

The Entertaining Appeal of Video Game Aesthetics

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Abstract

THEORY PAPER: Although it is increasingly acknowledged that games can be understood as aesthetic artifacts (i.e., art), entertainment research has often overlooked the entertaining potential of the medium's aesthetic qualities. Thus, the present contribution develops a model that systematizes the manifold consequences of aesthetic game elements on players' entertainment experiences. For this purpose, theoretical accounts from the psychology of aesthetics (Leder et al., 2004), considerations on movie aesthetics (Tan, 1995) and a dual-mode-perspective on video game processing (Hartmann, 2011, 2013) are connected with a multidimensional account of game entertainment. The resulting model illustrates that the game aesthetics can contribute to hedonic and eudaimonic entertainment experiences. An analytical, distanced mode of processing games proves to be of particular importance for the realization of these entertainment-potentials. The model, thus, suggests determinants and dynamics of players' analytical awareness for game aesthetics. The discussion highlights how the model advances the understanding of game entertainment.

Keywords: aesthetics, entertainment, enjoyment, appreciation, sound, graphic, style

Are video games art? Although there has been some debate about this question (see McKernan, 2019), a growing number of scholars agree video games should be understood as aesthetic artifacts (e.g., Gee, 2006; Kirkpatrick, 2011; Smuts, 2005; Tavinor, 2009). Similarly, art institutions such as the *Smithsonian American Art Museum* (2012) recently began to dedicate exhibitions to video games. From the perspective of video game entertainment research the trend to understand games as art is interesting for two reasons. First, it illustrates how much the medium has matured from a simple technical demonstration to a complex form of entertainment (for a history of video games: Ivory, 2015). Second, understanding games as art also sheds light on a quality often overlooked in video game entertainment research—their aesthetic appeal. In fact, numerous theoretical models and empirical findings attest to the centrality of video games' mechanics and narratives as well as social interactions among players for the formation of entertainment experiences (Vorderer & Bryant, 2006; Klimmt & Possler, 2019; Authors, in Press). In contrast, far less is known about the entertaining potential of how games look, sound and feel (Klimmt et al., 2019). This research gap is remarkable, as the video game industry invests a great deal of resources in optimizing the graphics and sound of the medium (Collins, 2008; Therrien, 2008). When communication research has investigated the appeal of such aesthetical advancements in the past, their entertaining potential was mostly attributed to the high capacity of better graphics and richer sound to mirror sensory experiences from the material world and hence to absorb players (e.g., Cummings & Bailenson, 2016). Being absorbed into a game world, narrative, social interaction or virtual character is in turn characterized as an entertaining experience (e.g., Klimmt et al., 2009; Sangalang et al., 2013; Tamborini & Skalski, 2006). However, if games really represent an aesthetic artifact, as various scholars argue (see above), their entertaining value may not only stem from their *content*. Rather the *form* or *style* of a game should be entertaining in their own right, similar to a painting or a movie that can be entertaining not only because of its subject matter but also due to its style and artistic qualities (Cupchik &

Kemp, 2000; Leder et al., 2004). In line with this assumption, it has been argued in the context of so-called indie games that reflecting on the style of a game can be entertaining for its own sake (e.g., Juul, 2019; Thon, 2019).

Against this background the present contribution presents a theoretical model that aims to explain how video game aesthetics affect players' entertainment responses not only by creating believable illusion but also by eliciting reflective, aesthetic cognitions and emotions. To this end, we will first shortly define entertainment experiences and game aesthetics and review prior research on their relationship. In a second step, we draw on a dual process theory of video game processing (Hartmann, 2011, 2013) as well as a psychological model of aesthetic experience of art (Leder et al., 2004) to explain how the artificial qualities of a game may facilitate entertainment responses via a reflective or an experiential path. Third, we discuss player- and game-related factors that influence on which of these two paths video game aesthetics will realize its entertaining potential. Fourth and finally, our discussion highlights how the suggested model advances our understanding of video game entertainment.

1 Aesthetics as (new) facilitator of video game entertainment experiences

1.1 Video game entertainment experiences

As media users may regard a large diversity of physiological, cognitive and affective responses to media products as entertaining a precise definition of what constitutes entertainment experiences is problematic (Klimmt & Vorderer, 2010). For example, players may consider a close *FIFA* match, the calm atmosphere of *Animal Crossing*, the shallow action of *Doom Eternal* or the morally loaded story of *The Last of Us* as entertainment. Recent “two-factor models of entertainment” (Vorderer & Reinecke, 2015, p. 449), thus, differentiate two broad classes of entertainment reactions—hedonic and eudaimonic experiences—that can materialize in various forms (Raney et al., 2019; Raney & Bryant, 2019). *Hedonic* reactions have traditionally been the focus of (game) entertainment research (Klimmt & Possler, 2019). These classes of reactions directly or indirectly represent positive,

pleasurable, enjoyable experiences (Vorderer et al., 2004). *Eudaimonic experiences*, on the other hand, have only recently captured the attention of game scholars (Klimmt & Possler, 2019), sometime after they had been introduced to the study of movie entertainment (Oliver & Bartsch, 2010). Based on the philosophical idea that people are happy when they seek “virtue, excellence, and the best within [them]” (Huta & Waterman, 2014, p. 1427), eudaimonia in the gaming context is often defined as finding existential meaning and self-reflective insights, being emotionally moved and experiencing personal growth (e.g., Daneels et al., 2020; Mekler et al., 2018; Oliver et al., 2016; Possler et al., 2020; Rogers et al., 2017).

