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Article

# Assassins, Gods, and Androids: How Narratives and Game Mechanics Shape Eudaimonic Game Experiences

Rowan Daneels [1,*], Steven Malliet [1,2], Lieven Geerts [3], Natalie Denayer [1], Michel Walrave [1] and Heidi Vandebosch [1]

[1] Department of Communication Studies, University of Antwerp, 2000 Antwerp, Belgium; E-Mails: rowan.daneels@uantwerpen.be (R.D.), steven.malliet@uantwerpen.be (S.M.), natalie.denayer@student.uantwerpen.be (N.D.), michel.walrave@uantwerpen.be (M.W.), heidi.vandebosch@uantwerpen.be (H.V.)
[2] Inter-Actions Research Unit, LUCA School of Arts, 3600 Genk, Belgium
[3] Department of Sociology, University of Antwerp, 2000 Antwerp, Belgium; E-Mail: lieven.geerts@student.uantwerpen.be

* Corresponding author

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**Abstract**
Emerging research has suggested that digital games can generate entertainment experiences beyond hedonic enjoyment towards eudaimonic experiences: Being emotionally moved, stimulated to reflect on one's self or a sense of elevation. Studies in this area have mainly focused on individual game characteristics that elicit singular and static eudaimonic game moments. However, such a focus neglects the interplay of multiple game aspects as well as the dynamic nature of eudaimonic experiences. The current study takes a novel approach to eudaimonic game research by conducting a qualitative game analysis of three games (Assassin's Creed Odyssey, Detroit: Become Human, and God of War) and taking systematic notes on game experiences shortly after playing. Results reveal that emotionally moving, reflective, and elevating eudaimonic experiences were elicited when gameplay notes suggested a strong involvement with the game's narrative and characters (i.e., narrative engagement) and, in some cases, narrative-impacting choices. These key aspects, in turn, are enhanced by clean player interfaces, graphically realistic characters, close camera perspectives, tone-appropriate soundtrack scores, and both narrative-enhancing (e.g., God of War's health mechanic) and choice-enhancing mechanics (e.g., Detroit: Become Human's flowchart). Eudaimonic experiences were also found to evolve throughout the game, with more powerful experiences occurring near the end of the game and some narrative themes fueling the eudaimonic flow of experiences throughout the overall game narrative. This study adds to academic research studying digital games by suggesting an innovative methodological approach that provides a detailed, integrative, and dynamic perspective on eudaimonic game experiences.

**Keywords**
digital games; dynamic approach; eudaimonic entertainment experiences; games; mechanics; narratives; qualitative game analysis

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## 1. Introduction

In the last decade, scholars have shifted from predominantly studying hedonic entertainment experiences like enjoyment (Vorderer, Klimmt, & Ritterfeld, 2004), towards researching eudaimonic experiences. Previous studies have defined eudaimonic entertainment experiences as experiences with mixed affective responses,

heightened cognitive effort, the fulfillment of intrinsic needs (e.g., autonomy, competence, relatedness, and insight), and real-life relevance (Daneels, Vandebosch, & Walrave, 2020; Oliver et al., 2018). Studying eudaimonic experiences in media entertainment is relevant, as these experiences may potentially increase prosocial attitudes and behaviors to help others (e.g., more likely to volunteer or give frequent financial charity donations; see Thomson & Siegel, 2017), may be beneficial for individuals' increased feelings of connectedness with and compassion for others (Janicke-Bowles et al., 2020), and may enhance their long-term well-being (Rieger, Reinecke, Frischlich, & Bente, 2014).

Focusing on digital games, research has shown that they often provide players with emotionally deep stories and characters, realistic in-game choices, and high-quality audiovisuals that make it possible to elicit these eudaimonic entertainment experiences (Rogers, Woolley, Sherrick, Bowman, & Oliver, 2017). In their survey among 512 adult players, Oliver et al. (2016) found that 72% could recall an eudaimonic game experience, concluding that such experiences are not uncommon. Eudaimonic game moments are also experienced by different generations of players: While De Schutter and Brown (2016) found that elderly people can experience eudaimonic enjoyment by playing together, Daneels et al. (2020) showed that adolescent players also have eudaimonic experiences they described as being socially connecting, reflective, emotionally moving, and elevating with a connection to real life.

Since the research field of eudaimonic game entertainment is fairly new, previous research tends to (1) focus on how individual game characteristics (e.g., specific narrative themes; see Bopp, Mekler, & Opwis, 2016) or how players' interactions with these characteristics (e.g., character attachment; see Bowman et al., 2016) elicit eudaimonic experiences, and (2) provide a static and retrospective perspective by investigating players' recollections of singular eudaimonic game moments (Daneels et al., 2020; Oliver et al., 2016). These studies, however, do not provide insight into how various game aspects interact with each other to create eudaimonic experiences, nor do they account for how eudaimonic experiences might evolve while progressing through the game. By playing three recent, critically acclaimed, and theoretically relevant games (i.e., Assassin's Creed Odyssey, Detroit: Become Human, and God of War) and taking systematic notes on different game aspects and (eudaimonic) game experiences shortly after playing, the current study provides a dynamic perspective on how eudaimonic entertainment experiences are elicited and evolve during game play.

## 2. Defining the Player/Game Experience: The Integrated Model of Player Experience

Compared to movies or video clips, digital games are a highly complex, dynamic, and interactive form of media entertainment with a multitude of sensory stimuli such as graphics, soundtrack, and narratives (Elson, Breuer, & Quandt, 2014). In their integrated model, Elson, Breuer, and Quandt (2014) state that the player experience (i.e., the game phase) is elicited through the interplay between the game narrative and mechanics (i.e., the game content), and the game context (Elson, Breuer, Ivory, & Quandt, 2014). The narrative dimension includes aspects such as the game's plot, characters, and their attributes and dialogues. The mechanics dimension includes all rules defining interaction options, feedback cues, and user controls. Finally, the context dimension mainly includes the presence of co-players and the interaction with them.

