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Published in:
Proceedings of the ACM on Human-Computer Interaction

DOI:
[10.1145/3474664](https://doi.org/10.1145/3474664)

Published: 01/09/2021

Document Version
Publisher's PDF, also known as Version of record

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Please cite the original version:
Bopp, J., Vornhagen, J., & Mekler, E. (2021). "My Soul Got a Little Bit Cleaner": Art Experience in Videogames. *Proceedings of the ACM on Human-Computer Interaction*, 5(CHIPLAY), Article 237. <https://doi.org/10.1145/3474664>

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”My Soul Got a Little Bit Cleaner”: Art Experience in Videogames

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Videogames receive increasing acclaim as a medium capable of artistic expression, emotional resonance, and even transformative potential. Yet while discussions concerning the status of games as art have a long history in games research, little is known about the player experience (PX) of games as art, their emotional characteristics, and what impact they may have on players. Drawing from Empirical Aesthetics, we surveyed 174 people about whether they had an art experience with videogames and what emotions they experienced. Our findings showcase the prominence of epistemic emotions for videogame art experiences, beyond the negative and mixed emotional responses previously examined, as well as the range of personal impacts such experiences may have. These findings are consistent with art experience phenomena characteristic of other art forms. Moreover, we discuss how our study relates to prior research on emotions and reflection in PX, the importance of games’ representational qualities in art experiences, and identify lines of further inquiry. All data, study materials, and analyses are available at <https://osf.io/ryvt6/>.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**; • **Applied computing** → *Psychology*; *Arts and humanities*.

Additional Key Words and Phrases: player experience, emotion, art experience, videogames, empirical aesthetics

ACM Reference Format:

Julia A. Bopp, Jan B. Vornhagen, and Elisa D. Mekler. 2021. ”My Soul Got a Little Bit Cleaner”: Art Experience in Videogames. *Proc. ACM Hum.-Comput. Interact.* 5, CHI PLAY, Article 237 (September 2021), 19 pages. <https://doi.org/10.1145/3474664>

1 INTRODUCTION

Art holds a special role in the human experience [21]: It wields the power to astonish, move, or disturb us [66] – or leave us indifferent [58]. We may have complex and even conflicting opinions on an artwork [40], to the point that art can change our beliefs or even who we are [58, 59, 68]. The game industry has long argued for videogames to be thought of as art, often based on their capacity to afford profound and varied emotional experiences [17, 73, 76]. As early as the 1980s, for example, *Electronic Arts* famously raised the question of whether a computer could make people cry [20]. Later, Sony dubbed the CPU of their then new Playstation 2 *Emotion Engine* in reference to its ability to render faces and emotional expressions in real time [22]. Irked by this label some art critics declared that videogames do not have the capacity to evoke deep emotions, and could therefore not be considered art [37]. This subsequently sparked a series of rebuttals from game scholars, ranging from games being considered a *lively* art that has been unfairly disparaged as

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2573-0142/2021/9-ART237. <https://doi.org/10.1145/3474664>

pulp [34], likening videogames to theater acting [54], or discussing how some videogames already meet many philosophical and aesthetic definitions of art [49, 73, 76].

Nowadays, few would argue against videogames' artistic potential. Videogames have increasingly attained public recognition as a medium capable of artistic expression and emotional impact, as evidenced by museums like the Smithsonian dedicating exhibitions to "the art of video games" [72], the emergence of art games [67], and the critical acclaim that mainstream titles such as *Journey* [77] and *Hellblade: Senua's Sacrifice* [50] have garnered for their 'Artistic Achievements' [10, 11]. In turn, player experience (PX) research has become increasingly invested in exploring games' potential to emotionally move and perturb players [e.g., 3, 13, 14, 29, 60], challenge personal convictions [e.g., 5], and even change views and behavior in the outside world [e.g., 84] - responses that are traditionally associated with art [55, 59, 68]. Yet despite this growing body of work, scant attention has been paid to *players' experience* of games as art [cf. 18].

Consequently, PX research currently lacks empirical and conceptual insights into what players consider an "art experience" with videogames, what emotions characterize such experiences, and to what extent their transformative potentials resemble those attributed to other art forms [e.g., 59, 68]. A better understanding of such experiences could help expand our understanding of the emotional spectrum games presently evoke, and what sort of experiences remain as of now untapped [43]. Moreover, due to art's purported power to positively impact individuals and societies [58, 59], studying these experiences may contribute new insights for designing reflective [36, 44] and transformative games [64, 84]. Together, these insights may also help clarify the notion of eudaimonic game experience [14, 19] and contribute to theory-building in player-computer interaction.

To address these gaps, we surveyed 174 participants about a recent "art experience" they had with a videogame. Specifically, drawing from Empirical Aesthetics – a subfield of psychology concerned with the emotional and cognitive processes underlying human experiences with art – we examine the salient emotional responses that characterize the art experience with games, and explore the impacts and downstream effects these experiences have on players.

Our contribution is threefold: First, our results provide a comprehensive view of the range of emotional responses players associate with videogame art experiences, beyond the negative and mixed emotional responses examined in PX research to date [e.g., 3, 5, 29]. For instance, we observed that prototypical aesthetic and epistemic emotions, such as fascination, enchantment and interest were particularly salient. Second, our findings suggest that videogame art experiences often leave a pronounced personal impact – shaping players' views on games as an artistic medium, changing their experience of the game, or altering their self-understanding – extending our understanding of games' potential for transformative reflection [44, 64, 84]. Finally, we contribute a rich qualitative and quantitative dataset – as well as all study materials – for future PX research to use and build towards a more comprehensive basis for empirical game aesthetics [2].

2 RELATED WORK

Before we provide an overview of related work, we first clarify what we mean by "videogame art experience". We understand "art experience" in terms of players' aesthetic experience¹, that is, the sensations, emotions, and meaning-making processes that occur during and after gameplay [49]. Art games [67], art created via videogames [67], and games about art [e.g., 61, 62] are not the focus of the present work, although they may undoubtedly also afford aesthetic experiences [21].

¹Note that in this paper we use the terms "aesthetic experience" and "art experience" interchangeably, following conventions in Empirical Aesthetics [e.g., 58] – but see [71] for a counter-argument.