The differentiation between the hedonic and eudaimonic classes of entertainment responses should, however, not imply that they are opposite ends of a continuum. Rather, a medium could be able to elicit hedonic and eudaimonic entertainment experiences simultaneously (Oliver & Bartsch, 2011). Empirical findings confirm that a given video game can elicit both intense eudaimonic experience such as meaningfulness and intense forms of pleasure (i.e., hedonic experiences; e.g., Oliver et al., 2016; Possler et al., 2020).

1.2 Video game aesthetics

The term aesthetics has been used inconsistently in the video game research literature (Niedenthal, 2009). In the present contribution the term exclusively refers to games’ *sensory characteristics* (Niedenthal, 2009). Video games are, thus, conceptualized as multi-layered messages. In order to derive a better understanding of game aesthetics we will briefly discuss the main layers of the medium and differentiate them from aesthetics.

Different systemizations of video game layers have been suggested (Authors, in press; Elson et al., 2014; Hunicke et al., 2004). The recently developed ANSA-model (Authors, in press) seems to be particularly useful here, as it explicitly considers aesthetics as one main layer of games and analyzes the medium from an entertainment-theoretical standpoint. The model rests on the assumption that interactivity is the key feature of video games that distinguishes them from many other entertainment media such as films or books (Grodal,

2000; Juul, 2005; Weber et al., 2014). Thus, games are not pre-produced, fixed messages but are realized in the reciprocal exchange of information between player and software (Klimmt, 2003; Vorderer, 2000). Interactivity materializes in multiple layers during video game use.

The following four dimensions proved to be particularly relevant for the formation of entertainment experiences (Authors, in press): (1) Video games enable and demand players to be active and ensure that a desired outcome (e.g., ‘winning’) is achieved (Juul, 2005; Salen & Zimmermann, 2004). Due to this *agency* layer, games require players to invest a considerable amount of attentional and processing resources (Bowman, 2018; Lang, 2006). (2) Video games often involve a *narrative* layer, that is, they present some kind of (interactive) story, characters and setting (Aarseth, 2012; Ip, 2011; Lee et al., 2006). (3) Many video games enable *social interactions* and allow multiple players to jointly realize the state of the game in a cooperation or competition (Chan & Vorderer, 2006; Schmierbach et al., 2012). (4) *Aesthetics* is the fourth and final layer of games that refers to the sensory “packaging” of the other three (Niedenthal, 2009). We, thus, understand video games as aesthetic artifacts in the sense that they combine a subject matter / content and a style / form (Cupchik & Kemp, 2000; Klimmt, 2011). The subject matter comprises all semantic information of the game which can mostly be located on the other three layers, that is, the state and progress of the game (“score”, agency), the story and its components (narrative) as well as other players’ actions (social interaction). In contrast, the style refers to how the “physical/sensory qualities [...] are organized and affect sensory experiences” (Cupchik & Kemp, 2000, p. 249). That means, video games present semantic information by addressing multiple sensory modalities in a specifically and organized manner, including vision, audio, and sometimes haptics (Authors, in Press). Put simply, aesthetics, refers to the question of how a game looks like, how it sounds and feels haptically (Niedenthal, 2009).

Video games feature a large diversity with regards to their aesthetics. While some video games display similarities to movie entertainment (e.g., high-end, detailed computer-

generated imagery, orchestral musification, powerful soundscapes), especially independent and experimental games diverge from such presentation routines (Juul, 2019).

1.3 State of research: Effects of game aesthetics on entertainment experiences

Although the discussion above attests that aesthetics is an integral element of video games, their capacity to entertain players has only rarely been studied (Klimmt et al., 2019; Authors, in Press). The existing state of research can be roughly divided into two clusters.