In the following sections, we connect the literature on eudaimonia and digital games with the integrated model of player experience framework (Elson, Breuer, Ivory, et al., 2014; Elson, Breuer, & Quandt, 2014) by describing how the narrative and mechanic dimension can elicit eudaimonic game experiences. In this study, we will not address the third dimension (social context) as we will focus on single player games only (see also the cases in Section 6.2).

## 3. Eudaimonic Experiences through Digital Game Narratives

### *3.1. Narrative Characteristics and Player–Narrative Interactions*

Both technological and artistic advancements have led to current digital games offering players emotionally complex and engaging stories that potentially lead to eudaimonic game experiences (Rogers et al., 2017). Oliver et al. (2016) showed that a game's story had the strongest connection to eudaimonic experiences. Adolescent players from the study of Daneels et al. (2020) also mentioned that eudaimonic game experiences are more likely to result from single player games with strong story elements than from multiplayer games without these elements. Research has also shown that sudden story twists, difficult narrative themes such as illness, death or social issues, and game events resembling real-life situations can elicit emotionally moving or challenging eudaimonic game experiences (Bopp et al., 2016; Bopp, Opwis, & Mekler, 2018).

Next to these narrative characteristics, players' interactions with the narrative—such as their narrative engagement or involvement—are additional important factors to take into account when discussing eudaimonic entertainment experiences (Daneels et al., 2020; Oliver et al., 2016). Busselle and Bilandzic (2009) state that narrative engagement includes the abilities to understand and focus attention towards the narrative, engage emotionally with the characters (e.g., character attachment), and transition from the real world to the story world (e.g., transportation). Research has also shown that narratives are more powerful and impactful when people

are engaged with them (Nabi & Green, 2015). Linking this to eudaimonic experiences, research on awe-inspiring game experiences by Possler, Kümpel, and Unkel (2019), for example, has found that feeling engaged with the game's narrative can account for the occurrence of eudaimonic game experiences. However, little research to date has directly examined the link between narrative engagement and eudaimonic game experiences.

Besides story elements, characters are also part of a game's narrative (Elson, Breuer, Ivory, et al., 2014). Several concepts such as identification (Cohen, 2001) and character attachment (Bowman et al., 2016) all relate to the notion of a player connecting and feeling closeness towards a game character. These interactive player–character relationships tend to range from seeing characters as objects for their functional value to seeing them as authentic social beings, friends or even as oneself, leading to emotionally valuable relationships with them (Banks, 2013; Bopp et al., 2016). Related to eudaimonic game experiences, previous studies found that feeling emotionally close or engaged to game characters, having a sense of control over the character's actions, and feeling responsible for the character's well-being can lead to these specific game experiences (Bowman et al., 2016; Daneels et al., 2020).

Finally, the unique interactive nature of digital games is often operationalized in terms of being able to make in-game choices to participate in the game's narrative (Iten, Steinemann, & Opwis, 2018). Choices that include information on possible consequences (i.e., consequential choices), choices with a strong impact on the story and progress of the game, moral choices that pit two moral considerations against each other to create a moral dilemma, and social choices involving other, often non-playable characters (NPCs) are perceived as meaningful or eudaimonic by players and/or lead to eudaimonic appreciation of game experiences (Daneels et al., 2020; Iten et al., 2018; Rogers et al., 2017). Furthermore, players have emotionally challenging experiences when they are conflicted between close character relationships and gameplay advantages (cf. emotional vs. functional value of characters) or between the goals of the game and personal values, but also when consequences of choices are ambiguous or present undesirable options (Bopp et al., 2018). These studies all imply that eudaimonic experiences are often elicited by players struggling to make in-game choices.

### *3.2. Game Narratives and Emotional Experiences as Dynamic and Evolving Phenomena*

The studies mentioned in the previous paragraphs tend to take on a static approach, as they study specific eudaimonic moments at a single point in time without addressing how eudaimonic experiences can change or evolve while progressing through the game narrative. Below, we offer a short overview as to how digital game narratives and players' interactions with these narratives form a dynamic process (Wei, 2011), with shifts in the emotional flow of these narrative structures serving as a potentially important factor in eliciting eudaimonic experiences.

Broadly, we can distinguish between traditional linear narratives (i.e., narratives structured in a straight, single authored story direction and typically in the form of predetermined levels or chapters) and nonlinear or branching narratives (i.e., narratives offering players a greater sense of freedom and control through choices that unfold the story in a dynamic fashion). In Ip's (2011) narrative analysis, the 10 analyzed single-player games had mainly linear narrative structures that offer restricted branching opportunities within specific levels (e.g., taking alternative routes, free roaming the game world or exploring side quests) which offered only minor additions to the narrative and player experience.

In addition, game narratives also unfold over time: While playing a game, players progress through the game and its narrative, implying that game narratives are dynamic and evolving phenomena (Wei, 2011). One of the most prominent and established narrative structures, especially within digital games (Glassner, 2004), is that of the monomyth or 'The Hero's Journey' (Vogler, 2007; based on the original work by Campbell, 1949). This narrative structure includes 12 key stages (e.g., stage two 'Call to adventure,' stage four 'Meeting the mentor,' or stage eight 'The ordeal/final boss'; see Ip, 2011, for the full overview) of how compelling stories evolve.

