Aesthetic Experiences as Mirrors of the Self: A Pilot Study

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Abstract

Aesthetic experiences (AE) are a vital part of the human experience. Due to their complexity and personal nature, investigating the cognitive factors that make every-day AE so meaningful to people is notoriously challenging. Based on neuroaesthetic research that has demonstrated the link between AE and self-referential processes, this pilot study sets out to investigate personal every-day AE and how they shape and consolidate personal self-concepts. 61 participants were assessed on their engagement in self-reflection and the clarity of their self-concepts. They then recorded their naturally occurring aesthetic encounters and rated their subjective impact across the span of four weeks. Participants were given the opportunity to share the meaningfulness of their experiences in written think-aloud protocols. Through the combination of quantitative and qualitative methods it could be shown that highly meaningful AE are more often interpreted with relation to self-concepts than less meaningful AE. Tentative exploratory results show that the tendency to engage in self-reflection could be related to the frequency of aesthetic encounters. In addition, self-concept clarity could be linked to both the frequency and meaningful interpretation of AE. This study shed a light on the cognitive impact that AE can have and provides a basis for future research of the dialectical integration and discovery of self-concepts through aesthetic encounters.

Keywords: diary study, aesthetic experience, self-reflection, self-concept, self-referencing, meaning-making

Aesthetic Experiences as Mirrors of the Self: A Pilot Study

In every-day life, people frequently encounter a variety of aesthetic experiences. An aesthetic experience (AE) could be elicited by the mesmerizing dance of dust particles on the backdrop of an antiquarian bookstore, or a bustling city scape on a hot afternoon. Some people may find themselves enveloped in a haunting sense of solitude while standing beneath the towering expanse of a concrete bridge on a misty evening. Others might experience an exciting suspense produced by looking at an intricate painting, or feel chills rolling down their spine when listening to a particular piece of music. What makes these experiences subjectively special and impactful beyond the mere experience of pleasure?

Aesthetic encounters are usually initiated by the pleasure or liking for a stimulus, and elicit a range of discrete and complex emotional states (Chamberlain, 2023; Silvia & Nusbaum, 2011). At their most intense, they are frequently described as awe-inducing, eliciting a "feeling of beauty" or as being spiritual or transcendental in nature (Dewey, 1934; Pelowski et al., 2017). This is often marked by accompanying elaborate cognitive processes. In the last two decades of aesthetics research, those cognitive processes have increasingly received attention, mainly in specific relation to the cognitive mastery of visual art (Leder et al., 2004; Pelowski et al., 2017; Vessel et al., 2012). The underlying influential mechanisms of aesthetic processing discussed in these models include factors such as art knowledge, education and exposure. As can be seen in the examples above, however, AE are not confined to the context of art alone. While products of human creativity are ubiquitously embedded in everyday-life, many AE originate from more complex stimuli than from any one specific object or work of art. In the context of every-day experiences with aesthetics that spontaneously emerge from a dynamic environment (Van Heusden, 2009), theories of art processing may fall short of an explanation of the cognitive processes involved.

It has been argued that AE are fundamentally different from other every-day experiences (Marković, 2012; Menninghaus et al., 2019). The judgement of an aesthetic stimulus as "beautiful" may also encompass negative stimuli that nonetheless elicit pleasure (Frijda & Sundararajan, 2007). Some examples include morbid or grotesque stimuli that are usually associated with negative

emotions, such as fear or sadness. Aesthetic judgements are thought to be relatively independent of the properties of the stimulus itself in contemporary aesthetics research (Vessel et al., 2012) compared to earlier research (Arnheim, 1966; Berlyne, 1974). Especially, as what is perceived as beautiful is not a universal principle, but is dependent on a variety of factors, such as culture (Pearce et al., 2016), education and exposure (Vessel et al., 2012). Thus, in spite of being a widespread phenomenon all over the world (McCrae, 2007), aesthetic values depend on individual and social differences in aesthetic evaluation (Kull, 2022). In addition, AE can be elicited by all sorts of stimuli across all sensory modalities (Brown et al., 2011). This goes to illustrate the complex nature of AE – they range across different contexts, sensory modalities, stimuli and emotional and cognitive processing intensities. Due to this complexity, investigating the factors that make every-day AE immensely impactful is notoriously challenging.

Perception and Meaning-making

Why might the monumental expanse of an overgrown concrete bridge evoke a feeling of excitement and rapture in one person, an eerie sense of loneliness in another, and in some people, nothing at all? As well as initial value judgements of liking and disliking, the cognitive impact and interpretation of AE is heavily dependent on the internal states of the beholder. Being moved beyond liking and pleasure indicates a semantic cognitive processing, a meaning-making of the stimulus. Being moved in general is related to defining life events and social relations, but also to something being experienced as matching personal self-ideals (Menninghaus et al., 2015).

Self-Reference in Aesthetic Encounters

Indeed, self-referential processes are frequently mentioned as a major contributing factor to the meaning-making of every-day aesthetic stimuli in recent years (Larrain & Haye, 2019; Magon & Cupchik, 2023). This implies that when people are engaged in an AE, they may relate the content of the AE to themselves and connect it to their autobiographical narrative. In a broad sense, people can find links in the AE to their identity. It might be difficult to imagine this to happen in the example of a concrete bridge, a specific lighting or the colour scheme of a scenery. When one engages in meaning-

making, what is experienced goes beyond what the eyes can see. The stimulus can be interpreted as being symbolic (Kull, 2022), it can "remind" us of something, activating complex concepts of a specific "life-feel". This vague or discrete sense of symbolism ties into the notion of what Bakhtin (1981) called a "chronotope" that can act as a framework for identity construction (Blommaert & De Fina, 2016).

Neuroaesthetics

The meaning-making process of AE has been studied in the recently emerging field of Neuroaesthetics. Notably, Vessel and colleagues (2012) demonstrated evidence for the involvement of the default mode network regions in the brain when participants were faced with stimulating aesthetic images. Interestingly, these same brain regions are activated not only when emotions are at play, but also in self-referential processes, specifically, when reflecting on subjective self-concepts and identity exploration (Constante et al., 2023; Vessel et al., 2012). Additionally, the conscious aesthetic meaning-making in relation to self-concepts seems to be related to well-being and flourishing (Jacobi et al., 2022). In order to explore empirical evidence of self-concept activation in AE it is constructive to first examine the concept of "the self".