(1) Studies of the first cluster conceptualize the form of a game mostly as a means to the end of realizing the entertaining effects of its content (i.e., agency, narrative and social interaction). For example, several studies investigated whether the quality of graphics affect the intensity of players' reactions and entertainment response to depictions of violence in a game's content (e.g., Barlett et al., 2008; Ivory & Kalyanaraman, 2007; Krcmar et al., 2011). Similarly, it has been examined whether players' involvement in the narrative and action of playing (i.e., agency layer) and consequently their hedonic entertainment experience varies depending on the presence or absence of soundtrack music and sound effects (e.g., Klimmt et al., 2019; Nacke et al., 2010). These works are mostly based on two interrelated assumptions: First, aesthetically enhanced games deliver their content (e.g. acts of violence) in a more believable fashion and, thus, involve players more strongly. Second, being involved in a game fuels players entertainment response. A central role in the former assumption is ascribed to the capacity of game aesthetics to increase states of absorption—players' experience to leave their own physical, social and cultural environment, “get lost in” (Hartmann et al., 2010, p. 139) a video game and perceiving it to be non-mediated. For example, most studies mentioned above investigated whether the visual or acoustic qualities of a game provide players with the impression of ‘being’ in a mediated environment—Presence (Lee, 2004; Wirth et al., 2007). As a meta-analysis shows (Cummings & Bailenson, 2016), Presence strongly depends on games' capacity to deliver “inclusive, extensive, surrounding and vivid illusion of reality to the senses of a human participant” (Slater & Wilbur, 1997, p. 604;

“immersiveness”). Consequently, all studies mentioned above revealed that advanced aesthetics enhance players’ sense of Presence.

The second assumption—involvement fuels players’ entertainment responses—has also repeatedly been stated (e.g., Hartmann et al., 2010; Tamborini & Skalski, 2006). It often rests on the idea that absorption implies that players focus their attention strongly on the game’s content, perceive it to be ‘real’ and, thus, react to it in a similar fashion as they would to stimuli from the material world (Hartmann et al., 2010). This idea is in line with the emotion-psychological assumption that affective responses are the more intense the stronger a person appraises their elicitors as ‘real’ (Frijda, 1988) or ‘relevant’ (Ellsworth & Scherer, 2003; Scherer, 2001). Thus, states of absorption should intensify entertaining cognitions and entertaining emotions evoked by the content. However, the previously mentioned studies only revealed mixed findings in this regard. For example, while fun did not differ between users of Doom 1 and those who played the much more aesthetically advanced Doom 3 in one experiment (Krcmar et al., 2011), another study found that playing the more recent version of a game series (i.e., Mortal Combat) is more pleasurable (Barlett et al., 2008).

(2) Studies of the second cluster, in contrast, focus on players’ direct emotional response to stylistic features and the resulting impact on entertainment experiences. In this line of research, the form of a game is not conceptualized as a moderator facilitating content effects. Rather, it is assumed that the aesthetic qualities themselves can directly evoke affective reactions. For example, the presence of disharmonic music in a game can induce horror in players (Klimmt et al., 2019), fast rhythmic pop-techno music can evoke physiological stress responses (Hébert et al., 2005) and self-selected in contrast to experimenter-selected background music can result in greater positive affect such as liking (Cassidy & Macdonald, 2010). Visual features of a game have also been found to evoke emotional responses. For example, players of horror games reported that darkness is the most important elicitor of fear (Lynch & Martins, 2015). Although not all of these studies

investigated entertainment responses, their findings suggest that direct emotional responses to game aesthetics can contribute to players' enjoyment (e.g., Klimmt et al., 2019; Lynch & Martins, 2015).

More recent work on games that fascinate (i.e. inspire awe in) their users (Possler et al., 2018) suggests that aesthetics can also contribute to *eudaimonic* entertainment experiences directly (by evoking emotions) and indirectly (by facilitating absorption and consequently eudaimonic responses to the content). On the one hand, the formal qualities of the medium (e.g., high graphic quality) can directly fascinate players (i.e. elicit the emotion awe), which in turn contributes to their eudaimonic responses (Possler, Scheper, et al., 2019). On the other hand, advanced aesthetics of a game (i.e., playing with a VR-headset instead of a normal TV-screen) fuels players' sense of Presence, which in turn facilitates awe resulting from a content-based elicitor (i.e., depictions of vast nature landscapes) that ultimately contributes to eudaimonic entertainment experiences (Possler, Klimmt, et al., 2019). Thus, in the latter study, the aesthetic quality of a game helps to realize the eudaimonic entertaining capacity of its content.

Taken together, this overview shows that the aesthetic qualities of video games can contribute to players' hedonic and eudaimonic entertainment experiences either by directly inducing affective responses or by facilitating players' absorption and, thus, intensifying entertaining emotions and cognitions evoked by the content. However, these studies focused on automatic effects of aesthetics that do not require players to analytically reflect on the form of a game as it has been assumed that states of absorption are formed automatically when users are confronted with sensory rich media such as video games (Wirth et al., 2007). Moreover, affective responses to stimuli discussed in the studies of the second cluster (e.g., darkness or disharmony) have often been conceptualized as being biologically hard-wired or resulting from learned schemata and should, thus, occur rather automatically (e.g., Leventhal & Scherer, 1987; Scherer, 2013). Hence, none of the studies mentioned before investigated

how players can derive entertainment responses from actively reflecting about the form or style of a game. That is remarkable as it has often been assumed that analytic interpretation and evaluation of the style of an aesthetic artifact can produce additional and unique (entertaining) emotions and cognitions (Cupchik & Kemp, 2000; Leder et al., 2004; Tan, 1995, 1996). In the next section, we therefore develop a model that addresses the previously neglected role of analytical processing of video game aesthetics.