Connecting these dynamic narrative structures to eudaimonic experiences, the dynamic nature of experiencing emotions is a relevant approach to consider, since mixed affective responses are a part of eudaimonic entertainment experiences (Oliver et al., 2018). Nabi and Green (2015) state that studies linking emotional responses to certain narrative outcomes often take on a static approach by focusing on the dominant or final emotional state. A more ecologically valid approach would be to investigate changes or shifts in emotional experiences through the course of an unfolding media narrative, conceptualized by Nabi and Green (2015) as emotional flow. Emotional shifts can include changes in emotional valence as well as changes in intensity of specific emotional experiences. Finally, Nabi and Green (2015) also theorize that emotional shifts might promote continued attention towards and engagement with the narrative. Following Nabi and Green's (2015) call on a more dynamic approach towards emotional experiences and media narratives, this study will examine how unfolding game narratives influence the emotional (or in this case the eudaimonic) flow of experiences.

## 4. Eudaimonic Experiences through Digital Game Mechanics

Next to the narrative, game mechanics (e.g., rules on interaction options, controls, player interface) also have an important influence on player experiences. For example, the Mechanics, Dynamics, and Aesthetics game

design framework (Hunicke, LeBlanc, & Zubek, 2004) states that objective mechanics lead to dynamics relating to the interactions between players and mechanical components which, in turn, lead to experiential aesthetics or emotional responses such as hedonic enjoyment or eudaimonic appreciation. Past research has found that mechanical gratifications only relate to hedonic experiences or enjoyment (Kümpel & Unkel, 2017; Oliver et al., 2016). However, other studies support the notion that game mechanics can enhance and augment the game narrative, leading to both the narrative and mechanics being important catalysts of eudaimonic experiences (Iten et al., 2018; Possler et al., 2019).

Switching to how game design can elicit eudaimonic experiences, one recent study looked at how changes in game mechanics throughout three specific games can lead to eudaimonic experiences (Aytemiz, Junius, & Altice, 2019). These authors discussed how Brothers: A Tale of Two Sons (Starbreeze Studios, 2013) provides eudaimonic story elements through the mechanics (e.g., the player controls two brothers, each brother with one half of the controller) and players' interactions with the mechanics (e.g., when the older brother dies, half of the controls are rendered ineffective). Isbister's (2016) work on emotional game design also stresses the importance of meaningful choices that can influence outcomes and have reflective consequences as an important mechanic towards emotional experiences. Next to this, character customization (i.e., the ability to control how game characters look and feel), something that is often present in role-playing games, can encourage emotional closeness to playable characters and NPCs (Isbister, 2016) and, in turn, lead to eudaimonic experiences (Rogers et al., 2017). Furthermore, Cole and Gillies (2019) show that different possibilities for agency (i.e., the range of actions available to players) are connected to eudaimonic experiences in games. They suggest that interpretive fictional and—to a lesser extent—interpretive mechanical agency are most suited to elicit eudaimonic game experiences, as players who are left to both construct their own understanding of the narrative (i.e., fictional) and reflect on their own actions (i.e., mechanical) could have thought-provoking and emotionally moving experiences. This also leads to believe that having a certain degree of control over mechanics and players' interactions with them, is distinctive from the actual game mechanics themselves. Finally, linked to reflective eudaimonic experiences, there is much research on how games can be seen and used as thought experiments that allow reflective play, moral learning, and ethical reasoning in a safe environment (Schulzke, 2011). For instance, Simkins and Steinkuehler (2008) argue that specific mechanics in role-playing games like open-ended worlds, playing the role of a character, having the ability to make meaningful and consequential choices, and receiving feedback from NPCs on their own actions (i.e., mirroring) might help players reflect on themselves and their own real-life behavior. Game mechanics and design principles can also support the creation of emotional relationships with NPCs by how players receive feedback and have the ability to empathize with or take care of NPCs (Schrier, 2019).

### *4.1. Digital Games as a Demanding Technology*

Taking a dynamic approach towards players' interactions with games and their mechanics, we observe that interactivity in games—which grants players some control to create their own unique experiences—can also be seen as demands that potentially hinder overall game experiences (Bowman, 2018). At least four types of game demands can be distinguished: cognitive (associated with making sense of the game), emotional (associated with making affective investments into the game's narrative), physical (associated with mastering the game's input mechanics), and social demands (associated with social relations with both in-game characters and other players; Bowman, 2018). Related to this is the limited capacity model of motivated mediated message processing (LC4MP; Lang, 2000), which states that media users (here, digital game players) have limited cognitive resources to process the complex and interactive process of playing digital games.

Since eudaimonic experiences require mixed affective responses and heightened cognitive effort (Oliver et al., 2018), the demanding nature of digital games might form barriers to have eudaimonic experiences. Following Elson, Breuer, Ivory, et al., (2014), game mechanics that are too complex or demanding might inhibit reflective processes present in eudaimonic experiences, as cognitive resources of players are limited (following the LC4MP model; Lang, 2000). The same observation can be made regarding controls: although players immediately start forming mental schemata of connections between controller functions and specific in-game actions, players who are either less experienced in playing games in general or struggle with learning specific controller systems will have physically and cognitively demanding experiences (Bowman, 2018). This, in turn, might hinder eudaimonic game experiences as players need to assert cognitive resources in learning the physical input system before being able to become emotionally involved with the game narrative and characters. The demanding nature of learning game controls also relates to the dynamic perspective on eudaimonic game experiences, suggesting that such experiences might only be elicited further in the game when players have already mastered the mechanics.

## 5. The Current Study

The study of eudaimonic entertainment experiences and digital games is an emerging research track within different fields such as media psychology and communication studies. We take a different methodological approach compared to previous studies (e.g., Daneels et al., 2020;

Oliver et al., 2016) by playing through three specific games and taking systematic notes on (eudaimonic) game experiences shortly after playing. This study will address: (1) How eudaimonic game experiences are elicited through the interplay between narrative and mechanic aspects; and (2) how players' interactions with these aspects dynamically evolve while playing the game. This leads to the following research question:

> RQ: How do the changing interactions between players, narrative, and mechanic aspects of the analyzed games elicit eudaimonic experiences?