The Self

Arguably, every person has the experience of a distinct self-concept, and yet defining the aspects that constitute "the self" still proves to be a challenging endeavour (Strawson, 1997). One general description of the self-concept is that it consists of the strong subjective unity of the cognitive features that set one person apart from another. Some prominent person-specific factors of self-concepts include values, morals and personal memories (Hitlin, 2011; Singer et al., 2013). Although these self-concepts often are conceptualized as being cognitive traits, they are naturally tied to emotional value judgements – people strive for positive self-evaluations, and the confirmation thereof elicits positive emotions. Many theories on this issue discuss the central need of self-realization or self-actualization (D'Souza et al., 2015; Maslow, 1962). People do not only strive to unify all aspects of their experiences into one cohesive, logical narrative and self-concept, but they also have ideas

about their future - they have inspirations and ideas of what they want to become. Carl Rogers defined this as the "ideal self", and proposed that the continuous comparison of current and ideal self-image forms the self-concept (Rogers, 1947). A third process of self-construction frequently described is that people generally strive to bring all these aspects in balance with their environment. People seek to actively unfold their self-concept through practice, for example, in social roles that match their self-image and ideal self (Edwards & Shipp, 2007). Environmental factors by which people define themselves are, for example, culture (Adams, 2003) and close social relationships (Andersen et al., 2002). All three aspects, the subjective "same-ness" of the self-concept, the unity thereof with the ideal self and the congruence with the outside world are tied to desirable mental health outcomes (Greguras et al., 2014). It has frequently been argued that this perfect fitting within the self (current and ideal) and between the self and the environment constitutes the ultimate goal of life, leading to authenticity, fulfilment, and happiness (Csikszentmihalyi, 1990; Maslow, 1962). This conceptual goal can, however, hardly be achieved. As can be seen in all those theories, the self is constructed through a constant dialogue with a fluid and ever-changing environment (Hermans, 2001). As new challenges present themselves, self-concepts are bound to be adapted.

Self-Reflection

The sense of self only exists in context, it is a constant dialogue of the abovementioned components through self-reflection. Self-reflection (SR) and self-concept clarity are distinct entities, with SR being the process by which emotions, cognitions and behaviours are evaluated (Grant et al., 2002). This evaluation ideally leads to change and transformation of the self (Tilakaratna & Szenes, 2017). Counterintuitively, several studies point to the fact that self-concept clarity (i.e., insight, IN) does not naturally follow from a high need for and engagement in SR (Grant et al., 2002). People with an inclination to frequently self-reflect may not gain many new insights, and likewise, people with a clear insight to their inner being do not necessarily engage in frequent self-reflection. There are individual differences in SR and IN, and self-concept is not solely determined by SR.

Self and AE

Building on the findings that self-referential processes are involved in the meaning-making of AE, the central contributor of the meaningfulness of AE could be the relation of the contents of the AE to the self. The distinction between SR and IN could prove useful to explore this relationship in more detail. People who have a higher need for SR may be more sensitive to aesthetic stimuli, resulting in a higher frequency of AE. Likewise, people who have a very clear sense of self may have more meaningful AE, as they may find it easier to relate them to themselves. If self-reference is a prevalent aspect of AE, this should be evident in the way that people discuss their own personal AE.

The Present Study

This study sets out to explore the cognitive, self-referential processes involved in AE in a real-life setting. Finding tangible examples of those self-referential processes, as suggested by Vessel and colleagues (2012), would considerably contribute to the growing body of research in the field of Neuroaesthetics. In order to capture the complexity of the subject, this study defines AE as "the perception, production, and response to art, as well as interactions with objects and scenes that evoke an intense feeling, often of pleasure" (Chatterjee, 2011). Participants are asked to record their personal AE in diary entries across the span of one month. This longitudinal design helps to reveal the full range and frequency of AE across every-day situations. By means of a self-report questionnaire, participants are asked to judge the impact of their individual AE on relevance, appreciation, intensity and meaningfulness. Additionally, they are asked to discuss the meaningfulness of their AE in written think-aloud protocols. Participants are also assessed on their need for SR and insight into their self-concepts (IN). The SR- and IN-scores are then correlated with the measures of impact, meaningfulness and frequency of AE to explore the relationship. To assess whether the predisposition for SR and IN directly correlates with meaningfulness-judgements and frequency of AE, several Analyses of Variance (ANOVAs) are performed. Finally, written think-aloud protocols about the meaningfulness of AE are investigated for self-referential linguistic patterns.

Exploratory Hypothesis 1. SR and IN are related to the subjective impact of AE (i.e., relevance, appreciation, intensity and meaningfulness).

Exploratory Hypothesis 2. The predisposition for SR and IN is linked to the frequency and meaningfulness of AE. Specifically,

2a) SR positively correlates with the frequency of AE, and

2b) IN positively correlates with the meaningfulness of AE.

Hypothesis 3. Self-referential thematic patterns increase as the meaningfulness of AE increases.

Method

On the basis of a checklist developed by the EC-BSS at the University of Groningen, the study was exempt from full ethical review (PSY-2324-S-0031).

Participants

The convenience sample consisted of 236 participants, of which 61 participants met the final criteria for this study (52 female, 9 male, 0 intersex). More specifically, respondents who failed to fully complete the questionnaire by December 10, 2023 were excluded from the analysis of the present study. Over 93% of the participants ranged from 18-24 years of age (Table 1). The study required participants to be 16 years of age or older and to be fluent in Dutch, German or English (21 Dutch, 5 German, 35 English). Each participant submitted at least two entries to the diary study excluding pre- and post-questionnaires ($M_{entries} = 3.72$, $SD_{entries} = 1.08$), accumulating to a total of 226 journal entries about separate AE.

Recruitment methods included – i) targeted advertisement on the research panel website (SONA) aimed at first-year psychology students at the University of Groningen, Netherlands; ii) public advertisement on the communication/social media platforms (e.g.: Facebook, Instagram, LinkedIn, Twitter, Whatsapp group chats); and iii) flyer distribution at

local centres for leisure, culture and educational activities (e.g.: Dat Bolwerk Museum in Zutphen, bookstores, literary cafes, etc.).

Table 1

Age

	N	%
16-18	1	1,6%
18-24	57	93,4%
35-44	2	3,3%
55-64	1	1,6%

Power

An a priori power analysis was conducted using G*Power version 3.1.9.7 (Faul et al., 2007) to determine the minimum sample size required to test the study hypotheses. Results indicated the required sample size to achieve 80% power for detecting a medium effect, at a significance criterion of $\alpha = .05$, was $N = 159$ for Analysis of Variance (ANOVA), and $N = 84$ for Pearson correlations. Thus, the obtained sample size of N = 61 is not adequate to reliably test the study hypotheses, and the analyses were conducted as exploratory as a basis for future research. A sample size of 12 participants suffices for data saturation for qualitative analyses (Clarke & Braun, 2013; Fugard & Potts, 2014).