2. Towards a dual process model of entertaining video game aesthetics

2.1 Theoretical base: research on aesthetic appreciation and aesthetic judgements

The psychology of aesthetics has developed various theoretical models that explain peoples' reaction to aesthetic artefacts (Tinio & Smith, 2014). Particularly the *Model of Aesthetic Appreciation and Aesthetic Judgements* (MAAAJ; Belke & Leder, 2006; Leder et al., 2004) promises to be helpful for the present contribution as it integrates the divergent strands of research in the psychology of aesthetics (Belke & Leder, 2006; Leder & Nadal, 2014). The model was originally designed to explain how people are attracted by modern, abstract visual art (Leder et al., 2004) but has since been used to explain aesthetic reactions to different stimuli including mass media such as Quality TV series (Schlütz, 2016a, 2016b).

The MAAAJ rests on the premise that art provides perceivers with a challenge, as artworks often have no clear meaning but are open to interpretation and, thus, ambiguous or polyvalent (Leder et al., 2004; for a similar assumption: Cupchik & Kemp, 2000). Against this background the model describes how people classify, understand and cognitively master aesthetic artifacts and by doing so derive aesthetic judgements and aesthetic experiences in a multistep process (Belke & Leder, 2006; Leder et al., 2004). The model essentially differentiates between an (1) automatic and a following (2) deliberate processing stage (Leder et al., 2004): In the (1) *automatic stage*, observers react to the perceptual features of an artwork (e.g., contrasts, visual complexity, color or symmetry) and automatically classify the stimulus based on their prior experience (e.g., familiarity and prototypicality of the artwork;

Leder et al., 2004; Belke & Leder, 2006). Thus, on this stage, intuitive preference for and affective reactions to art stimuli are formed due to perceptual qualities and automatically determined relations to prior experience. For example, observers may intuitively like and enjoy abstract paintings more if those are symmetrical and seem familiar.

During (2) the *deliberate processing stage*, observers consciously classify the content and style of an artwork, try to assign meaning to it and, thus, reduce the ambiguity of the polyvalent artifact (Belke & Leder, 2006; Leder et al., 2004). The processing on this level therefore initially involves a conscious classification of the content and style of an aesthetic object with recourse to general and art-specific knowledge as well as processes such as style generalization and recognition of alienation (Belke & Leder, 2006; Leder et al., 2004). Observers then attempt to interpret the meaning of what has been recognized and classified. In the course of a constructive processing, new concepts of meaning are created, which may involve “loops of processing in which hypotheses concerning the meaning of an artwork are continuously altered and tested until a satisfactory result is achieved” (Leder et al., 2004, p. 500). This process heavily depends on a person’s art-specific and declarative knowledge (Belke & Leder, 2006; see also Winston & Cupchik, 1992). In a final step, people evaluate their interpretations in terms of the degree of derived understanding and stop the process if a sufficient degree of ambiguity reduction is reached (Belke & Leder, 2006; Leder et al., 2004).

The perception, classification and interpretation of the artwork and especially the experience of understanding are affectively relevant. The outcome of the model is, thus, both an aesthetic judgement and an aesthetic emotion (Leder et al., 2004). Although the model consists of two stages, it does not assume that these outcomes are always the product of both levels. Rather, people may process art only superficially (Leder et al., 2004). Consequently, aesthetic judgements and aesthetic emotions can either be based exclusively on the automatic processing stage or be a result of both stages.

For the purpose of the present contribution the MAAAJ provides three important implications: First, the model suggests that players can focus on two references when using games, the *content* and the *style*, and both layers contribute to players' experience. Thus, the MAAAJ corresponds to the finding in video game research that the formal features of games can evoke affective responses independently of other layers (e.g., visual darkness or disharmonic sounds; see section 1.3). Second, the MAAAJ assumes that aesthetic artefacts can be processed either exclusively in an *automatic*, intuitive fashion or additionally in a deliberate, *analytical* mode. Applied to games, this suggests that players can not only react automatically to the aesthetics, unlike the current state research has implied (see section 1.3). Third and most important, the MAAAJ proposes *how* such an analytical processing of the aesthetic qualities of games may proceed and *what* can result from it. According on the model, players will find both meaning as well as insights and experience pleasant aesthetic emotions when deliberately classifying the stylistic features of a game and search for an understanding of its aesthetic qualities. Given our earlier definition of entertainment as either pleasurable (hedonic) or meaningful, reflective and moving (eudaimonic) experience (see section 1.1), the model thus suggests that analytically searching for an understanding of a game's style comes with a unique yet underinvestigated entertaining potential.

However, the MAAAJ has proven its value mostly for analyzing the appeal of complex, challenging aesthetic artefacts such as quality TV (Schlütz, 2016a, 2016b) or abstract art (Leder & Nadal, 2014). It has often been argued that such complex art is mostly appreciated from a psychological distance (Cupchik, 2002), while sensory rich entertainment messages are processed in a more involved fashion (Hartmann, 2011, 2013; Hartmann et al., 2010; Tan, 1995; Vorderer, 1993; Zillmann, 2011). Hence, before the MAAAJ can be applied to video games, we need to address whether players appreciate games 'from a distance' as well.