## 6. Methods

### *6.1. Procedure*

We conducted a qualitative game analysis combined with the immediate reporting of eudaimonic game experiences similar to a think-aloud protocol. Data collection occurred by playing through the games while systematically taking notes using the analysis scheme proposed by Malliet (2007). This scheme records several dimensions such as graphics and soundtrack, story elements, characters, in-game choices, player interface, and so forth (see the Supplementary File for the detailed scheme). The researchers performed several test sessions before the actual data collection to get acquainted with the analysis scheme and, after discussing these test cases, maintained similar interpretations of the scheme's dimensions as well as the study's central concepts across all researchers.

Five researchers played the games and performed the analysis on the notes to address player diversity (e.g., differences in playstyles, game experience and mastery, levels of engagement; see Schmierbach, 2009) and create more potentially diverse readings of the game (Malliet, 2007). The first two authors analyzed all three games and three undergraduate students (including the third and fourth author) each played one game, leading to three different readings per analyzed game and nine in total. Beyond using multiple player-researchers, we performed an additional reading of secondary resources—including game reviews, walkthroughs and blogposts—of all three games to account for player diversity and obtain different readings of the games (Malliet, 2007).

We divided the game content into distinct analysis units based on either pre-defined chapters and missions (i.e., syntactical categorization) or time categories of up to 30 minutes (i.e., temporal categorization) for games with lengthy missions or without clear chapters, to make detailed notes (Schmierbach, 2009). While the student players and the second author recorded notes for approximately 20 hours of gameplay, the first author recorded notes for the entire games (i.e., when the game's story had ended). This methodological approach of analyzing entire games is both innovative and fitting to explore dynamic game experiences, as we play through the entire game and its narrative compared to examining early-game, specific, and static experiences in short gameplay sessions (Schmierbach, 2009).

### *6.2. Cases*

We chose to analyze three different digital games available on PlayStation 4: Assassin's Creed Odyssey (Ubisoft Quebec, 2018), Detroit: Become Human (Quantic Dream, 2018), and God of War (SIE Santa Monica Studios, 2018). The selection of these games is based on several criteria. Firstly, the analyzed games are theoretically relevant, as they all include strong emotional narratives, characters, and choices—each are aspects found in previous research to be of importance to eudaimonic game experiences (Daneels et al., 2020; Rogers et al., 2017). Assassin's Creed Odyssey is set in Ancient Greece, where players control either a male (Alexios) or female (Kassandra) protagonist that has to deal with family issues and dangerous plots relating to a secret cult directly tied to the player's character. Detroit: Become Human is set in 2038 Detroit where players control three human-like androids in three intertwined storylines who struggle with social injustice and domestic abuse. God of War is set in Norse mythology, where the player is Kratos, the Greek god of war, who is charged with raising his 10-year-old son Atreus alone after his wife dies. Secondly, the analyzed games are all recent, popular, and critically acclaimed games (e.g., Game of the Year award for God of War; see Massongill, 2019) that might reach the average player, compensating for the small and deliberative sample (Schmierbach, 2009). Finally, the analyzed games include a diversity of narrative structures (Ip, 2011) and mechanic systems to create a balanced sample: Detroit: Become Human is a narrative-focused game with a branched narrative structure, Assassin's Creed Odyssey is a 3rd person action/adventure game with an open world (i.e., linear narrative with branching in specific levels) and role-playing game elements (e.g., leveling system, looting, skill tree), and God of War is a 3rd person action/adventure game that combines elements from the two previous games (i.e., narrative-driven game with some role-playing game elements).

### *6.3. Coding and Analysis*

The recorded gameplay notes were analyzed by the five researchers who also played the games using the NVivo 12 software package, with each researcher coding their own gameplay notes. While giving labels or codes to separate pieces of the text, the researchers used axial coding to categorize these codes in the different dimensions of the analysis scheme. A separate category was made for the codes related to the different eudaimonic experiences derived from playing the games. Iterative rounds of identifying, structuring, and restructuring categories occurred until no new topics and categories could be derived from the data. Following the analysis pro-

cedure by Malliet (2007), all player-researchers wrote down separate provisional analysis reports based on their own axially coded data and specific eudaimonic experiences. These reports were then discussed among all the player-researchers of the three games. We combined all these discussion sessions in a final analysis report combining all three games. This was used as a basis for the results section below. Next to the gameplay notes, the consultation of several secondary resources was used to either confirm or contradict the player-researchers' eudaimonic experiences, as well as to provide a more detailed insight into different narrative and mechanic aspects of the specific games.

## 7. Results

The findings reported below are derived from both the analyzed player-researchers' gameplay notes and the additional reading of secondary resources of the three games. During our playthrough of the three selected games, the five player-researchers encountered three types of eudaimonic experiences: emotionally moving, reflective on one's personal self or on society, and elevating (i.e., heartwarming and uplifting feelings in response to acts of kindness, altruism, sacrifice, and so on; see Ellithorpe, Ewoldsen, & Oliver, 2015) experiences.

While we distinguished three key narrative themes contributing to eudaimonic experiences, in the next sections we will present our analysis on one specific, arguably the most important theme: the exploration and evolution of family relationships. As this narrative theme is present in all three analyzed games, we will discuss how engagement with this narrative theme led to different eudaimonic experiences, how this theme and associated eudaimonic experiences evolve throughout the game (narrative), and how engagement with this theme is enhanced by several audiovisual and mechanic aspects interacting together to create eudaimonic experiences. Afterwards, we present a visual model of how this interplay between narratives and mechanics leads to eudaimonic game experiences.