Discussions around the status of videogames as art have a long tradition in games scholarship. While popular discourse has revolved around the question whether games can be art [see 53] – sometimes to the point of parody [e.g., 31] – academic discourse has largely moved beyond the simplistic art/not-art dichotomy. Instead, games scholars have been discussing the properties that characterize a videogame as art [76] or "artful" [83]. Notably, some scholars have suggested looking to properties that videogames share with other art forms [2, 49, 76]. Consequently, works have discussed how videogames resemble theater [54], movies [73], or the status of game developers as artists [47]. Most pertinent to the present work, Tavinor [76] draws from existing cluster theories of art [24, 28] that outline a set of conditions which an object *might* meet to be considered art, although meeting these conditions is neither necessary nor sufficient for a game to be considered art. Such conditions include, for instance, a game's capacity for direct sensory and kinaesthetic pleasure, affording or expressing emotion, and/or conveying complex meaning. More recently, Bateman called for "empirical game aesthetics" [2], although his considerations remain mostly restricted to player-satisfaction models and taxonomies of player types, which arguably share few commonalities with the aforementioned cluster theory of art put forth by Tavinor, and do not account for the spectrum of emotional experiences that games may afford.

Indeed, within player-computer interaction, empirical PX studies have become increasingly interested in exploring videogame's potential to afford emotionally complex and reflective experiences. Emotionally moving moments in games, for instance, were found to be particularly characterized by feelings of sadness [3], while uncomfortable game experiences evoked feelings of anxiety, helplessness, guilt, and disgust in players [29]. In both studies, these strong emotional experiences appeared to also act as catalysts for self-reflection and moral contemplation. Curiously, many works originating in player-computer interaction seem to carry the implicit assumption that strong, and particularly, negatively valenced emotional experiences are somehow artistic [see also 43]. Perhaps due to game industry notions which have historically tied games' artistic value to their emotional potential [20]. Cole et al. [13], for instance, argued that the value of "avant-garde" indie games lies in the novelty, intensity, and quality of the emotional experience they afford. This becomes even more apparent in the study of Bopp et al. [5], where one participant described their emotionally challenging experience as 'probably one of my earliest memories of seeing true Art (with a capital A) in anything' [5, p.7]. However, this implied association between emotional experience and players' perception of a game as "art" has so far remained unexplored.

The work-in-progress by Craveirinha and Roque [18] describes the first – and to our knowledge, to date only – empirical study explicitly focused on players' "artistic" experience. They investigated how the absence vs presence of typical, rule-based game elements (e.g. goals, score) affected players' experience and evaluation of a game's meaning and aesthetic qualities. However, their results were largely inconclusive, which might be due to the limited statistical power given their sample size, their choice of measures (i.e., the Game Experience Questionnaire [32] and an ad-hoc measure compiled of statements based on Tavinor's cluster theory of art [76]), or the fact that participants did not get to choose the game themselves. As such, it remains unclear whether players actually encounter videogame experiences they consider "art" in their everyday life, and if they do, what characterizes such experiences.

Outside of games, the field of Empirical Aesthetics has a long history of investigating perceptual, emotional, cognitive and neural processes underlying the art experience [see 58, for an overview]. While a comprehensive account of Empirical Aesthetics lies outside the scope of the present work, we summarize here a few key tenets of particular relevance: First, recent work suggests that the art experience can be broadly classified into five distinct experiential outcomes, each characterized by different emotions and psychological processes [58, 59]. (1) Facile outcomes, where the artwork has no clear relevance to the viewer, resulting in an absence or very subdued emotional response,

as well as little to no deliberations of the artwork's meaning. (2) Artworks that afford surprise and insight experiences due to confronting viewers with novel, albeit personally non-relevant content. (3) Harmonious and emotionally moving experiences, where the content of an artwork resonates with the viewer's self-image and value, but does not require much cognitive effort. Lastly, if an artwork is of high relevance yet potentially threatening to the viewer's sense of self (e.g., challenging their worldviews), it (4) often triggers a so-called abort experience, characterized by anger, anxiety, and the desire to discontinue the experience. However, such experiences may also result in (5) transformation, where the viewer confronts their feelings of discrepancy, gains new self-relevant insights, and subsequently changes a negative experience into a positive one. Transformative art experiences also have the potential to lastingly shape viewers' attitudes and behavior, long after they have encountered the artwork [58, 59].

Second, while the range of emotions that may accompany or follow an art experience is vast [66], each experiential art outcome outlined above tends to be characterized by specific emotional responses. For example, it has been suggested that transformative art experiences are particularly characterized by feelings of awe and a sense of connectedness [58], or feeling like crying upon coming to new self-relevant insights [59]. Moreover, artworks depicting self-relevant content typically afford more intense emotional responses from viewers [56]. As such, Empirical Aesthetics provides a potentially useful conceptual basis to explore how videogame art experiences relate to players' emotional responses, as well as how this relates to the transformative impact games may have.

3 METHOD

Our aim was to explore the art experience of videogames. Specifically, we address two research questions (RQs): (RQ1) What are the salient emotional responses that characterize art experiences with videogames?; (RQ2) How do art experiences impact players? To do so, we draw from previous studies in PX [e.g., 5] and Empirical Aesthetics research [16, 57], and employed a mixed method approach, collecting both qualitative and quantitative data.

All study materials (complete survey, data, analyses) are available at <https://osf.io/ryvt6/>

3.1 Participants

We aimed for a sample size of 200, which is comparable to other exploratory survey studies in HCI games research [e.g., 4, 5]. A total of 655 responses were collected over three weeks in September 2020, of which 183 completed at least the main survey (see subsection 3.2 for details). We then excluded nine responses from participants who had not provided informed consent (5) or were under the age of 18 (4). Given the richness of the qualitative data [8, 42], we decided to stop recruiting after a final sample size of $N = 174^2$, which is comparable to previous mixed-method online surveys in PX research [e.g., 3, 29, 84].

Participants were aged 18 to 57 ($m = 26.43$, $sd = 7.61$), 105 identified as men, 51 as women, 12 as non-binary, 4 participants self-reported, and 2 preferred not to disclose their gender.

²Note that following related work in Empirical Aesthetics [15, 57], we originally intended to perform a Latent Class Analysis to identify different types of art experience. To do so, we first conducted an inductive reflexive thematic analysis [7, 9] to explore why participants thought the experience was art. However, after data collection we noted that our sample size was below recommended thresholds for the amount of potential clusters we identified in the thematic analysis (with variations in their sizes), and the potential clusters not being well-separated as the themes were not mutually exclusive [51]. Therefore, we refrained from conducting the Latent Class Analysis. For the sake of readability, we also omit the findings of the thematic analysis from the manuscript. That said, the statistical script and results of the preliminary Latent Class Analysis, as well as the thematic maps and documentations of the thematic analysis are available in the [OSF repository](#).