2.2 Dual modes of video game processing

Media psychologists have often argued that users can process media products in two different modes (Hartmann, 2011, 2013; Tan, 1995, 1996; Vorderer, 1993). This assumption is mostly based on dual-process-theories developed in cognitive and social psychology. Simply stated, these theories assume that humans process information in either (1) a fast, intuitive and automatic fashion or in a (2) slow, reflective and conscious, controlled manner (Evans, 2008; Evans & Stanovich, 2013). Hartmann (2011, 2013) assumes that players also process video games in these two modes (Possler et al., 2018): In (1) the intuitive or experiential mode, stimuli displayed in a game are processed primarily automatically, based on associations. If users can connect depicted stimuli with information stored in their memory, they automatically recognize them and perceive them to be non-mediated, ‘real’ (Hartmann, 2011, 2013). For example, if a 3D model of a mountain can be associated with stored knowledge about mountains, users recognize the model as a mountain. Players, thus, feel and think from *within* the game in this mode (Hartmann et al., 2010). (2) Rational or analytical processing, on the other hand, is based on logic and analytical inference (Hartmann, 2011, 2013). In this mode, players are, thus, aware that stimuli displayed in a game are illusions (e.g. the 3D model is recognized as a collection of pixels). Thus, when processing games rationally, players think *about* the game (Hartmann et al., 2010).

Given these characteristics of the two modes, it can be assumed that the layers of a game which evoke strong affective and cognitive responses differ between experiential and analytical processing (see table 1). During experiential processing players perceive the depicted stimuli as ‘real’ objects. Hence, users are (temporarily) not aware that they are perceiving an illusion. Game designers support this by purposefully hiding any evidence of the means of production (Tan, 1995). For example, video games usually do not display the grids of underlying 3D models. Thus, in the experiential mode, players mostly react to the content of games while not being aware of the aesthetic elements. Tan (1995, 1996) labelled

these responses ‘Fiction-based’ reactions (F-reactions). In contrast, in the analytical mode, players recognize that the content of a game— particularly the narrative—is an artificial illusion. Hence, the content is less likely to evoke strong reactions in players. In contrast, the design of these artificial illusions enters players’ awareness and is analytically reflected. As a consequence, the aesthetic layers should evoke cognitive or emotional reactions in this mode. Tan (1995, 1996) named these responses ‘Artefact-based’ reactions (A-reactions).

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2.3 The entertaining potential of analytically processing video game aesthetics

The dual-process-approach described above suggests that the MAAAJ is applicable to video games, as players can indeed process the medium analytically. It was even suggested that aesthetic experiences occur mainly during analytical processing in the form of A-reactions (see table 1). However, it has not yet been conceptualized how these A-reactions to video games arise. We will, thus, develop a proposition of this process in the following.

Based on the MAAAJ, analytical reflections of video game aesthetics should involve in a first step the *classification* of the perceived formal features of an artwork (Leder et al., 2004). This process is likely to vary greatly between individuals (Belke & Leder, 2006) and can probably concern a wide range of foci. For example, players may classify the graphic style (e.g., comic look, photorealism) and visual quality (e.g., resolution), music style (e.g., pop, epic), the staging and progression of the narrative (e.g., introduction of characters, plot twists), the design of the game world (e.g., open world), how a game enables interactivity (e.g., controller layout) and social interactions (e.g., means of communicating in a game) but also genre- or even franchise specifics (e.g., the visual design of a specific character). This classification heavily relies on prior knowledge (Leder et al., 2004). While the MAAAJ and the psychology of aesthetics in general (Winston & Cupchik, 1992) plausibly emphasize the role of art knowledge, we assume that the classification of stylistic game features benefits

from previous experience with the medium, knowledge of its history and the way games are designed but also from general declarative knowledge. For example, players of *Assassins Creed: Origins* should better be able to assess the quality of a depicted ancient Egypt city the more they know about the architecture of the old civilization.

In a second step, analytical processing involves the search for an understanding of the classified elements (Leder et al., 2004). The MAAAJ suggests that this process is often based on making hypotheses about the meaning of the style of a game and continually changing and testing it until a satisfactory result is achieved. Since video games will most often not be as stylistic complex and polyvalent as abstract art, the amount of ambiguity that needs to be reduced in this step is potentially much smaller. Nevertheless, we believe that some kind of cognitive mastering of the stimulus is required in order to develop an aesthetic judgement and aesthetic emotions. This may involve reflecting about what developers intended with an aesthetic element. For example, players of the game *Journey* may try to understand why the game designer decided that users are only able to communicate non-verbally with each other. In addition, players could try to grasp the (video game specific) historical significance of a game. For example, users of *Red Dead Redemption II* may reflect on whether or not the game marks a highlight in creating photorealistic game graphics. However, following the MAAAJ, we believe that players will often focus on their own situations and reactions (Leder et al., 2004). At first, players can reflect on how an aesthetic element represents or symbolizes their own experiences, for example how loss or friendship is visually and acoustically portrayed in a game such as *The Last Guardian* or *Shadow of the Colossus*. Probably even more important, players can develop an understanding of how much and why they (dis)like a game stylistically. The elaborateness of this evaluation can probably vary greatly from player to player and from situation to situation and may range from a critical reflection of different stylistic elements (e.g. graphics, story, mechanics) to stereotypical taste reactions (e.g. general aversion to Open World games; see also Leder et al., 2004).