### *7.1. The Evolving Relationship between Kratos and Atreus (God of War)*

The titular hero Kratos, the former Greek god of war, has no idea how to be a father or how to comfort the grieving Atreus, who just lost his mother Faye. Especially in the first chapters, this distant father-son relationship leads to both emotionally moving (e.g., Kratos' difficulties expressing his emotions towards the mourning Atreus, for instance, when he refrains from laying his hand on Atreus' shoulder to comfort him) and reflective experiences (e.g., one player-researcher mentioned this made him reflect on his own difficult father-son relationship). Throughout the game, their relationship grows as they start to trust and communicate with each other, in turn leading to several elevating experiences (e.g., when Atreus sacrifices himself during the final battle against Baldr by throwing himself in front of his father to catch Baldr's blow). Besides the player-researchers' gameplay, other players' readings led to similar experiences: The organically growing relationship between the two main characters is the reason why the game's story works so well and why the narrative packs a huge emotional punch (Dunthorne, 2019).

Framing this within 'The Hero's Journey' narrative structure, emotionally moving and reflective experiences occurred throughout the different narrative stages, while elevating experiences mainly occurred towards the end of the game. For instance, Atreus' heartwarming sacrifice happens in stage eight (the final ordeal), while stage nine (the reward) consists of Kratos and Atreus reaching the heartwarming end of their journey by spreading Faye's ashes together and seeing how their relationship improved over the course of their journey.

Engagement with this narrative theme in God of War is enhanced by several other aspects of the game, for example, by how little on-screen information players get to see. This clean player interface allows players to focus on the narrative without too many artificial indicators, leading players to forget they are in the game. Furthermore, the interplay between audiovisual aspects such as using motion capture technology that represents detailed affective facial expressions of Kratos and Atreus, the use of close-ups to focus on these facial expressions during conversations between father and son (see Figure 1 for an example), and the close-third person camera perspective looking over Kratos' shoulder provides more narrative engagement with this key narrative theme to elicit eudaimonic experiences (see also PlayStation, 2018). Besides these audiovisual aspects, the game also provides two mechanics that subtly intensify this evolving father-son relationship and, in turn, lead to emotionally moving and elevating experiences. Firstly, the spatial structure of the game world frequently requires Kratos and Atreus to work together to solve puzzles and get past certain obstacles to progress in the game. For example, Atreus often gets a push from Kratos to reach a higher up area and Atreus lowers down a rope so Kratos can climb up. In other areas, Atreus needs to solve puzzles involving Norse runes that only he can read, implying that Kratos fully relies on Atreus. Secondly, a specific health mechanic refers to audio cues from Atreus—next to the traditional visual health bar—to warn Kratos and the player when his health is low: He screams at Kratos when his father is almost dead or when he asks Kratos if he is doing alright.

### *7.2. The Evolving Relationship between Kara and Alice (Detroit: Become Human)*

Only Kara's storyline, which mainly deals with the evolving relationship between the android Kara and the young girl Alice, who try to survive on the streets of Detroit, leads to emotionally moving and elevating experiences

**Figure 1.** Close-up of a heartwarming interaction when Kratos kneels before his son in a close and gentle manner to fix his broken quiver (taken from in-game screenshot). Source: SIE Santa Monica Studios (2018).

in this narrative theme. After escaping Alice's abusive father Todd at the beginning of the story, Kara must take care of Alice, although Kara (being an android) has no experience with being a mother. Their struggles to survive create both emotionally moving moments (e.g., when they have no place to sleep or when Alice gets ill later in the game) and heartwarming moments (e.g., when Kara and Alice interact with each other, grow towards each other, and develop a mother-daughter bond in the process). However, Detroit: Become Human also evoked feelings of uneasiness and even existential confusion for one player-researcher due to the moral reflection on humans vs. machines and both the humanization of androids (e.g., showing off beautiful human emotions like love between Kara and Alice) and dehumanization of the human characters (e.g., showing off awful moral actions such as domestic violence). Because the game is also played from the perspective of the androids (i.e., internal narrative focalization; see Ip, 2011), the player-researcher experiences empathy towards androids, but an existential confusion also arises when considering the thought of androids gaining too much freedom and power leading to a futuristic dystopian scenario. While this uneasiness hindered having affective-based eudaimonic experiences (i.e., feeling emotionally moved and elevation), it did lead to reflective eudaimonic experiences.

Eudaimonic experiences within this narrative theme evolve from smaller eudaimonic moments at the start of the game towards more powerful experiences near the end of the game narrative. As Kara and Alice see their goal in sight (escaping to Canada by boat), during their escape the boat is shot by the police, leading to an emotional ending of their story as they die in each other's arms on the snowy Canadian shore.

Similar to God of War (see Section 7.1), the clean player interface, the use of motion capture technology to create realistic facial expressions (e.g., Kara's smile is realistic for an android), and the use of close-ups to focus on these facial expressions during conversations between Kara and Alice, enhances narrative engagement with this key theme (also see Cooper, 2018). In addition, the often sad and somber soundtrack theme in Kara's storyline, symbolizing their desperation, announces and elicits emotionally moving experiences when they have another setback to deal with. Finally, Detroit: Become Human's branched narrative structure entails that players are frequently presented with in-game choices. Especially choices determining the narrative path for each playable character have found to both directly elicit eudaimonic experiences and indirectly through enhancing engagement with the narrative. Heartwarming interactions between Kara and Alice often occur as a result of the player's choice to comfort Alice by saying things like "everything will work out as long as we are together," continuously ask Alice if she is alright, and showing physical affection by kissing her on the forehead. Two unique mechanics in Detroit: Become Human connected to narrative engagement and in-game choices that improve chances of eliciting eudaimonic experiences are the displayed branched structure after completing each chapter (see Figure 2 for an example) and an appreciation system that shows off dispositions of important NPCs towards the playable characters. Firstly, the flowchart shows choices the player has made, the narrative consequences of these choices, as well as how and when making other choices would have led to other outcomes. The display also shows which choice moments were definitive to determine life and death of both important NPCs and the own playable characters. This mechanic provides emotionally moving or elevating experiences in a retrospective manner, for example when seeing a moving choice has led to the death (i.e., moving) or survival (i.e., elevating) of a character.