Research Design and Procedure

The online self-report survey was designed to assess several personal attributes of participants outside of and in relation to their AE. The survey was made available to participants in an app and a website format designed with Qualtrics

(https://www.qualtrics.com) and was accessible for four consecutive weeks, from November 9 to December 10, 2023. This longitudinal design allowed participants to choose freely when to add entries to report naturally occurring AE. Participants gave their email addresses as identifiers to link their separate entries together, and email reminders to add an entry were sent once per week. The questionnaire was set up in three phases that are described hereafter.

1. Pre-questionnaire (Pre). The pre-questionnaire included informed consent and an information form, a short definition of AE, demographics and self-perceived occurrence, frequency, and relevance of AE. Furthermore, measures of self-perceived stress level, art knowledge and interest, current mood, and self-reflection were assessed.

2. Journal entries. Upon completion of the pre-questionnaire, participants could access the journal entry phase of the survey. Each entry included a reminder of the definition of AE and several questions in relation to the specific AE participants chose to report on. This included the time at which the experience occurred, the perception of time during the experience, and the stimulus that initiated the experience. Furthermore, 7-point Likert-scale measures were used to assess the self-perceived appreciation, intensity, and meaningfulness of the AE. Other measures were used to assess current mood, emotions evoked by the experience, mind-wandering, and immersion. Additionally, participants were prompted to describe the self-perceived meaning of the AE in their own words as per think-aloud protocols by Tenbrink (2015). Participants were given the same questions each time they chose to report a new experience.

3. Post-questionnaire (Post). After the last journal entry, the post-questionnaire could be accessed. It included measures of self-perceived stress level and capability of mental imagery.

Measures

A comprehensive overview of the inventories used to assess specific traits throughout the complete survey can be viewed in Table A1 (Appendix A).

Self-Reflection and Insight

The present study focuses on self-reflection and self-concept measurements in relation to the frequency of AE and the depth of meaning-making of AE. To assess self-reflection, the short version of the Self-Reflection and Insight Scale (SRIS-12) was used (Silvia, 2022). The SRIS-12 consists of 12 items which are assessed on a 7-point Likert scale ranging from '*Strongly disagree*' to '*Strongly agree*'. The SRIS-12 measures private self-consciousness, which splits into the factors of SR, defined as the inspection and evaluation of one's thoughts, feelings, and behaviour, and IN, being the clarity of understanding of one's thoughts, feelings, and behaviour (Grant et al., 2002). Each factor is assessed with six items. The items for SR and IN respectively include statements such as "*I often think about the way I feel about things*", and "*I usually know why I feel the way that I do*". The SRIS has a strong congruent validity and high positive correlations with several other inventories of private self-consciousness, and showed a strong conceptual face validity in a sample of 123 psychologists (Banner et al., 2023, Grant et al., 2002). The test-retest reliability of the SRIS was found to be high across the time-span of 7 weeks, with correlations of SR-scores at $r = .77$ ($p < .001$) and IN-scores at $r = .78$ ($p < .001$).

Aesthetic Experience

For the exploratory analyses, the subjective impact of AE was conceptualized with single-item measures of relevance, appreciation, and intensity, based on a similar questionnaire developed by Buzzo and Sayim (2023). Participants were asked to indicate the appreciation and intensity of their separate AE for each entry on a Likert scale slider that ranged from 1 (i.e., "*not at all intense*") to 7 (i.e., "*extremely intense*"). 1-7. The general subjective relevance of AE was assessed similarly once in the pre-questionnaire. The meaningfulness of each separate AE was assessed with a single-item measurement ("*How meaningful was the experience from 1 = not at all meaningful to 7 = extremely meaningful?*"). Additionally, participants were asked once in the pre-questionnaire to estimate the quantity of AE they usually have per month.

For the qualitative analysis, participants were prompted to describe in writing what made the experience meaningful to the extent that they indicated. In order to obtain relevant results in accordance with Cognitive Discourse Analysis methods (CODA, Tenbrink, 2014), the additional instructions given were:

> "*WRITE DOWN YOUR STREAM OF CONSCIOUSNESS during the whole time you are writing. That is, please write EVERYTHING that comes to mind when you think back on your experience and its significance. We would like you to type CONSTANTLY. Don't try to plan out what you write. Just write as if you were 'speaking to yourself'.*"

Quantitative Data Preparation

In the following analyses, data obtained from the Likert scale-based items was treated as an interval level of measurement, permitting the use of parametric tests (Norman, 2010). This decision was based on the assumption that the underlying constructs (SR, IN, appreciation, intensity, relevance and meaningfulness) are continuous in nature. Additionally,

the descriptions of the slider values were only anchored at their most extreme points, leaving

equal distances between the values from 1 to 7. For the statistical analyses, the scores that

were derived from separate AE were combined into averages per person. For a critical look at

the obtained data, please refer to the limitations in the discussion section.

Results

The statistical analyses were conducted using IBM SPSS Statistics (Version 28.0.0.0).

The Dataset

The spread of the averaged SR and IN measures had a roughly normal shape. Notably,

there were no low scores of SR and only few low scores of IN in this sample (Figure 1). This

could be attributed to the influence of desirability biases or to the sample mainly consisting of

young psychology students.

Figure 1

Spread of the Self-Reflection and Insight Measures
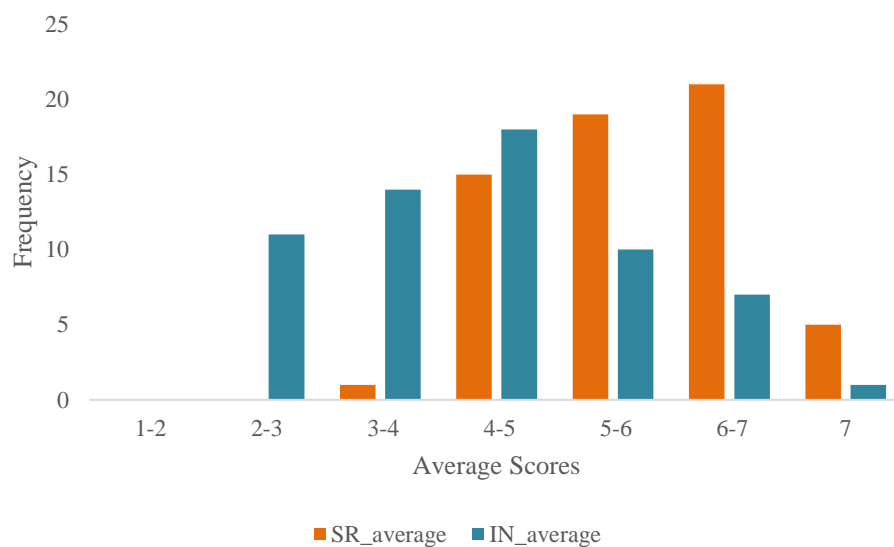
The spread of AE measures was roughly normal, although the data in all cases was slightly skewed to the left, as can be seen in Appendix B (Figure B1). Participants may have had the tendency to report more impactful (i.e., appreciated, intense and meaningful) AE. Descriptives of all measures including AE per month can be found in Table 3.