The outcome of this process will be twofold: An aesthetic judgement as well as aesthetic emotions. The former relates to players' evaluation of the quality of the stylistic features, the thoughts they evoke and the understanding or insights that have been gained (Leder & Nadal, 2014, p. 450). These cognitions may potentially include existential thoughts (Baumeister & Landau, 2018) triggered by the process, that is, cognitions related to a player's individual and fundamental system of beliefs, goals and subjective sense of purpose (e.g., reflections about loss and friendship; Park, 2010). Depending on the amount and intensity of such existential thoughts, aesthetic judgements may be deeply meaningful and could even provide reflective insights—cognitions mostly associated with *eudaimonic entertainment experiences* (see section 1.1). The latter—aesthetic emotions—on the one hand often involve enjoyable affect (“pleasure or happiness”, Leder et al., 2004, p. 502) resulting from the subjective perception of successful information processing (“pleasure of comprehension”: Vorderer & Hartmann, 2008). Thus, the outcome of this process can most likely facilitate players' *hedonic entertainment experience*. On the other hand, A-emotions such as awe (Possler et al., 2018) and admiration (Tan, 1995) have been discussed. These affects have been conceptualized as self-transcendent or other-praising emotions in the sense that they focus the attention of a person on something good outside of the self (Haidt & Morris, 2009; Stellar et al., 2017)—an experience characterized as highly meaningful and therefore an important *eudaimonic entertainment response* (Oliver et al., 2018).

2.4 Intermediate summary: Dual process model of entertaining video game aesthetics

The above presented proposition links the aesthetic qualities of a video game to entertainment outcomes via analytical processing. However, the MAAAJ as well as prior video game research suggest that stylistic qualities can also contribute to entertainment outcomes during intuitive, experiential processing (see section 1.3 & 2.1). On the one hand, aesthetics can automatically facilitate states of absorption and, by doing so, intensify entertaining emotions and cognitions evoked by the content (earlier discussed as F-reactions).

On the other hand, aesthetics can also automatically evoke affective responses such as fear or awe, if the stylistic features resemble schematically learned or biologically hard-wired elicitors (e.g. darkness, disharmony). We argue that these A-reactions can occur even if players process a game in an involved, experiential mode. Thus Artifact-related reactions may not be limited to analytical, distanced processing alone. Table 2 summarizes how stylistic elements can affect the entertainment experience in the two modes.

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3. Determinants and dynamics of players' analytical awareness for game aesthetics

The proposed links between aesthetic experience and game entertainment outcomes implies that the form of a given game may both intensify hedonic experiences and facilitate eudaimonic experiences. Moreover, it has been predicted that video game aesthetics can evoke particularly strong entertainment responses when players treat games as artefacts and reflect on its stylistic features and associated meanings. Realizing this entertaining potential of game aesthetics therefore depends on the condition that players assume an analytical, distanced perspective so that form receives the necessary attention (whereas „content“ elements are less intensely focused). It is plausible to assume that experiential processing will occur more often across players, games, and game situations than analytical processing (Hartmann, 2011, 2013; Lang, 2006; Reeves & Nass, 1996) for at least two reasons.

First, in the broader context of entertainment use, the kind of experience desired by audiences and intended by creators oftentimes depends on experiential processing and avoidance of analytical processing. Many entertainment movies, for instance, try hard to prevent viewers from thinking about their artificiality and the fact that their story is fictional (Tan, 1995). An analytical reflection on gravity, light speed, and laser technology, for instance, would probably diminish much (hedonic) entertainment that viewers of *Star Wars* movies long for. Second, in the specific context of video gaming, which absorbs substantial

cognitive resources for mastering their interactivity (Bowman, 2018) players' willingness (and ability) to mobilize the necessary resources for analytical reflection is in addition restrained by the medium under use: As long as playing the game is binding much cognitive effort, it is difficult (and especially demanding) for players to reach an analytical mode of processing. Similarly, Juul (2019) argues that players in games are mostly not "safe" as they have to perform goal-oriented actions in order to master obstacles and reach goals (i.e., "winning", see also: Klimmt, 2003; Authors, in Press). This setup conflicts with the safety and disinterestedness (i.e., lack of goal-orientation) required for aesthetic contemplation (Juul, 2019; for the importance on safety and disinterestedness: Leder et al., 2004; Frijda, 1989).