Overall, participants rated themselves as highly experienced players ($m = 78.72, sd = 22.12$), having played games for $m = 18.1$ years ($sd = 8; Min, Max[0, 40]$) and playing $m = 14.71$ hours per week ($sd = 13.01; Min, Max[0, 80]$) on average. The four most popular game genres were adventure (140), RPGs (126), strategy (111) and puzzle games (100). Among participants' favorite games were *The Elder Scrolls 5: Skyrim* (25), *The Legend of Zelda: Breath of the Wild* (22), *Minecraft* (18), and *The Witcher 3: Wild Hunt* (14).

Nine participants indicated that their profession was or had at some point been related to games in some way (e.g., as programmer, designer, critic or academic). Thirty-three participants had professional experience in art-related domains (e.g., artist, curator, critic), and 16 were or had been active in professions that bridged arts and games.

3.2 Survey Design and Procedure

The study protocol was approved by the research ethics council of the authors' university. The online survey was prepared and conducted in LimeSurvey (v. 3.16.1+190314; [41]). The complete survey materials, including the exact wording of the questions, are available in the [OSF repository](#).

Participants were recruited via social media, including Twitter, snowball sampling, and via the Reddit r/samplesize and r/arthistory subreddits. The survey was advertised as "did you ever experienced a videogame as art?" to recruit both participants who had and have *not* had an art experience involving games. On average, the survey took 23.4 minutes ($SD = 13.99, Min, Max[3.43, 81.32]$) to complete. Participants did not receive any compensation for completing the survey.

Upon clicking the survey link, participants were introduced to the study and asked for consent. After providing informed consent, they were asked to provide demographic information, indicate their English skill level, as well as whether they ever experienced a videogame as art. Six participants had no such experience to report, and were subsequently asked to describe an art experience involving another medium (if any), as well as elaborate on whether they thought digital games could be art. The survey concluded thereafter.

The remainder of the study procedure pertains to the 168 participants who indicated to have experienced a game as art. Following a guided recall process, participants were first asked to recount their most recent games as art experience, explain why they considered it "art", as well as indicate how long ago the experience had taken place. No definition of "art" was provided, as we were interested in participants' own understanding of "art".

Next, participants rated their experience in terms of their emotional responses (see [subsection 3.3](#)). Finally, they were asked to provide information on their gaming habits and preferences, as well as whether their profession was related to games and/or arts. This was followed by a series of optional open-ended questions about the impact of participants' gaming experience. These questions were adapted from previous studies in Empirical Aesthetics [57] and user experience research [79], respectively. Specifically, participants were asked to describe what the meaning of their experience was, and whether it had changed their perspective on how they viewed the game, their opinion on digital games as a medium, as well as whether it had impacted them personally in any way. Finally, participants were asked whether they thought the experience was intended by the developer. As pilot testing suggested the survey to be rather time-consuming and taxing for participants, we opted to leave this part of the survey optional. In total, 140 participants completed the impact questions.

3.3 AESTHEMOS

Given the central role of emotions in player experience [33, 73] and art experience research [46, 66, 70], we employed the Aesthetic Emotions Scale (AESTHEMOS). The AESTHEMOS was developed and validated by Schindler et al. [66] to account for the variety of emotional responses

to different aesthetic artefacts (e.g., music, painting, and architecture). We decided to use the AESTHEMOS over other scales previously used in PX research on emotional gaming experiences (e.g., the appreciation scale [52] used in [3, 5, 60], which assesses to what extent experiences are perceived as moving and thought-provoking), because it provides a more comprehensive and granular measure of aesthetic experience. Moreover, the AESTHEMOS allows us to situate whether participants' experiences correspond to art experience outcomes previously discussed in Empirical Aesthetics [58].

Specifically, the questionnaire consists of 42 items compiled into 21 subscales and organized into seven superfactors (Negative Emotions, Prototypical Aesthetic Emotions, Epistemic Emotions, Animation, Nostalgia/Relaxation, Sadness, and Amusement). Example items include "I found it beautiful", "Was enchanted", "Felt deeply moved", "Felt a sudden insight", "Was unsettling to me". Statements were rated on a 5-point scale ranging from 1 ("not at all") to 5 ("very"). The full questionnaire and reliability scores (Cronbach's α) for each subscale are listed in Table 3 and the OSF repository.

3.4 Qualitative Content Analysis

To examine in what ways the reported experiences had impacted players (RQ2), we conducted a qualitative content analysis over all open-ended answers [35]. We chose this approach over other qualitative analysis approaches (e.g., thematic analysis), as we could draw from existing work in Empirical Aesthetics [27, 57] on the effects of art experiences to generate an initial code book.

Two of the authors applied the initial set of codes to a randomly selected set of 60 experiences³, after which we expanded the code book to cover additional aspects (e.g., meaning of the game's content/message/interpretation, lasting impression). Some of the additional codes were generated based on the data set, whereas others were derived from Bopp et al.'s [3] code book on emotionally moving game experiences. The finalized code book consisted of 15 categories, further divided into 36 subcategories. One author then applied the final set of codes to the entire data set (n=168), including the optional questions. Sentences formed the smallest coding unit, which could be assigned several codes.

Opinions on the need to assess interrater agreement reliability vary, especially in case a coding unit (here a sentence) can be assigned multiple codes and when two coders do not have comparable levels of experience with coding [12]. We opted for percentage agreement as an index for interrater reliability as it is deemed suitable for both natural text segments and coders of different knowledge levels [12, 39], and thus lends itself well to our exploratory research aim. As recommended by Campbell et al. [12], we calculated the interrater reliability twice, once after the random coding of 20 experiences (range 60% - 100%; $Mean = 0.83$; $SD = 0.13$) and once after resolving disagreements through discussion, revising the code book, and re-coding of the same 20 experiences (range 65% - 100%; $Mean = 0.87$; $SD = 0.12$; the agreement percentage of each codes can be found in the OSF repository).