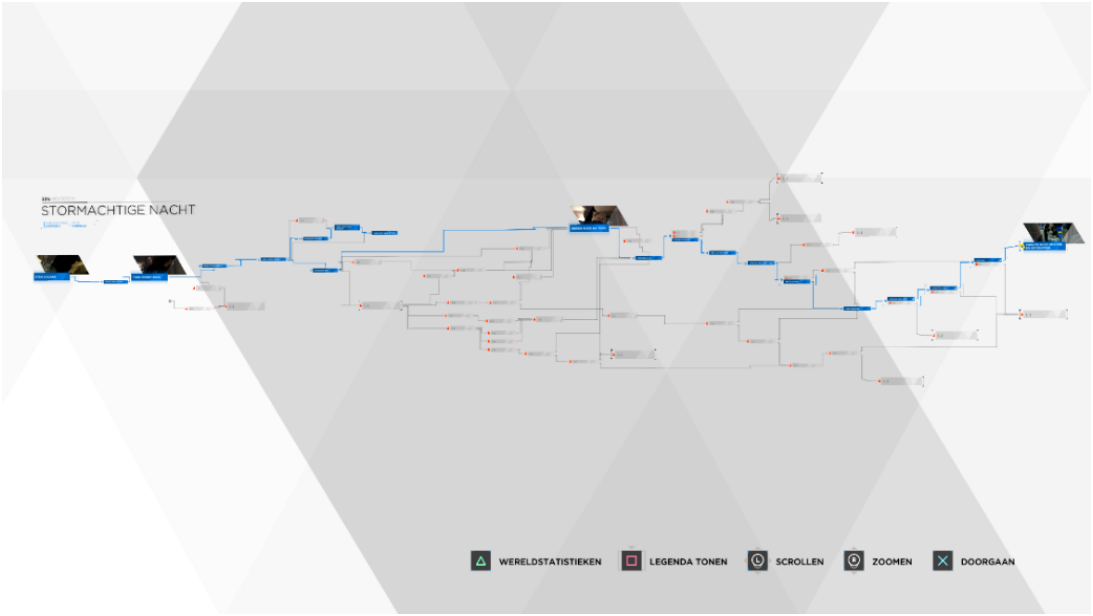


**Figure 2.** Flowchart mechanic of Detroit: Become Human chapter seven 'Stormy Night,' with the blue line depicting the narrative path taken during that specific playthrough by one player-researcher (taken from in-game screenshot). Source: Quantic Dream (2018).

Secondly, several important NPCs in each storyline have a certain mood or disposition (e.g., neutral, loving, hostile) towards the playable character, influenced by the actions and choices made by the player. Focusing on this specific narrative theme, Alice's disposition starts out with a neutral feeling towards Kara, which evolves into warm when the player chooses to take care of and comfort her. This mechanic is an important factor to elicit eudaimonic experiences as it provides direct feedback on the player's choices, enhancing engagement with the narrative in the process. It also shows how the NPC dispositions change over time and how connected eudaimonic experiences evolve with them.

### *7.3. The Relationship between Alexios, Kassandra, and Myrinne (Assassin's Creed Odyssey)*

Within Assassin's Creed Odyssey, two main relationships lead to eudaimonic experiences: the players' relationship with both their long-lost mother Myrinne and their long-lost sibling Alexios/Kassandra (depending on the initial gender choice of the playable character). The first relationship leads to moving and heartwarming moments when the player is reunited with Myrinne after so many years. The second relationship is with the sibling, who turned out to be the secret weapon of the cult that tries to kill the player's family. The most moving and heartwarming experiences here occur at the end of the story, during the final confrontation with the sibling. After he/she draws his/her sword to attack the playable character and Myrinne, the player can choose to take a risk and sacrifice him-/herself by offering the sibling his/her spear. This sacrifice is a heartwarming moment in and of itself, but the sacrifice also breaks the brainwashed sibling. This moment is touching as players get to witness what all their decisions have led to: the player gets the happy ending and accomplishes the sibling's transformation. The sacrifice also leads to the heartwarming final mission 'Dinner in Sparta,' where the player dines with their reunited family.

Assassin's Creed Odyssey fits well within the narrative structure of 'The Hero's Journey.' Using this, the eudaimonic experiences mentioned above are situated mainly within stages eight and nine (i.e., the final battle and the reward), near the end of the game. The reward of playing through the narrative and the final confrontation leads to close family relationships with the playable character's relatives. However, these family relationships do not evolve over time, implying that this narrative theme within Assassin's Creed Odyssey elicits only static eudaimonic experiences.