For this double reason, video game players are much more likely in a given situation to stick to experiential processing and not to switch to analytical processing (see also; Possler et al., 2018). Yet, several conditions may occur that motivate and enable players to perform the extension beyond experiential into analytical processing. If such conditions apply, a given player would enter the relatively rare analytical mode of processing that enables her or him to reflect on form and style elements so that the predicted entertainment outcomes (table 2) can result. We propose these conditions to connect to player, game, and process characteristics.

Player characteristics. During earlier developmental stages (childhood in particular), the general cognitive and attentional capacities are on average lower than during later stages (adolescence and adulthood in particular) (e.g., Singer & Singer, 1990). At the same time, the strong capability of children to immerse in fantastic imagination oftentimes drives especially powerful absorption in media experiences (e.g., Valkenburg et al., 2000). Both dispositions are likely to prevent younger video game players from extending the default experiential stage of processing towards an analytical stage and, in turn, imply better cognitive equipment for older players to do so. From an individual difference perspective, we propose two important player characteristics that render a switch to an analytical mode of processing more likely: Video game experience and aesthetic preferences. First, players who have rich past

experience with different games are suggested to be more capable to assume an analytical mode, because they can exploit their experience to handle gameplay with fewer processing resources so that more cognitive capacity is available to them (Possler et al., 2018) and because they are more likely to find an analytical view rewarding. And second, individuals with specific aesthetic preferences may prioritize an analytical mode for unlocking precisely those aesthetics-based entertainment experiences that they find more appealing than the (conventional) responses to experiential processing (see also: Winston & Cupchik, 1992)

Game characteristics. Game creators may influence the probability of players to enter an analytical mode of processing through various techniques. First, and even before actual game use may start, they may shape players' expectations about the game and the reason of its appeal ("Pre-classification"; Leder et al., 2004). For instance, labeling a game as „indie game“ (but not as “triple-A”) may be sufficient to motivate players to assume an analytical mode, as they may expect an adequate experience (only) by doing so. Within gameplay, specific design features may also nudge players to assume a reflective mode of processing. One example is „breaking the fourth wall“, that is, the game may actively remind players that it is the result of an artistic process (e.g., Conway, 2010; see also Schlütz et al., 2020). If, for instance, a game character suddenly addresses the player and hence steps out of the imaginary game space, this surprising experience is likely to alter players' current mode of processing and increase their awareness of formal game characteristics. The comprehensive analysis reported by Mitchell, Kway, Neo, and Sim (2020) lists many more game features that are suited to motivate players for what they call “poetic” game play, which is conceptually comparable to the analytical model of processing as referred to in the present paper. Various design features of video games are, thus, proposed to not only feed aesthetic experiences of players, but also to push players towards an analytical, aesthetics-aware mode of processing.

Process characteristics. Throughout the dynamic interaction between player and game, specific constellations may emerge that result in more or less surprising shifts from

experiential to analytical processing. Most importantly, situations may occur during game use in which the cognitive load imposed by tasks and challenges is sinking rapidly, for example, after defeating a boss enemy or due to the onset of a scripted scene (Ip, 2011). In such moments of game use, players have (suddenly) much more cognitive resources available than they need to invest in continuing interactive game play (Possler et al., 2018). Such a temporary surplus of available resources is likely to activate an analytical processing so that aesthetic features of the game can move into players' focus. Some games, for instance, open world games, feature such (rare) moments by design, as they lead players towards aesthetically impressive virtual locations and then remove tasks and challenges temporarily so that reflective processing is both enabled and encouraged. Specific situations may thus emerge during video game play in which (temporary) alterations of gamers' processing mode occur and reflection on aesthetic game elements is endorsed.

4. Discussion

The present contribution seeks to expand the theoretical understanding of video game entertainment by systematizing the manifold consequences of aesthetic game elements on player experience. „How“ a game is made, looks, feels, sounds like is of great importance for creators, users, and experts alike, and past work on game entertainment had neglected the relevance and mechanisms of aesthetic experience. Our propositions connect existing work on aesthetic experience of art (Leder et al., 2004), and relevant considerations on movie aesthetics (Tan, 1995) to multidimensional accounts of game entertainment (ANSA: Authors, in press) and a dual-mode-theory of video game processing (Hartmann, 2011, 2013). As a result, we argue that aesthetic game characteristics influence both hedonic and eudaimonic entertainment outcomes. With regard to hedonic experiences, aesthetics (e.g., „beautiful“ graphics, impressive music) are supposed to primarily boost processes of enjoyment that are already well-known in games research, such as suspense or identification. Aesthetics can either extend the range of hedonic experiential components or assist other „fun“ processes

through intensification (i.e., absorption) or prolonged duration. With regard to eudaimonic experiences, aesthetic game elements can, if processed in a reflective mode, open up entirely new dimensions of experience such as meaningfulness. Players must, however, meet specific conditions of available and focused cognitive resources to be able to assume an analytical mode of processing; hence we assume that such aesthetics-based analytical experiences are relatively rare. Just like other popular entertainment media, however, it is of great importance to recognize that such ‚ambitious‘, reflection-based experiences that are oftentimes associated with high culture can also occur during gaming (Atkinson & Parsayi, 2020).