Next, the subcodes *insight*, *meaning of the game's content/message/interpretation*, and *healing experience* were split further into subsubcodes for more in-depth analysis. For instance, the subcode meaning of the game's content/message/interpretation was divided into thoughts on the game, game genre, games as a medium, the games industry, and game developers (see the OSF repository).

Note that responses from the six participants who did not report an art experience with games were excluded from the qualitative content analysis.

³Each of the two first authors coded a set of 40 experiences: the same 20 experiences were coded by both authors to ensure interrater reliability; Two separate sets of different 20 experiences were coded by each authors to look out for aspects not covered by the initial code book. This resulted in total of 60 experiences analysed (i.e., 20 by both, 20 by coder 1, 20 by coder 2).

4 RESULTS

The largest proportion of reported experiences took place within 2 months before study participation (54 of 168). A few participants recounted their first art experience involving games, instead of their most recent one, reasoning that they "can remember it much more vividly than anything i watched or played in the recent past" (ID137, *Grand Theft Auto: Vice City*). While participants' experiences covered a wide variety of games and genres, *The Legend of Zelda: Breath Of The Wild* ($n = 8$), *Journey* ($n = 7$), *NIER: Automata* ($n = 6$) and *Red Dead Redemption 2* ($n = 6$) were among the most frequently mentioned games.

When describing their art experience, the 25 participants with professions related to games tended to make note of the expressive and thought-provoking potential of games. In contrast, participants with no background in games, emphasized the beauty and emotional intensity of their experience, as well as praised the game developers' artisanship. However, given the small sample size of participants with a professional background in games, we decided not to pursue analysis further (but refer to the [OSF repository](#) for more detail).

In the following, we report on the emotional responses that constituted art experiences with videogames (RQ1), as well as how these experiences impacted players (RQ2). We do not report on the content of the individual experiences, as these are closely intertwined and somewhat redundant with RQ2. Again, we refer interested readers to our OSF repository, which contains all conducted analyses, descriptive statistics, and data.

Illustrative participant quotes are kept in their original wording, where brackets contain the unique ID numbers assigned to each participant⁴. All quotes are printed verbatim, including grammar and spelling unless denoted otherwise.

4.1 Emotional Responses

To address RQ1, we examined participants' emotional responses via their AESTHEMOS ratings. Due to the exploratory nature of our study, we refrain from computing hypothesis tests [81] and instead report descriptive statistics (means M , pooled standard deviations pSD ⁵) and confidence intervals CI_{low} and CI_{high} [23]. We also refer readers to the OSF repository for violin plots of the individual items and emotion subscales, which visualize the distribution of the AESTHEMOS items more clearly.

Players rated their experiences rather highly on prototypical aesthetic emotions (see [Figure 1](#)). Overall, the Feeling of Beauty (which included Liking) had the highest mean score ($M = 4.62$; $pSD = 0.75$) and second smallest distribution ($CI_{low} = 4.48$; $CI_{high} = 4.76$, see also [Table 1](#)), indicating that *most* participants rated their experience as very beautiful. Participants also reported rather pronounced feelings of fascination, awe, and being moved during their experience – although the latter exhibited a broader distribution, indicating that these emotionally moving experiences varied to a greater extent.

Participants scored their experiences also rather highly in terms of Epistemic Emotions, rating their experiences as interesting ($M = 4.03$; $pSD = 1.1$), intellectually challenging ($M = 3.73$; $pSD = 1.01$) and insightful ($M = 3.66$; $pSD = 1.3$).

Art experiences scored relatively highly on feelings of Enchantment ($M = 4.06$; $pSD = 1.15$), whereas Nostalgia ($M = 3.32$; $pSD = 1.44$), Relaxation ($M = 3.25$; $pSD = 1.4$), Energy ($M = 3.25$; $pSD = 1.4$), and Vitality ($M = 3.09$; $pSD = 1.32$) were less pronounced. With regards to

⁴Note that ID numbers range non-continuously from 8 to 674. LimeSurvey assigns an ID number to each person clicking the survey link, which is why ID numbers do not match the actual number of participants.

⁵combined standard deviation (SD) of the two items per subscale

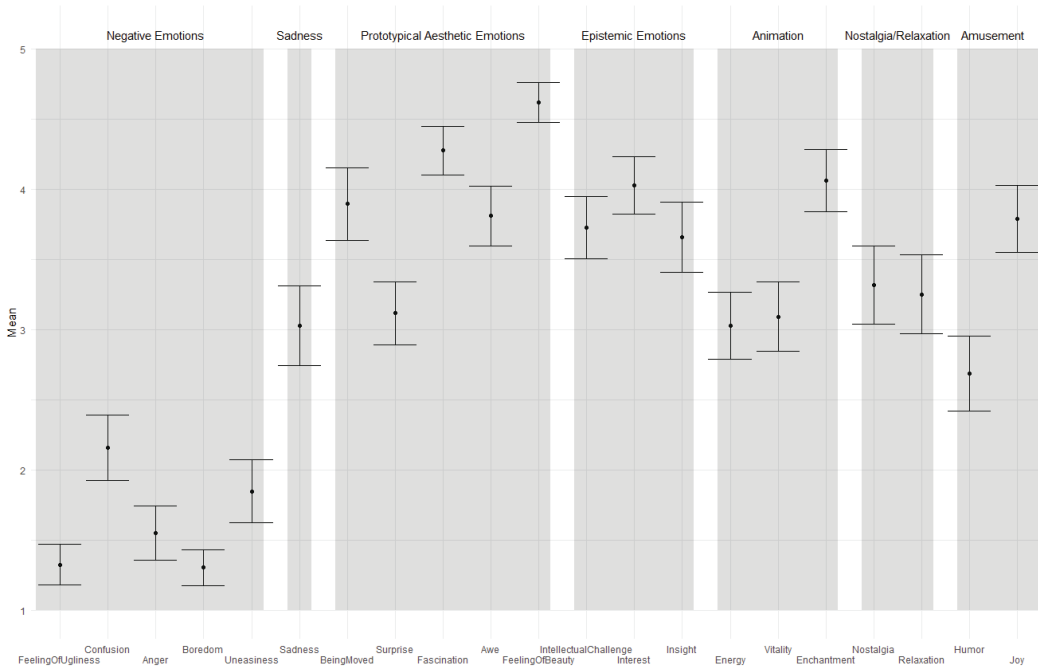


Fig. 1. Means and Bonferroni corrected 95% CIs for 21 CI ($z = 2.82$ [6]) over all participants who reported an art experience with games ($n = 168$).