Table 3

Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	SD
SR_average	61	3.17	7.00	5.60	.95
IN_average	61	2.00	7.00	4.21	1.27
Relevance	61	2.00	7.00	5.18	1.15
Appreciation_average	61	3.67	7.00	5.80	.81
Intensity_average	61	2.00	6.80	4.94	1.05
Meaning_average	61	2.67	6.80	5.10	1.00
AE_per_month	61	.00	100.00	10.68	15.37

Exploratory Analysis 1

Bivariate Pearson's correlations were performed between per-person averages of SR and IN with relevance, appreciation, intensity, meaningfulness, and the reported estimate of AE per month. Overall, the average scores of the SRIS-12 per participant seem to be unrelated or only weakly related with all the assessed measures of AE in the sample. Only SR and relevance showed a significant low correlation ($r = .387$, $p < .01$), as can be seen in Appendix C1.

Exploratory Analysis 2

In order to analyse whether people high and low in SR and IN differ in their meaningfulness and frequency of AE, four separate one-way ANOVAs were performed. None

of the ANOVAs showed a significant result, which was to be expected due to the small sample size and the slight violation of the homogeneity of variances (the detailed results can be found in Appendix C, Table C2). However, medium effect sizes indicated a clear tendency in the sample that tentatively supports the sub-hypotheses 2a and 2b (Table 4). Interestingly, IN also showed a medium effect size with AE per month, indicating that group differences in self-concept clarity could possibly have a bearing on the frequency of AE.

Table 4

Effect sizes of the Analyses of Variance

Variables	Eta-squared
SR and Meaningfulness	0.036
SR and AE per month	**0.090**
IN and Meaningfulness	**0.112**
IN and AE per month	**0.080**

Note. The medium-sized effect sizes are highlighted in bold.

The skewness of the SR and IN scores lead to uneven group sizes. In order to be able to compare the groups adequately, the data was categorized into four groups (low, medium-low, medium-high, high) according to the quartiles of the full range of scores in the sample. Thus, the group differences are to be interpreted not in absolute terms (i.e., low-SR group membership does not indicate a low score in SR, but a comparatively low score in this sample). According to the medium effect sizes, the specific relationship between measures of self-reflection and insight should be investigated in a bigger and more diverse sample.

Qualitative Analysis

Coding

Dutch and German entries were translated into English, resulting in a total of 226 statements of varying length ($min_{words} = 5$, $max_{words} = 297$, $M_{words} = 53.02$, $SD_{words} = 43.09$).

The initial inspection of the statements revealed clearly identifiable themes that participants frequently used when discussing the meaningfulness of their AE. Interestingly, these themes can be linked to the processes by which self-concepts are formed. Some of the reoccurring themes were person-centred and tied to personal narratives, for example, when people discuss their past (memories, nostalgia) and future (i.e., ideal self), personal achievements and sudden realizations about themselves. These themes thus were coded as "Past and Nostalgia", "Future and Inspiration", "Achievement" and "Realization". Two other themes that are more related to the environmental factors of the self manifested in experiences that centred around family, friends and partners ("Relationships") and around "Culture and Tradition". The majority of the themes link to self-concepts and personal narratives by definition (i.e., past, future, achievements and own culture). Experiences that involve significant others or themes of realization were more ambiguous in nature. For the purpose of this analysis, those themes were only coded as such if participants explicitly related the content to themselves. This included realizations about their own inner states of mind, or the effect that a situation with a significant other had on them. To briefly illustrate the manifestation of the self-concepts in AE, two example statements that were coded as "Past and Nostalgia" and "Future and Inspiration", respectively, follow.

> "*I think the experience was somewhat meaningful to me because it was a nostalgic drive and it reminded me of growing up and the experiences I had then and how much I have changed. I think also seeing how much the environment has changed added to that feeling of nostalgia and awe.*"

> "*My experience consisted of cycling home on a sunny day. I really enjoyed this bike ride and admired the people who passed me. You are always surrounded by people when you cycle down the street, but I normally don't notice many people. When I was almost home, I saw a father walking with his son and he threw him in the air (the boy*

laughed with joy). This brought me a lot of love and joy. I admired this little moment between father and son. And I saw the humanity in strangers that I normally don't even notice. Moreover, this created a whole stream of thoughts in me about my future, with perhaps a son who can also spend quality time with his father. In conclusion, this experience was valuable to me because I saw beauty in the little moments and humanity in strangers living their own lives just like me. I was completely sucked into this moment and these thoughts, so I was not concerned with my surroundings (traffic)."

Statements could be coded as involving one, several or none of the themes. It has to be noted that statements were only coded into the respective themes when the AE was clearly defined by said themes, not just if they were mentioned. As an example, when a family member or friend was present while an AE happened but was not the subject of, or contributor to the AE, the statement would not be coded as "Relationships". Some statements were coded as "None", although many of them did include references to the self. Arguably, talking about oneself is inherent in statements about personal experiences. The statements that were assigned into the "None" category only referred to the self on a basic surface-level (e.g., "I love cats", or "It makes me happy"). These statements were characterized by mere descriptions of the AE without clear signs of integration or meaning-making. An example of a statement coded as "None" can be seen in the following.

"From my room I have a great view over the city and sometimes it just catches my attention better than at other times. For example, this morning, I wake up and it was all sunny and bright and it just made me feel soo good to look out at the city and see it so clearly in a beautiful light. Sun always makes my day and the clouds and the sun meet with the buildings makes me feel really good."

A full overview of the coding scheme in addition to notable example statements for the themes can be found in Appendix D.

Prevalence of Self-Concepts

The six themes that relate to self-concepts were found in 110 of the 226 statements (48,67 %). The most prevalent themes that were mentioned by participants when discussing the meaningfulness of AE were "Relationships" and "Past and Nostalgia" (Figure 2).