The proposed extension of the theoretical explanations of video game entertainment, thus, fills a gap of past research—the discrepancy between the obvious relevance of aesthetics for makers and users (e.g., the tremendous resources invested in „better graphics“) and our theoretical account of aesthetics within models of game experience and appeal. By articulating this extension, the model also contributes to a more general explanation of why video games are capable to deliver reliable and predictable entertainment experiences to their audiences. Because games can contain many different factors that initialize entertaining experiences (Klimmt & Possler, 2019; Authors, in Press), most gaming episodes are likely to at least deliver ‚sufficient‘ entertainment in the sense of satisfying user expectations and motivating players to continue. In many episodes, multiple factors will be in effect simultaneously, leading to intense entertainment outcomes (hedonic and/or eudaimonic). In some episodes, rare or unique interactions among entertainment factors will lead to peak experiences (outstanding euphoria; intense appreciation). Because aesthetics are assumed to both assist other entertainment factors and add entirely new components to the hedonic and eudaimonic potential of gaming, they emerge as important element of the persistent and reliable capacity of gaming to bring about (intense) entertainment outcomes.

The proposed addition of aesthetic experiences to the theorized ‚buffet‘ of entertainment factors and dimensions that video gaming can carry requires more empirical

work for validation. Some existing studies have addressed aesthetics or associated aspects such as the effects of game music (Klimmt et al., 2019). From the present integration work, programmatic for further research can be derived that should focus on the aesthetic emotions as well as the analytical mode of processing that presumably catalyze the entertainment effects of game aesthetics. A broad range of methodologies, including qualitative work with players of indie games, survey studies about the (probably rare) peak level experiences related to aesthetics, and experiments that use manipulations of game aesthetics will allow testing the present assumptions and refining the theoretical framework. One promising direction for future research is focusing the relative importance of different (including aesthetics-based) entertainment factors over time (Wirth et al., 2013). If players have already spent many hours with a given game, aesthetics may become less (or more) important for the overall experience. For quantitative works, a theoretically and methodologically sound measure of aesthetic emotions and experience will be required that both reflects the psychological underpinnings (Leder & Nadal, 2014, p. 452) and is adapted to the specific context of video games and their manifestations of aesthetic design.

While a lot of work is required to develop the perspective on aesthetics in video game entertainment, the present approach already implies that aesthetics is one more dimension that renders video games relevant not only to individual players, but also to society at large. Games can be experienced as pieces of art; they should be considered as cultural artifacts, and as they reach out to large parts of societies, their aesthetic impact should be recognized and valued to a much greater extent than it seems currently to be the case (Bourgonjon et al., 2017). By understanding the immediate and reflection-based effects of game aesthetics, communication science can make an important contribution to revealing the aesthetic importance of the medium far beyond the actual entertaining experience of playing.

Tables

Table 1

Perception of content and aesthetic layers in experiential and analytical processing

(based on: Hartmann, 2011, 2013; as well as Tan, 1995, 1996)

	Experiential processing	Analytical processing
Content layers (agency, narrative, social interaction)	if content elements are sufficiently similar to memorized objects, players perceive them to be non-mediated and <i>fictional-responses</i> are evoked	content elements are recognized as artificial illusions and, thus, do not evoke immediate responses
Aesthetic layer	aesthetic elements are mostly hidden by designers and, thus, do not enter players awareness or evoke responses	the design of artificial illusions enters players' awareness and aesthetic elements are analyzed in a reflective fashion resulting in <i>artefact-responses</i>

Table 2

Direct and indirect entertaining effects of video game aesthetics in an experiential and analytical processing mode

	Experiential Processing	Analytical Processing
Direct Effects of Aesthetics	<p><i>Role of aesthetics:</i> Elicitor of automatic affective responses based on biologically hard-wired reactions or learned schema detection;</p> <p><i>Resulting entertainment response</i> Automatically elicited affect will mostly fuel hedonic entertainment responses but may—in special cases such as awe—also involve the perception of meaning and, thus, eudaimonic experiences</p>	<p><i>Role of aesthetics:</i> Object of a critical analysis that includes a classification and interpretation of stylistic elements</p> <p><i>Resulting entertainment response</i> Aesthetic judgements can involve existential thoughts, insights and meaning and, thus, foster eudaimonic entertainment experiences. Aesthetic emotions can be positive but also an elicitor of meaning and reflection and may, thus, contribute to both hedonic and eudaimonic entertainment experiences</p>
Indirect Effects of Aesthetics	<p><i>Role of aesthetics:</i> Facilitator of absorption and involvement into the content which in turn facilitates fictional-responses</p> <p><i>Resulting entertainment response</i> Facilitated fictional-responses may involve hedonic and eudaimonic entertainment experiences</p>	-/-

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