Table 1. Descriptive statistics of all 21 AESTHEMOS subscales, including the Mean, pooled standard deviation (pSD), confidence interval limit low (CIlow) and high (CIhigh). For the descriptives of each individual item, please refer to Table 3 and the OSF repository.

Subscale	Mean	pSD	CI low	CI high	Subscale	Mean	pSD	CI low	CI high
Feeling of Ugliness	1.33	0.67	1.18	1.47	Intellectual Challenge	3.73	1.01	3.51	3.95
Confusion	2.16	1.08	1.92	2.39	Interest	4.03	0.94	3.82	4.23
Anger	1.55	0.9	1.36	1.75	Insight	3.66	1.15	3.41	3.91
Boredom	1.31	0.59	1.18	1.43	Energy	3.03	1.1	2.79	3.27
Uneasiness	1.85	1.04	1.62	2.07	Vitality	3.09	1.13	2.85	3.34
Sadness	3.03	1.3	2.74	3.31	Enchantment	4.06	1.03	3.84	4.28
Being Moved	3.9	1.19	3.64	4.15	Nostalgia	3.32	1.29	3.04	3.6
Surprise	3.12	1.03	2.89	3.34	Relaxation	3.25	1.3	2.97	3.53
Fascination	4.27	0.8	4.1	4.45	Humor	2.69	1.22	2.42	2.95
Awe	3.81	0.98	3.6	4.02	Joy	3.79	1.1	3.55	4.03
Feeling of Beauty	4.62	0.65	4.48	4.76					

Amusement emotions, experiences scored rather low on Humor ($M = 2.69$; $pSD = 1.34$), whereas most participants reported average to strong feelings of Joy ($M = 3.8$; $pSD = 1.21$).

Overall, low scores were observed for *negative emotions*: Boredom ($M = 1.31$; (pSD) = 0.74) and feelings of Ugliness ($M = 1.327$; $pSD = 0.81$) scored lowest. In contrast, sadness was almost uniformly distributed over the scale ($M = 3.03$; $pSD = 1.46$; note the violin plot in the OSF repository), indicating that for some participants sadness was an essential part of the experience, while for others it hardly featured.

4.2 Impact of Game Experience

To answer RQ2, we first examined how many participants had indicated whether the experience had changed their perspective on the game, themselves, or games as a medium. Following this, we analyzed the entirety of open-ended answers via qualitative content analysis to further specify the various impacts the reported experiences had on participants.

Overall, most participants stated that the experience had changed their perspective in some way (see Table 2). The largest proportion indicated that the experience had changed their opinion of the game, usually for the better (e.g., "Before I played through the story, I thought it was just a violent shooter game, but I realized how beautiful, artistic, and complex it really is." ID37; *Red Dead Redemption 2*). A substantial number of participants also indicated that the experience had impacted their self in some way (92/140), whereas less than half noted a change in perspective on games as a medium. Note, however, that many participants who reported no changes on this point already considered games as a form of art (e.g., ID8, ID12, ID67, ID87, ID116).

Table 2. Absolute and relative frequencies of participants who noted a perspective change. Note that $n = 140$, as these questions were optional in the survey.

Changed Perspective on Game:	Changed Perspective on Self:	Changed Perspective on Medium:
120 (85.71%)	92 (65.71%)	61 (43.57%)

In the following, we report the various impacts of the recounted experiences in more detail.

4.2.1 Emotional Resonance and Healing. In line with the above findings, participants emphasized the emotional impact of their experience, describing how it resonated for hours and days after playing ($n=23$): "I felt the feelings from this game for the next day at least, as the emotions were particularly powerful." (ID194, *Dear Esther*). This emotional resonance was deeply intertwined with participants' memories, "warm(ing) my heart [...] whenever I remember the game." (ID266, *Unravel Two*), even "Though I may not remember the specifics of *Oxenfree*, nor how it ended, I vividly recall what I felt." (ID155, *Oxenfree*).

Several participants ($n=14$) highlighted the healing and relaxing impact of their experience, which provided "a few moments of pure bliss" (ID627, *Red Dead Redemption 2*), or "affects me in that it makes me feel better about myself" (ID348, *Animal Crossing*).

In these instances, participants typically praised the visuals and beauty of the game world: "There was something very serene and beautiful about being elevated and getting to see the rest of this particular level of the game." (ID205, *Sekiro: Shadows Die Twice*), and would revisit the game "just to wander around and enjoy the atmosphere even though I've already completed the main story" (ID321, *The Legend of Zelda: Breath of the Wild*). However, a few participants emphasized healing qualities of the game narrative, such as ID367 who "kept quotes from the game in my everyday life [...] (which) I remind myself when my mental health begins to fade." (*The Last of Us*).

4.2.2 Thoughts on the Game and its Developers. Several participants ($n=38$) reported how the experience made them ponder the meaning of the game's narrative or its intended message: "I think it was trying to communicate that existence, particularly human existence as a sentient and intelligent life form, is terrifying but beautiful nonetheless." (ID398, *Disco Elysium*). These interpretations of a game's possible meanings were often linked to it being likened to art, as in the case of one participant's experience with *Shadow of the Colossus*, where "winning does not feel like victory. I think that is exactly what the game tries to tell to the players. And that made me feel the gaming experience like art" (ID512).

Moreover, the recounted experiences sometimes altered participants' impression of the game (n=38): "I started off thinking it was just an aesthetically pleasing metroidvania. Now I view it as a beautiful, thought-provoking piece of art." (ID75, *Hollow Knight*). These realizations sometimes even shaped the participant's playstyle: "I started off playing to destroy things, but I started wanting to just admire those things instead, and I eventually wanted to create more of those things, although I couldn't, which was frustrating." (ID174, *Grand Theft Auto V*).

A few participants also commented how the experience made them feel a sense of connection with the developers, "that I and the developers share something, a common viewpoint or a lived experience or something similar." (ID87, *In the Pause Between the Ringing*). Others speculated on the developers' approach to the game's production: "I believe the developer Toby Fox had a vision of creating a feelgood experience and being a one man developer team; was able to fulfill this vision to an accuracy that would be difficult for teams of a larger size." (ID557, *Undertale*).