Figure 2

Spread of Self-Concept themes

Past and Nostalgia • Future and Inspiration • Achievement
Realization • Relationships • Culture and Tradition
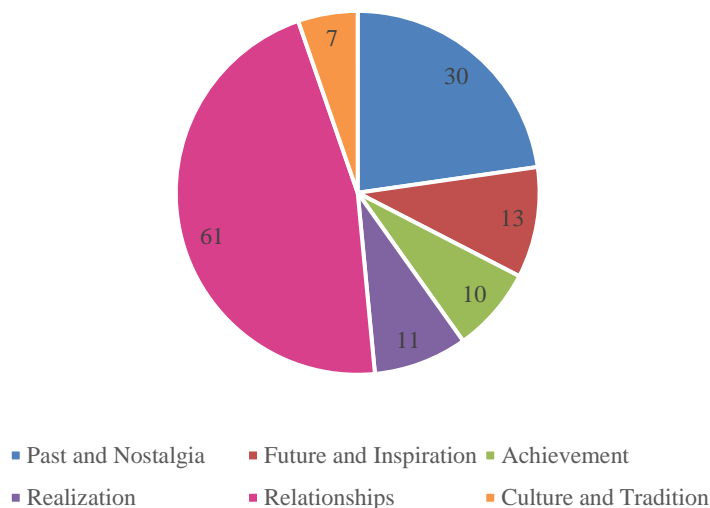
Self-Concepts in Meaningful Experiences

Of particular interest in this analysis was whether more meaningful AE are characterized by their relation to self-concepts. Meaningfulness-ratings were split into low (1-2), medium (3-5) and high (6-7) categories. The categories were then compared with regards to the amount of AE that were and were not related to self-concepts. The amount of AE that involved self-concepts was found to increase considerably as the meaningfulness-ratings

increased (Table 5). This clearly shows that the more meaningful AE are more often interpreted in relation to self-concepts than less meaningful AE.

Table 5

Meaningfulness and Self-concepts

Meaningfulness	Self-Concepts	None	Total
Low	4 (26.6 %)	11 (73.4 %)	15
Medium	44 (38.9 %)	69 (61.1 %)	113
High	62 (63.3 %)	36 (36.7 %)	98
Total	110	116	226

Self-Reflection

Among the statements that included a clear reference to the themes of self-concept, some could be described as displaying explicit, elaborate SR (24.55 %). Explicit SR was marked by statements that included aspects of change, transformation and deep integration into personal narratives. Participants that engaged in explicit SR elaborated on the meaning of their AE by going beyond the description of self-defining aspects. Instead, they processed their own experiences, emotions and motives, illustrated by the following example.

> "*It was the first time I was home in 2 months. Then the time came to drive back to Groningen. It was late and I was very tired. During the train ride I had nice conversations and studied a bit. Then I heard a conversation from two slightly younger girls talking about school and the challenges. Then I started thinking about my school days and student life. Although I was looking forward to learning again and, above all, to interesting content, challenges and my study friends, I became*

thoughtful and missed my school days when everything was relatively safe and easy and was no longer looking forward to starting my studies."

Additional Remarks

Although excluded from the central qualitative analysis, two additional frequently occurring themes were identified in open coding – "pondering life" and "relaxation". "Pondering life" was marked by an external focus on the world and reflecting upon human nature itself, unrelated to direct personal reflection. Examples included participants being mesmerized by traffic and drawing a connection to the dynamic workings of the world as a whole, or observing the intricate natural construction of flowers. The theme "relaxation" exemplified the tendency to find peace and consolation in AE. Many participants reported that particular AE made them feel "at home" and "at peace", or how their AE prompted them to be mindful and appreciative of their surroundings. It was evident how not having any particular thoughts could bring about comfort in itself. This dichotomy is a clear example of how AE may trigger some people to think deeply about the meaning of life, while other people enjoy AE for not having to think at all. Further examples of these statements can be found in Appendix D.

Discussion

This pilot study set out to explore the self-referential processes involved in the meaning-making of aesthetic experiences (AE) n every-day life. The most important findings of this research included that highly meaningful AE are more often interpreted with relation to self-concepts than less meaningful AE (Hypothesis 3). This finding indicates that AE are not only meaningful for purely hedonistic reasons, such as pleasure and enjoyment. Instead, the self-reflection that is triggered by aesthetic encounters directly links to their subjective meaningfulness. The predisposition for self-reflection and potentially resulting self-concept

clarity could not be definitely linked to the frequency and meaningfulness of AE (Hypothesis 2). The results tentatively suggest that the engagement in self-reflection may be related to the frequency of AE (Hypothesis 2a), and that self-concept clarity may be related to both the meaningfulness and frequency of AE (Hypothesis 2b). The more insight into their self-concept people have, the more meaning they may derive from aesthetic encounters, and the easier they may find themselves reflected in AE. Further findings indicated that people who have a higher need to self-reflect tendentially find AE to be more relevant in their lives, affirming the hypothesis that aesthetic encounters are relevant to self- and identity-formation processes (Hypothesis 1). This warrants further investigation in a bigger and more diverse sample.

Qualitative thematic analysis highlighted concrete real-life examples of the self-reflective mechanisms that were theorized to be activated by AE in earlier studies (Vessel et al., 2012). Half of the acquired statements included clear patterns of self-concept activation, showing that people frequently relate aesthetic stimuli to their own narratives. This finding supports the notion of "semiotic fitting" being responsible for the generation of aesthetic encounters (Kull, 2022). The things that people judge to be beautiful and aesthetically pleasing are, in effect, mirrors of themselves, their memories and self-concepts in the environment (Larrain & Haye, 2019). In some cases, AE brought about deep self-reflection, marked by realizations about the self, change and transformation (Tilakaratna & Szenes, 2017). However, this analysis also highlighted that AE are not exclusively meaningful if they are related to the self. In some cases, AE triggered deep reflections about life itself and its meaning. Additionally, AE were shown to satisfy the need for relaxation and mindfulness. This finding is in line with the notion that the engagement in aesthetic encounters provides an opportunity for mental adjustment (Thompson, 2018).

Limitations

A number of limitations apply to both quantitative and qualitative aspects of this study. Firstly, the convenience sample did not have sufficient diversity in age, gender and scores of self-reflection and insight to produce unrestricted generalizable conclusions. The students that responded to the questionnaire may have been interested in aesthetic experiences in the first place, which possibly lead to the under-representation of AE that were judged to be low in impact. This skew in the obtained data interfered with the sensible interpretation of quantitative results. Secondly, the underlying constructs of meaningfulness, appreciation, relevance and intensity in the questionnaire were not clearly defined and could be interpreted in various ways by participants. Third, the qualitative analysis of relatively ambiguous concepts such as self and self-reflection proved to be a challenge. Coding decisions were at times difficult to make, and the results are to a certain extend based on subjective interpretation. Self-reference is commonly studied by the frequencies of discrete linguistic markers. As the use of first-person singular pronouns (i.e., *"I"*, *"me"*) does not necessarily shed light on the depth of self-reflection, thematic analysis was chosen. To ensure that the chosen thematic codes truly reflected the statements, several additional coders could have provided interrater-reliability and validity to the qualitative results.

