachlan, K., & Tamborini, R. (2003). Popular video games: Quantifying the presentation of violence and its context. *Journal of Broadcasting & Electronic Media*, 47(1), 58–76. http://dx.doi.org/10.1207/s15506878jobem4701_4.
- Supermassive Games (2015). *Until dawn*. Sony Computer Entertainment.
- Tancred, N., Vickery, N., Wyeth, P., & Turkay, S. (2018). Player choices, game endings and the design of moral dilemmas in games. In *Proceedings of the 2018 annual symposium on computer-human interaction in play companion extended abstracts* (pp. 627–636). <http://dx.doi.org/10.1145/3270316.3271525>.
- Team Salvato (2017). *Doki Doki literature club!*. United States: Team Salvato.
- Telltale Games (2013). *The wolf among us*. Telltale Games.
- Telltale Games, Skybound Games (2012). *The walking dead*. Telltale Games, Skybound Games.
- Tinghög, G., Andersson, D., Bonn, C., Johannesson, M., Kirchlner, M., Koppel, L., & Västfjäll, D. (2016). Intuition and moral decision-making—the effect of time pressure and cognitive load on moral judgment and altruistic behavior. *PLoS One*, 11(10), Article e0164012. <http://dx.doi.org/10.1371/journal.pone.0164012>.
- Toby Fox (2015). *Undertale*. United States: Toby Fox.
- Ubisoft Montreal (2014). *Far cry 4*. Ubisoft.
- Weaver, A. J., & Lewis, N. (2012). Mirrored morality: An exploration of moral choice in video games. *Cyberpsychology, Behavior, and Social Networking*, 15(11), 610–614. <http://dx.doi.org/10.1089/cyber.2012.0235>.
- Whitty, M. T., Young, G., & Goodings, L. (2011). What I won't do in pixels: Examining the limits of taboo violation in MMORPGs. *Computers in Human Behavior*, 27(1), 268–275. <http://dx.doi.org/10.1016/j.chb.2010.08.004>.
- Yaden, J. (2023). *The witcher 3 surpasses 50 million copies sold*. GameSpot.
- Yager Development (2012). *Spec Ops: The Line*. 2K.
- ZA/UM (2014). *Disco elysium*. ZA/UM.