4.2.3 Changed Playstyles and Views on other Games. Participants' art experience also colored their approach to other games (n=14), with changes in playstyle carrying over into other games: "it helped me realise that the personal journey with a game is the most important thing when playing it. I used to focus more on getting things right in a game, getting the perfect ending but I've done a complete one-eighty now. I just want my story to be mine." (ID563, *Life is Strange*).

This increased awareness of the artistic potential of games made participants "expect a higher standard from the games I play." (ID222, *The Witcher 3: Wild Hunt*). Participants now "enjoy being more critical and questioning of works and stories." (ID451, *NieR: Automata*). However, one participant also remarked that "this game made me have higher expectations about similar videogames, making it harder to enjoy them" (ID152, *Call of Duty: Black Ops*).

4.2.4 Views on Games as a Medium. Many participants described how their experience changed their view on games as an artistic medium (n=61); for instance, "open(ing) my mind to experience more games as art." (ID66, *Rain*). Emphasis often lay on how the game in question pushed the boundaries of the medium.

For instance, the storytelling of *NieR: Automata* was described as "extremely innovative [...] and thus matur(ing) the entire medium." (ID451, *NieR: Automata*).

A participant further explained how their experience heightened their appreciation for the craft of game development: "It opened my eyes to game developers being able to massively influence a person's opinion through thoroughly crafted storytelling. It's so subtle that most people who play the games wouldn't even realize it." (ID389, *The Elder Scrolls Online*).

Yet, despite a general consensus among participants on games' status as an artistic medium, some participants remained skeptical of how others perceive games: "Video games aren't treated as what they are, as art. People see video games as some mindless stupid thing for kids to enjoy. But really it can be deeper than that. Which unfortunately makes us surprised more often than not." (ID674, *Portal 2*).

4.2.5 Sparking Interest for Non-Game Topics. Several participants explained how their experience had sparked their curiosity in topics outside of games, but which the game had touched upon (n=12), including Chinese history, Carl Jung's psychological theories, science fiction stories, or "motivated me to become to read more English works" (ID431, *Photopia*) when English was not their native tongue. Others became inspired to engage in artistic activities themselves; for instance, citing the music in *The Legend of Zelda: Ocarina of Time* as the reason they "[d]eveloped an interest in composition (music)" (ID584).

4.2.6 Better Self-Understanding. Several participants noted how the experience led to a better understanding of their self (n=30); for instance, describing it as "having a mirror held up, the

game was an experience to vent/explore those feelings that I had otherwise repressed." (ID301, *Firewatch*). Similarly, one participant emphasized how *Oxenfree* invited exploration of their feelings, which "helped me better understand my emotions." (ID155) and realize that "it is about better understanding myself and how my emotional side sees the world".

Participants also explained how the experience made them reflect on current and past life experiences: "Through the whole path, I was locked in a reflective state on what made me 'me', and what doesn't. [...] When I walked through the door to say I was a loner, I really did pause and think on how, despite past anguish, I'd chosen that reality myself. I can't change that, but there are upsides to the choice." (ID537, *The Secret World Legends*).

Others explained how the experience brought to the fore dearly held values: "I think my emotional experience of that game stemmed from my appreciation for continued companionship and emotional commitment in the face of strife and danger. The game depicted the beauty of that interdependence perfectly and gave me a sense of profound warmth and tenderness. It made me realize just how much I appreciate those things." (ID266, *Unravel Two*).

4.2.7 Personal Transformation. Finally, a few participants described how the experience had changed them personally in some way (n=17). Some explained that the experience had contributed to their becoming a "better" or more authentic version of themselves – that "for a while at least, I felt like my soul got a little bit cleaner." (ID512, *Shadow of the Colossus*). For instance, playing through *Portal 2* made ID674 realize that "the way I was before. I just masked it. [...] I became more like myself in the end, and much like progression in video games more of me becomes open and unlocked for more I play. I become more of who I am." (ID674, *Portal 2*). Others considered themselves "a slightly softer person now, with more understanding and appreciation for myself." (ID667, *Ori and the Blind Forest*), and "slightly more likely to express affection and show those close to me that I love them." (ID206, *Legend of Zelda: Breath of The Wild*). For some, this heightened sense of self-understanding also related to increased self-acceptance, when the experience "made me [...] slightly more forgiving for my own mental health. It showed me that strength can still be found in this 'perceived weakness'." (ID393, *Hellblade: Senua's Sacrifice*).

Finally, several participants explained how their experience allowed them to be more comfortable and accepting in the light of suffering:

"For me personally, it meant the world to me – i had just lost a close family member and was stuck in a really dark place, pretty much having given up on any hope of positive change. That is why i felt so connected to these characters who were stuck in a grim and hopeless world, in an endless loop of struggle and death. When in the end, these characters all survived, thanks to the actions of another player – in a strictly singleplayer game with no online functionality what so ever outside of this experience – i, too, felt that there was hope. Hope for humanity as a whole, hope for better days. Hope for myself." (ID232, *NieR: Automata*).

4.2.8 Negative Impact. Five participants reported how the experience had impacted them negatively in some way. For instance, ID294 recounted that playing *What Remains of Edith Finch* impaired their mental health, as they were not "mentally prepared to play" and found "the game off putting because of it".

Others reported more conflicting experiences, for example, stating that "The Last of Us 2 was art in that it was engaging, thought-provoking, very distinct and often unenjoyable – a work of art that I appreciate aesthetically yet also find numerous flaws with" (ID609, *The Last of Us 2*). The same participant further added that they "felt indifferent after finishing it". In another example, ID500 described how " (*NieR: Automata*) annoyed me overall and I didn't quite get why so many

people recommended it so I looked up some articles/podcasts afterwards to try and understand this more. Overall I found the game rather pretentious and difficult to understand". Yet "even if I didn't like it too much I still see it as an example art due to the amount of creativity energy and thought that went into it – plus it attempted to do more than 'just' entertain". Nevertheless, ID500 also remarked that they "might be more likely to avoid similar titles!" in the future.

5 DISCUSSION

In the last decades many debates have revolved around whether videogames could be considered "art". These arguments are rooted in game industry visions [20], art criticism [37, 76], as well as philosophical accounts of aesthetics [2, 69]. In contrast, PX research has to date largely overlooked the videogame "art experience" [but see 18], despite a growing interest in games' capacity to afford emotionally complex and reflective experiences [e.g., 3, 29, 84]. We set out to explore the types of game experiences that players identify as "art", the emotions that characterize them, and how these experiences impact players. Indeed, our findings indicate that – at least when prompted – people can easily recall and recount game experiences they consider art. As such, our study provides the first empirical account of the videogame art experience, as encountered by players in their everyday lives. In the following, we discuss our most notable findings and their implications.