Strengths

This pilot study was distinctive in its endeavour to shed light on the cognitive processing of AE by supplementing qualitative with quantitative analyses. In-depth thematic analyses are highly warranted to accurately reflect the complexity of idiosyncratic experiences. Thus, this study could paint a much more comprehensive picture of cognitive meaning-making processes in AE than would have been achieved by quantitative analyses alone. In addition, the longitudinal study design and the broad definition of AE allowed for the production of realistic and personal results outside of the conventional definition of aesthetics.

Future Research and Implications

In order to further our understanding of the self-referential meaning-making in AE, future research could investigate the differences in aesthetic processing in relation to various person-specific traits. As personal narratives and self-concept clarity may change with age (Diehl & Hay, 2011), this could be a factor that influences aesthetic processing and the value people assign to AE. Additionally, differences in attentional control could considerably influence the processing and occurrence of AE (Marković, 2012). These differences could influence the intentionality with which people seek out aesthetic encounters, which in turn may have a bearing on meaning-making. Although we are far from a comprehensive cognitive model of aesthetic processing in every-day life, furthering our understanding thereof could, for example, lead to an integration of AE discourse into art therapy interventions. The intentional reflection of personal AE could offer alternative opportunities for self-discovery, and be a way to initiate mindfulness in every-day life.

Conclusion

In conclusion, this pilot study shed light on the relationship between every-day aesthetic experiences and self-concepts and added to the growing body of neuroaesthetic research. Various real-life examples of personal aesthetic encounters illustrated how the meaning-making processes of aesthetics are intricately linked to personal identities. Aesthetic experiences were shown to offer opportunities for profound self-reflection. They can serve as an important way by which people integrate themselves into the world around them and make sense of themselves. Additionally, aesthetic experiences can serve as a means of reassurance, relaxation and mindfulness. As we continue to navigate the realms of art, beauty, and personal expression, further research into this dynamic process could promise to deepen our understanding of the human experience and personal fulfilment.

References

Andrade, J., May, J., Deeprose, C., Baugh, S.-J., & Ganis, G. (2014). Assessing vividness of mental imagery: The Plymouth Sensory Imagery Questionnaire. British Journal of Psychology, 105(4), 547–563. https://doi-org.proxy-ub.rug.nl/10.1111/bjop.12050

Arnheim, R. (1966). *Toward a psychology of art.* U. California Press.

Bakhtin, M. M. (1981). *The Dialogic Imagination* (ed. M. Holquist). Austin: University of Texas Press.

Berlyne, D. E. (Ed.). (1974). *Studies in the new experimental aesthetics: Steps toward an objective psychology of aesthetic appreciation.* Hemisphere.

Buzzo, M. C., Sayim, B. (2023, June 10) *Aesthetic experiences throughout life.* [Conference presentation] 1st Scientific Meeting on Psychology, Art, and Neuroaesthetics, Jun 2023, Bergamo, Italy. https://www.bertamini.org/lab/pan/abstractbook2023.pdf

Adams, M. (2003). The reflexive self and culture: A critique. *The British Journal of Sociology*, *54*(2), 221–238. https://doi.org/10.1080/0007131032000080212

Andersen, S. M., Chen, S., & Miranda, R. (2002). Significant Others and the Self. *Self and Identity*, *1*(2), 159–168. https://doi.org/10.1080/152988602317319348

Blommaert, J., & Fina, A. D. (n.d.). *Chronotopic identities: On the timespace organization of who we are*. Tilburg Papers in Culture Studies, 153.

Brown, S., Gao, X., Tisdelle, L., Eickhoff, S. B., & Liotti, M. (2011). Naturalizing aesthetics: Brain areas for aesthetic appraisal across sensory modalities. *NeuroImage*, *58*(1), 250–258. https://doi.org/10.1016/j.neuroimage.2011.06.012

Chamberlain, R. (2023). Perception and cognition in visual art experience. In M. Skov & M. Nadal (Eds.), *The Routledge international handbook of neuroaesthetics.* (2023-12035-014; pp. 295–314). Routledge.

Chatterjee, A. (2011). Neuroaesthetics: A coming of age story. *Journal of Cognitive Neuroscience*, *23*(1), 53–62. https://doi.org/10.1162/jocn.2010.21457

Clarke, V. & Braun, V. (2013). Successful Qualitative Research: A Practical Guide for Beginners.

Constante, K., Demidenko, M. I., Huntley, E. D., Rivas-Drake, D., Keating, D. P., & Beltz, A. M. (2023). Personalized Neural Networks Underlie Individual Differences in Ethnic Identity Exploration and Resolution. *Journal of Research on Adolescence*, *33*(1), 24–42. https://doi.org/10.1111/jora.12760

Csikszentmihalyi, M. (1990). Flow: The Psychology of Optimal Experience. Harper and Row.

Deil, J., Markert, N., Normand, P., Kammen, P., Küssner, M. B., & Taruffi, L. (2023). Mind-wandering during contemporary live music: An exploratory study. *Musicae Scientiae*, *27*(3), 616-636. https://doi.org/10.1177/10298649221103210

Desmet, P. M. A., Vastenburg, M. H., & Romero, N. (n.d.). *Mood measurement with Pick-A-Mood: Review of current methods and design of a pictorial self-report scale*.

Dewey, J. (1934). Art as Experience. New York: Perigee Books.

Diehl, M., Hay, E. L., Self-Concept Differentiation and Self-Concept Clarity across Adulthood: Associations with Age and Psychological Well-Being. *The International Journal of Aging and Human Development*. 73(2):125-152. doi:10.2190/AG.73.2.b

D'Souza, J., Adams, K., & Fuss, B. (2015). A Pilot Study of Self-Actualization Activity Measurement. *Journal of the Indian Academy of Applied Psychology*, *41*, 28–33.

Edwards, J. R., & Shipp, A. J. (2007). The relationship between person-environment fit and outcomes: An integrative theoretical framework. In *Perspectives on organizational fit* (pp. 209–258). Lawrence Erlbaum Associates Publishers.

Faul, F., Erdfelder, E., Lang, AG. *et al.* G*Power 3: A flexible statistical power analysis

program for the social, behavioral, and biomedical sciences. *Behavior Research*

Methods **39**, 175–191 (2007). https://doi.org/10.3758/BF03193146

Frijda, N. H., & Sundararajan, L. (2007). Emotion refinement: A theory inspired by Chinese

poetics. *Perspectives on Psychological Science*, *2*(3), 227–241.

https://doi.org/10.1111/j.1745-6916.2007.00042.x

Fugard, A. J. B., & Potts, H. W. W. (2015). Supporting thinking on sample sizes for thematic

analyses: A quantitative tool. *International Journal of Social Research Methodology:*

Theory & Practice, 18(6), 669–684. https://doi.org/10.1080/13645579.2015.1005453

Gonçalves, Ó. F., Dias da Silva, M. R., Carvalho, S., Coelho, P., Lema, A., Mendes, A. J.,

Branco, D., Collus, J., Boggio, P. S., & Leite, J. (2020). Mind wandering: Tracking

perceptual decoupling, mental improvisation, and mental navigation. *Psychology &*

Neuroscience, 13(4), 493–502. https://doi.org/10.1037/pne0000237

Grant, A., Franklin, J., & Langford, P. (2002). The Self-Reflection and Insight Scale: A New

Measure of Private Self-Consciousness. *Social Behavior and Personality: An*

International Journal, *30*, 821–835. https://doi.org/10.2224/sbp.2002.30.8.821

Greguras, G., Diefendorff, J., Carpenter, J., & Tröster, C. (2014). *Person-Environment Fit*

and Self-Determination Theory. Oxford University Press.