Similar to God of War (see Section 7.1) and Detroit: Become Human (see Section 7.2), the game uses motion capture technology to show off graphically realistic facial expressions of characters, which enhances engagement with them. The game also includes small in-game choice opportunities along with several major choice moments. The latter type decides how much of the playable character's family is still alive at the end of the game (for an overview of these choices; see Reseigh-Lincoln, 2018). Since the most important eudaimonic experience in this game is connected to this specific narrative theme and to having the best possible ending (i.e., having a reunited family and a heartwarming dinner with everyone), these narrative-impacting choices have a direct influence on eliciting eudaimonic experiences. However, engagement with this narrative theme is also diminished by several aspects throughout the game. For example, the

player interface permanently shows on-screen information like the current mission, character level, health and adrenaline bars, and nearby objects, drawing the attention away from the narrative and connected eudaimonic experiences. There is also an imbalance between the linear narrative structure and role-playing game mechanics during the second half of the game. Specifically, the combination of level gating (i.e., small level differences between the player's character and enemies cause disproportionally difficult battles) and big differences between subsequent missions in the main narrative and character levels (e.g., the first mission's level is 24, while the next is 31) creates frustrating experiences (also see LifeOnMarsden, 2019). This combination forces players to play optional side quests without major narrative value and grind for experience points to level-up the character, so players can continue the main narrative. In turn, these often-extended grind sessions hinder engagement with the main narrative and specific eudaimonic themes. One specific reaction from the player-researchers' gameplay analysis illustrates this claim, as they reported less emotional engagement with the narrative and less reflective moments as a result of the game's main focus on the experience points system, the open world, and other role-playing mechanics.

### *7.4. Integrated Model of Game Aspects Eliciting Eudaimonic Experiences*

To summarize our findings on how the interplay between narrative elements and mechanics shape eudaimonic game experiences, we present a visual model below (see Figure 3). The model includes engagement with key narrative themes and characters, narrative-impacting choices, a clean player interface, audiovisual aspects, and both narrative- and choice-enhancing mechanics. The model shows that, overall, the narrative aspects directly elicit eudaimonic experiences, while the audiovisual and mechanic aspects enhance these narrative aspects, indirectly leading to eudaimonic experiences.

## 8. Discussion

The present study provides an integrated and dynamic understanding of how the interplay between players, narrative, and mechanics elicit eudaimonic game experiences. Overall, we find that eudaimonic experiences occur more frequently when mechanics support and blend well with key narrative themes also identified in previous studies (such as close family relationships; Bopp et al., 2016, 2018). While this balance was experienced

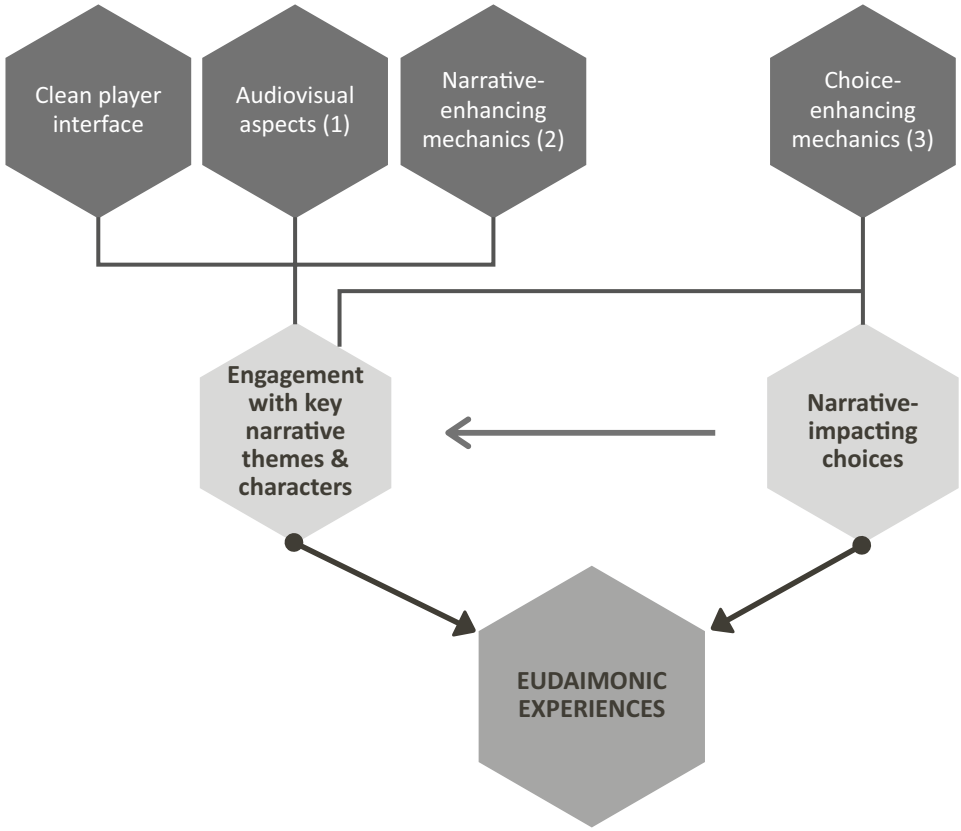


**Figure 3.** Visual representation of narrative and mechanic aspects interacting to elicit eudaimonic experiences. Notes: Audiovisual aspects (1) include realistic environmental graphics, realistic character graphics (motion capture), camera perspectives, and soundtrack—main scores; Narrative-enhancing mechanics (2) include the health mechanic and spatial structure of the game world in God of War; Choice-enhancing mechanics (3) include the flowchart of the branched narrative and the NPC appreciation mechanic in Detroit: Become Human.

for both God of War and Detroit: Become Human, the player-researchers of Assassin's Creed Odyssey mostly experienced an imbalance between the narrative and mechanics. The game forces players to really grind for experience points in a manner similar to how playing games can almost feel like working, which Yee (2006) termed as the labor of fun in his work. In turn, this imbalance led to less eudaimonic experiences while playing the game.