One feature typically ascribed to art [24] – as well as notions of games as art [49, 76] – is the capacity to engender emotions in people. In our study, we found that prototypical aesthetic (e.g., feeling of beauty, fascination) and epistemic emotions (e.g., interest, intellectual challenge) were among the most salient emotions characterizing videogame art experiences. As indicated by the open-ended responses, participants valued games for the direct sensory pleasure they provided [49, 76], and for intellectual engagement with a game's meaning [76], further suggesting that reflection can form an important part of the player experience [44, 84]. In line with previous work on emotional gaming experiences [3, 43, 84], our findings further showcase that the feelings afforded by the experience seem to resonate and linger with players – sometimes long after playing.

Note that the AESTHEMOS subscale for feeling of beauty includes the item "I liked (the experience)" (see Table 3). While this may be considered a potential confound of the beauty measure, it also suggests that participants overall value videogame art experiences. Relatedly, emotions associated with negative art experiences (i.e., abort outcomes [58]), such as ugliness, anger, and boredom were scored low, suggesting that the reported art experiences were considered positive by most participants.

While the above findings are not unexpected, as they correspond to emotional responses characteristic of harmonious and transformative art engagement [58], we were surprised that negative emotions and sadness did not figure more prominently. While emotionally challenging [5, 13, 60] and serious game experiences [43] have been linked to notions of art [5] and the avant-garde [13], sadness or discomfort do not seem inextricably linked to videogame art experiences [29]. Conversely, while epistemic emotions are core to Empirical Aesthetics [58, 59, 66], they have received relatively little direct attention within PX research – but refer to [38, 65, 78] for investigations into curiosity, a well-established aesthetic emotion [25]. The high scores in our study suggest that epistemic emotions may be a particularly interesting avenue for PX research, both to gain a better understanding of the videogame art experience, and player experience more generally. For instance, while curiosity has been linked to certain types of uncertainty [38], intellectual challenge is likely central to games that demand active interpretation from players [1, 14], and insight may be more indicative of transformative reflection [44, 84].

Moreover, our results suggest that videogame art experiences appear to have a pronounced impact on players. The majority of participants reported how their experience made them reconsider their opinion on the game, or come to a sudden realization about the game's themes and meaning.

These instances seem to correspond to the insight experiences observed in Empirical Aesthetics [56], as well as notions of dialogical and endo-transformative reflection in games [44, 84].

Notably, while previous works on reflection and perspective-challenging moments in games observed few instances of exo-transformative reflection [44, 84] – moments of transformative reflection that affect players' beliefs or actions outside play [84, p. 342] – our findings suggest that videogame art experiences appear to hold considerable transformative potential. Similar to studies on mixed and negative emotional game experiences [3, 5, 29], our participants reported how their experiences led them to ponder matters of identity and self-understanding, explore their feelings, or even simply reconsider their playstyle and approach to games as a medium. Again, these findings are in line with our expectations, as these contemplations are characteristic of art experiences with other media [27, 68]. Of course, not all emotional experiences provoke deep reflection, nor need reflection and insight be tied to strong emotional experiences, whether in the traditional arts [58] or in games [5, 44, 84]. Nevertheless, together with previous work [3, 5, 29], our study suggests that the emotionality of player experience is, to some extent, linked to videogames' transformative potential [64]. As such, models from Empirical Aesthetics [e.g., 58, 59] may answer calls towards a research agenda for "Empirical Game Aesthetics" [2] and be productively applied to player-computer interaction, to identify psychological mechanisms and facilitating circumstances in which emotions experienced during play may more effectively support transformative reflection.

5.1 Limitations and Future Work

First, the reported art experiences with videogames should not be seen as definitive or exhaustive accounts. For instance, participants' accounts concerned mainly representational aspects of videogames (i.e., audio, visual elements, and narrative). Few participants emphasized a game's mechanics or gameplay. This may be due to our participants' associations with the term "art", in that they may have recalled experiences that *resemble* art experiences with other media, or conventional notions of the art experience. Indeed, most experiences described in our study seem to correspond to the harmonious and transformative art experiences detailed in Empirical Aesthetics research [58]. As such, the present study was also unlikely to find purely uncomfortable gaming experiences, such as the ones reported by Gowler and Iacovides [29], which may correspond to the abort outcomes discussed in Empirical Aesthetics [58].

Relatedly, our findings featured relatively many accounts of exo-transformation, compared to previous studies on reflective and perspective-changing player experiences [44, 84]. This may be due to the wording of our survey questions (i.e., directly asking about different impacts) having rendered such instances particularly salient to participants. Conversely, given the prominence of transformative experiences in the arts [58], exo-transformation may be particularly characteristic of videogame art experiences, especially when accompanied by epistemic emotions [58].

Second, while our findings primarily concern representational aspects of videogames, game scholars have pointed towards the aesthetics of agency [48] as well as the kinaesthetic pleasures of videogame play [75, 76], "the qualities of the physical interaction with the gaming device and the physical world it depicts" [76, p. 181]. It seems evident that kinaesthetic pleasure is often central to players' aesthetic experiences (e.g., when navigating Link through the landscapes of *The Legend of Zelda: Breath of the Wild*) and poses a promising avenue for future work.

Conversely, previous works have suggested that game rules (e.g., goals, win states) and dexterity-based gameplay may be antagonistic or even incompatible with the art experience, as they distract players from a game's aesthetic qualities [13, 18]. As noted, few participants in our study explicitly mentioned game mechanics, and one participant (ID82) even mentioned regularly playing a game for its aesthetic qualities, despite disliking the gameplay. More work is needed to examine how games' unique qualities shape the art experience and players' understanding thereof. While Empirical

Aesthetics does not provide conceptual or methodological paradigms that readily apply to the functional properties of games, the AESTHEMOS [66] may nevertheless prove useful to evaluate how game mechanics affect "players' perception of a video game's artistic value" [18, p.3].