Hermans, H. (2001). The Dialogical Self: Toward a Theory of Personal and Cultural

Positioning. *Culture & Psychology*, *2001*. https://doi.org/10.1177/1354067X0173001

Hitlin, S. (2011). Values, Personal Identity, and the Moral Self. In S. J. Schwartz, K. Luyckx,

& V. L. Vignoles (Eds.), *Handbook of Identity Theory and Research* (pp. 515–529).

Springer. https://doi.org/10.1007/978-1-4419-7988-9_20

Jacobi, C. J., Varga, P. J., & Vaidyanathan, B. (2022). Aesthetic experiences and flourishing

    in science: A four-country study. *Frontiers in Psychology*, *13*.

    https://www.frontiersin.org/articles/10.3389/fpsyg.2022.923940

Kull, K. (2022). The Biosemiotic Fundamentals of Aesthetics: Beauty is the Perfect Semiotic

    Fitting. *Biosemiotics*, *15*(1), 1–22. https://doi.org/10.1007/s12304-022-09476-w

Larrain, A., & Haye, A. (2019). Self as an Aesthetic Effect. *Frontiers in Psychology*, *10*.

    https://www.frontiersin.org/articles/10.3389/fpsyg.2019.01433

Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation

    and aesthetic judgments. *British Journal of Psychology*, *95*(4), 489–508.

    https://doi.org/10.1348/0007126042369811

Lee, E.-H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian*

    Nursing Research, *6*(4), 121–127. https://doi.org/10.1016/j.anr.2012.08.004

Magon, R., & Cupchik, G. (2023). Examining the Role of Aesthetic Experiences in Self-

    Realization and Self-Transcendence: A Thematic Analysis (1st edition). *Creativity.*

    Theories? Research - Applications, *10*(1–2), 68–94. https://doi.org/10.2478/ctra-2023-

    0006

Marković, S. (2012). Components of Aesthetic Experience: Aesthetic Fascination, Aesthetic

    Appraisal, and Aesthetic Emotion. *I-Perception*, *3*(1), 1–17.

    https://doi.org/10.1068/i0450aap

Maslow, A. H. (1962). Cognition of being in the peak-experiences. In *Toward a psychology of*

    being. (2005-06675-006; pp. 67–96). D Van Nostrand. https://doi.org/10.1037/10793-

    006

McCrae, R. R. (2007). Aesthetic chills as a universal marker of openness to experience.

    Motivation and Emotion, *31*(1), 5–11. https://doi.org/10.1007/s11031-007-9053-1

Menninghaus, W., Wagner, V., Hanich, J., Wassiliwizky, E., Kuehnast, M., & Jacobsen, T. (2015). Towards a psychological construct of being moved !!! *PLoS ONE*, *10*(6). https://doi.org/10.1371/journal.pone.0128451

Menninghaus, W., Wagner, V., Wassiliwizky, E., Schindler, I., Hanich, J., Jacobsen, T., & Koelsch, S. (2019). What are aesthetic emotions? *Psychological Review*, *126*(2), 171–195. https://doi.org/10.1037/rev0000135

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education: Theory and Practice*, *15*(5), 625–632. https://doi.org/10.1007/s10459-010-9222-y

Nummenmaa, L., Glerean, E., Hari, R., & Hietanen, J. K. (2014). Bodily maps of emotions. *Proceedings of the National Academy of Sciences of the United States of America*, *111*(2), 646–651. https://doi.org/10.1073/pnas.1321664111

Pearce, M. T., Zaidel, D. W., Vartanian, O., Skov, M., Leder, H., Chatterjee, A., & Nadal, M. (2016). Neuroaesthetics: The Cognitive Neuroscience of Aesthetic Experience. *Perspectives on Psychological Science*, *11*(2), 265–279. https://doi.org/10.1177/1745691615621274

Pelowski, M., Markey, P. S., Forster, M., Gerger, G., & Leder, H. (2017). Move me, astonish me… delight my eyes and brain: The Vienna Integrated Model of top-down and bottom-up processes in Art Perception (VIMAP) and corresponding affective, evaluative, and neurophysiological correlates. *Physics of Life Reviews*, *21*, 80–125. https://doi.org/10.1016/j.plrev.2017.02.003

Rheinberg, F., Vollmeyer, R., Engster, S., & Sreeramoju, R. (2023). *FSS - Flow Short Scale (English Version)*.

Rogers, C. R. (1947). Some observations on the organization of personality. *American Psychologist*, *2*(9), 358–368. https://doi.org/10.1037/h0060883

Silvia, P. J. (2022). The self-reflection and insight scale: Applying item response theory to craft an efficient short form. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, *41*(12), 8635–8645. https://doi.org/10.1007/s12144-020-01299-7

Silvia, P. J., & Nusbaum, E. C. (2011). On personality and piloerection: Individual differences in aesthetic chills and other unusual aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts*, *5*(3), 208–214. https://doi.org/10.1037/a0021914

Singer, J. A., Blagov, P., Berry, M., & Oost, K. M. (2013). Self-Defining Memories, Scripts, and the Life Story: Narrative Identity in Personality and Psychotherapy. *Journal of Personality*, *81*(6), 569–582. https://doi.org/10.1111/jopy.12005

Specker, E. (2021). Further validating the VAIAK: Defining a psychometric model, configural measurement invariance, reliability, and practical guidelines. Psychology of Aesthetics, Creativity, and the Arts. CrossRef. https://doi.org/10.1037/aca0000427

Specker, E., Cotter, K. N., & Kim, K. Y. (2023). The next step for the VAIAK: An item-focused analysis. Psychology of Aesthetics, Creativity, and the Arts. CrossRef. https://doi.org/10.1037/aca0000559

Specker, E., Forster, M., Brinkmann, H., Boddy, J., Pelowski, M., Rosenberg, R., & Leder, H. (2020). The Vienna Art Interest and Art Knowledge Questionnaire (VAIAK): A unified and validated measure of art interest and art knowledge. *Psychology of Aesthetics, Creativity, and the Arts*, *14*(2), 172. https://doi.org/10.1037/aca0000205

Strawson, G. (1997). The self. *Journal of Consciousness Studies*, *4*. https://doi.org/10.1093/oxfordhb/9780199262618.003.0032

Taruffi, L., Skouras, S., Pehrs, C., & Koelsch, S. (2021). Trait empathy shapes neural responses toward sad music. *Cognitive, Affective & Behavioral Neuroscience*, *21*(1), 231–241. https://doi.org/10.3758/s13415-020-00861-x

Thompson, G. (2018). *Aesthetic Experience and Mindfulness*.