Results also show that providing players with a clean player interface, graphically realistic characters through, for example, motion capture, different camera techniques closing the gap between players and characters, tone-setting soundtrack main scores, in-game choices, and several unique mechanics (e.g., the NPC appreciation system in Detroit: Become Human) enhances engagement with these eudaimonic narrative themes, as these facilitate a better understanding of the key narrative themes, a stronger emotional connection with the characters linked to these themes, and transportation into the game world (Busselle & Bilandzic, 2009). For example, we observed that less on-screen information allows players to focus more on the eudaimonic narrative themes and be immersed in the game world, sometimes forgetting they were playing a fictional game. This connects to the concept of suspension of disbelief (i.e., the willingness to temporarily forget the narrative/environment is fictional), an important prerequisite to enjoy media entertainment (Vorderer et al., 2004), which also might be important to elicit eudaimonic game experiences. Besides this, in-game choices impacting the narrative in Assassin's Creed Odyssey and Detroit: Become Human have also been found in previous studies to elicit eudaimonic game experiences (Cole & Gillies, 2019; Daneels et al., 2020; Iten et al., 2018). However, choice mechanics and branched narrative structures are not a requirement to elicit eudaimonic experiences, as God of War provided some of the strongest eudaimonic experiences while having a linear narrative structure.

Finally, an innovative perspective of this study is examining the dynamic nature of eudaimonic experiences. Results show that the affective eudaimonic experiences (i.e., emotionally moved and elevation) evolve throughout the game, whereas reflective experiences do not. The more powerful eudaimonic experiences occurred near the end of the game narrative, often in rewarding situations after a final confrontation (cf. 'The Hero's Journey'; see Glassner, 2004; Vogler, 2007). A possible explanation here is that emotionally valuable player–character relationships, which are essential to eudaimonic experiences (Bowman et al., 2016), are closer near the end of the game narrative. Another explanation lies with the LC4MP model (Lang, 2000), as eudaimonic experiences are experienced later on in the game after players can use more cognitive resources to focus on the eudaimonic narrative and need to invest less of these resources after mastering the mechanics and control systems. The games also include both dynamic eudaimonic experiences, interwoven throughout the games' overall setting and narrative (e.g., family relationships in God of War and Detroit: Become Human), and singular static eudaimonic moments (e.g., heartwarming family dinner in Assassin's Creed Odyssey).

### *8.1. Limitations and Future Research*

Despite the merits of this study, it also has some limitations to consider when interpreting the results. Arguably the most apparent drawback of the study is the limited sample size in both the number of player-researchers (three per game) and number of analyzed games (three games). Previous game analyses (e.g., Ip, 2011) have experienced similar issues regarding generalizability and subjectivity of the obtained results. The current study attempted to account for this subjectivity by letting three players analyze each game as well as complement our gameplay notes with an additional reading of secondary resources like walkthroughs, blogposts, and reviews including other players' readings. Conversely, a benefit of focusing on a small number of games is that each one could be analyzed in depth, examining every aspect of each game in terms of their ability to elicit eudaimonic experiences with the principal goal of expanding on extant theories of eudaimonia in digital games. Future research should attempt to replicate these results, or perhaps even expand on them, by considering other elements that could contribute to eudaimonic experiences in various types of games and players.

Another limitation of this study is that it focused only on single player games for analyses. Despite the difficulty of analyzing multiplayer games (e.g., having different modes and other real-life players strongly influencing the analyzed content; see Malliet, 2007), leaving them out of the analysis led to missed opportunities to study how the social context dimension (next to narrative and mechanics; Elson, Breuer, & Quandt, 2014) impacts eudaimonic game experiences.

Beyond the limitations of the study, future research should try to build upon our exploratory qualitative work by quantitatively testing several proposed relationships. Possible research paths include testing the importance of narrative engagement to eudaimonic game experiences, using the measurement instrument of Busselle and Bilandzic (2009), and how digital games' demanding nature on specific dimensions of demand (Bowman, 2018) hinder or strengthen the elicitation of eudaimonic experiences.

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## Conflict of Interests

The authors declare no conflict of interests.

## Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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**About the Authors**

**Rowan Daneels** is a PhD Researcher at the Department of Communication Studies, University of Antwerp, Belgium. He holds two MSc degrees in Communication Sciences at the University of Antwerp (specialization Media Studies) and Ghent University (specialization New Media and Society). His research interests include topics such as digital games, positive media psychology, eudaimonic media entertainment, and elevation; specifically focusing on adolescents as a target group.

**Steven Malliet** is an Associate Professor at the Department of Communication Studies, University of Antwerp, Belgium, and a Senior Lecturer/Researcher at the LUCA School of Arts in Genk, Belgium. He holds a PhD in Communication Sciences from the KU Leuven, and his research interests focus on digital game effects, player experiences, serious games, and game realism.

**Lieven Geerts** holds a BSc in Sociology from the University of Antwerp, and is currently a Master's student in Sociology at the University of Antwerp, Belgium.

**Natalie Denayer** holds a BSc in Communication Sciences from the University of Antwerp, and is currently a Master's student in Communication Sciences at the University of Antwerp, Belgium.

**Michel Walrave** is a Full Professor at the Department of Communication Studies, University of Antwerp, Belgium, and the Spokesperson of the Media and ICT in Organizations & Society research group. He holds a PhD in Communication Sciences from the KU Leuven. In his research, he investigates individuals' self-disclosure and privacy in interpersonal online communication and consumers' entrusting of personal data to businesses for marketing purposes.

**Heidi Vandebosch** is a Full Professor at the Department of Communication Studies, University of Antwerp, Belgium. She holds a PhD in Communication Sciences from the KU Leuven. Her research focuses on cyberbullying among children and adolescents: prevalence, profiles of bullies and victims, impact, and the development of evidence-based interventions (e.g., serious games, narrative interventions, etc.).