Third, while confusion ratings were overall low, they raise interesting questions for future work. Silvia [70] argues that confusion is an indicator of an "unsuccessful" art experience, where the perceiver fails to draw meaning from an ambiguous stimulus, whereas interest arises from successful meaning-making. Likewise, Pelowski [59] argues that confusion is a sign of experienced discrepancy that can either result in an abort outcome or a transformative experience, pending resolution or acceptance of this confusion. Consequently, the role of confusion in the player experience could be of interest for both PX researchers and game designers looking to elicit transformative experiences [63, 64].

The relation between sadness and being moved poses another promising avenue for future work. Past research has linked the two emotions for both experiences with videogames [3, 19], and with other media [30, 45, 82]. In our data, however, participants reported all possible values of sadness, while being moved was consistently rated highly, indicating its greater salience during the experience (see Figure 1). Moreover, while the mean and standard deviation of sadness in our sample is rather unremarkable, the violin plot demonstrates its almost uniform distribution (see the OSF repository). This finding suggests that sadness and being moved are not always equivalent in the context of videogame art experiences, as well as that for some videogame art experiences sadness was an important factor. The concept of *Kama Muta* – a form of being moved characterized by an increased sudden awareness of closeness towards or among other beings [26] – may be instrumental to explicating the sadness-moved relation. Further studies on the interrelation of aesthetic emotions and the game characteristics that shape them would extend our understanding of emotionally complex player experiences [3, 29].

Fourth, our ancillary analyses showed that players with different professional backgrounds seem to focus on different aspects when reporting their art experience. In Empirical Aesthetic, the viewer's expertise and interest in art-related topics and art-making play a significant role in determining their art experiences [e.g., 74]. It remains to be seen to what extent players with differing expertise actually *experience* games differently, or whether their familiarity with gaming tropes [80] primarily shapes how they describe and verbalize their art experiences with games. Interviews might be particularly suited to gain more in-depth insights into how players of varying backgrounds articulate art experiences with games, and help clarify the role of expertise.

Fifth, given the present study's exploratory approach, no conclusions may be drawn with regards to whether and to what extent videogame art experiences *cause* changes in players' perspectives, opinions, or self-understanding. Research on the socio-epistemic impact of art [see 68, for an overview] may benefit future PX research aiming to identify potential causal mechanisms.

Finally, our dataset might yield additional insight into the player experience. We invite readers to explore our data set in the supplementary material and hope that games researchers will find the open data and materials useful for their own future works.

6 CONCLUSION

The status of videogames as art has been a point of contention. While many discussions have revolved around why videogames should or could be thought of as art, whether players ever experience games as art has not been empirically examined yet. In this paper, we introduce Empirical Aesthetics as a paradigm to help expand our understanding of games not only as entertainment products, but as an art form capable of affording the entire spectrum of aesthetic emotions. We find that game "art experiences", as reported by our participants, are accompanied by aesthetic and

epistemic emotions, which have so far not been considered in PX research. Moreover, our findings suggest that art experiences with videogames appear to bear considerable transformative potential.

7 DATA AVAILABILITY STATEMENT

All data and analysis can be found at <https://osf.io/ryvt6/>.

8 AUTHOR CONTRIBUTION

EDM and JBV conceptualized the study. JBV designed and constructed the study. JAB and EDM recruited participants. JAB and JBV conceptualized and conducted the Qualitative Content Analysis. JAB analysed the qualitative results; JBV analysed the quantitative results. JBV and JAB wrote the first draft. All authors contributed to writing the final version.

ACKNOWLEDGMENTS

Special thanks to Barbara Keller and Roosa Piitulainen for contributing additional explorations of the dataset. We also thank April Tyack for input on the text and concepts of this paper. Jan Vornhagen was supported by Aalto University Department of Computer Science internal funding.

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A TABLES

Table 3. Full AESTHEMOS questionnaire, descriptive statistics and Cronbach's α for each AESTHEMOS dimension ($n = 168$).

Item Name	Item ID	M	SD	Cronbach's α
I found it distasteful	Ugliness_1	1.18	0.59	.54
I found it ugly	Ugliness_2	1.48	0.98	
I felt confused	Confusion_1	2.17	1.18	.65
It was unsettling to me	Confusion_2	2.14	1.31	
It made me aggressive	Anger_1	1.68	1.12	.73
It made me angry	Anger_2	1.42	0.89	
I felt indifferent	Boredom_1	1.21	0.54	.46
It bored me	Boredom_2	1.40	0.89	
It worried me	Uneasiness_1	1.93	1.25	.58
Felt oppressive	Uneasiness_2	1.77	1.23	
I felt deeply moved	BeingMoved_1	3.83	1.29	.87
It touched me	BeingMoved_2	3.96	1.23	
It baffled me	Surprise_1	2.47	1.36	.52
It surprised me	Surprise_2	3.76	1.15	
I was impressed	Fascination_1	4.32	0.94	.6
It fascinated me	Fascination_2	4.23	0.96	
I liked it	Beauty/Liking_1	4.69	0.61	.65
I found it beautiful	Beauty/Liking_2	4.54	0.87	
It challenged me intellectually	Int. Challenge_1	3.27	1.31	.68
Was mentally engaged	Int. Challenge_2	4.18	1.00	
I found it sublime	Awe_1	3.96	1.11	.45
I felt Awe	Awe_2	3.65	1.33	
Made me curious	Interest_1	3.78	1.24	.62
Sparked my interest	Interest_2	4.27	0.95	
I felt a sudden insight	Insight_1	4.01	1.26	.75
I sensed a deeper meaning	Insight_2	3.30	1.34	
It motivated me to act	Energy_1	2.96	1.40	.56
It energized me	Energy_2	3.10	1.24	
It spurred me on	Vitality_1	3.11	1.35	.65
It invigorated me	Vitality_2	3.07	1.28	
I felt something wonderful	Enchantment_1	4.01	1.17	.74
I was enchanted	Enchantment_2	4.11	1.13	
It made me feel nostalgic	Nostalgia_1	2.96	1.52	.74
It made me feel sentimental	Nostalgia_2	3.67	1.36	
It calmed me	Relaxation_1	3.27	1.38	.84
It relaxed me	Relaxation_2	3.23	1.42	
It made me sad	Sadness_1	3.10	1.45	.73
It made me feel melancholic	Sadness_2	2.96	1.48	
It amused me	Humor_1	3.11	1.38	.79
It was funny to me	Humor_2	2.27	1.31	
It delighted me	Joy_1	3.80	1.16	.8
It made me happy	Joy_2	3.78	1.25	

Received February 2021; revised June 2021; accepted July 2021