Tilakaratna, N., & Szenes, E. (2017, July 11). *The linguistic construction of critical "self-reflection" in social work and business*.

Van Heusden, B. (2009). Semiotic cognition and the logic of culture. *Pragmatics & Cognition*, *17*, 611–627. https://doi.org/10.1075/pc.17.3.07van

Vessel, E. A., Starr, G. G., & Rubin, N. (2012). The brain on art: Intense aesthetic experience activates the default mode network. *Frontiers in Human Neuroscience*, *6*. https://doi.org/10.3389/fnhum.2012.00066

Appendix A: The Questionnaire

Table A1

Inventories and Scales in the Questionnaire

Inventory/Scale	Source	Purpose	Items/Method	Implementation
Perceived Stress Scale (PSS-10)	(Lee, 2012)	Self-perceived stress across one month	10 items (1 = *never,* 5 = *very often*)	Pre and Post
Pick-a-mood	(Desmet et al., 2016)	Mood	8 facial expressions representing distinct moods, one neutral option	Pre and Journal entries
Vienna Art Interest and Knowledge (VAIAK)	(Specker et al. (2020), Specker (2021), Specker et al. (2023))	Interest in and knowledge of art	11 items for art interest (1 = *not at all,* 7 = *very much*); 6 items for art knowledge, multiple-choice	Pre
Self-Reflection and Insight Scale (SRIS-12)	(Silvia, 2021)	Engagement in self-reflection, need for self-reflection and internal state awareness	Short version, 6 items for self-reflection; 6 items for insight (1 = *strongly disagree,* 7 = *strongly agree*)	Pre
Bodily Sensation Map (BSM)	((Nummenmaa et al., 2014)	Pinpoint bodily sensations	Point out on body map where emotional	Journal entries

			evoked by emotions	activation or deactivation is felt	
The Geneva Wheel of Emotion (GEW)	Swiss Center for Affective Sciences	Emotions and emotional intensity	20 distinct emotions, emotional intensity (1 = *not at all intense*, 7 = *extremely intense*), options "*none*" and "*other*"	Journal entries	
The Flow Short Scale (FSS)	(Rheinberg et al., 2023)	Immersion during an AE	10 items (1 = *strongly disagree,* 7 = *strongly agree*)	Journal entries	
Questionnaire for mind-wandering	composed of: 3 items adopted (Taruffi et al., 2021), 4 items from Deil et al. (2022), 1 item from Gonçalves et al. (2020)	Components of mind-wandering within AE	6 items (1 = *low*, 7 = *high*); 2 multiple-choice items	Journal entries	
Recalled aesthetic experiences - abridged version (RAE)	Buzzo & Sayim (2023)	Assessing characteristics of AE	Two 7-point Likert-scale items (appreciation and intensity, 1 = *low,* 7 = *high*), 5 multiple-choice items (type of AE, when AE occurred, time perception during	Journal entries	

|			AE, intensity over time, length of AE)	
The Plymouth Sensory Imagery Questionnaire (Psi-Q)	Andrade et al. (2013)	Mental imagery ability across 7 sensory modalities and one global score	35 items with 5 items per subscale (0 = "*No image at all*", 10 = "*Perfectly clear and as lively as seeing it for real*"	Post

Note. Pre-questionnaire (pre), post-questionnaire (post)

Appendix B: Supplementary Figures

Figure B1

Distributions of Aesthetic Experience Measures
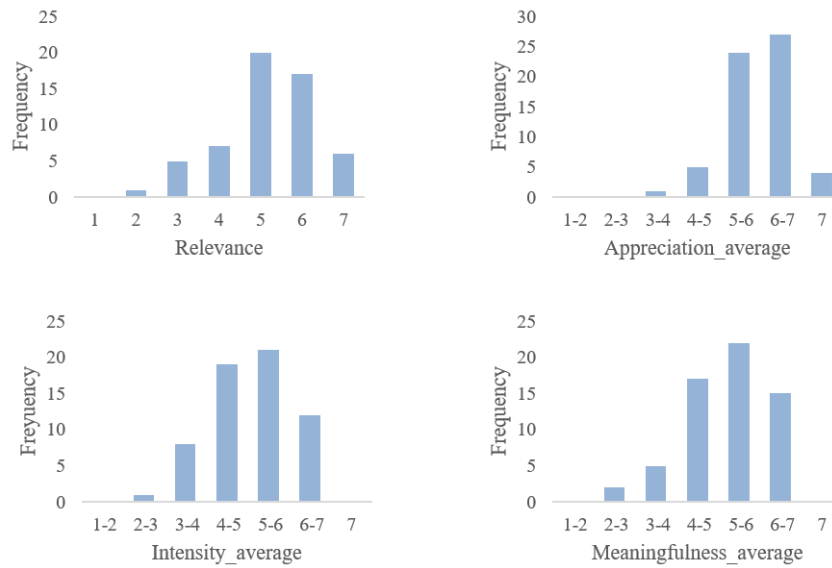
Note. Relevance scores were assessed only once per participant and are thus not averaged.

Appendix C: Supplementary Tables

Table C1

Correlations of Self-Reflection and Insight with Measures of AE

Variable		SR_average	IN_average
SR_average	Pearson Correlation	1.000	.293[*]
	Sig. (2-tailed)		.022
IN_average	Pearson Correlation	.293[*]	1.000
	Sig. (2-tailed)	.022	
Relevance	Pearson Correlation	.387[**]	.202
	Sig. (2-tailed)	.002	.118
Appreciation_average	Pearson Correlation	.069	.081
	Sig. (2-tailed)	.600	.535
Intensity_average	Pearson Correlation	.093	.000
	Sig. (2-tailed)	.476	.998
Meaning_average	Pearson Correlation	.072	.123
	Sig. (2-tailed)	.584	.346
AE_per_month	Pearson Correlation	.207	.238
	Sig. (2-tailed)	.109	.065

Note. *. Correlation is significant at the 0.05 level (2-tailed).
　　**. Correlation is significant at the 0.01 level (2-tailed).

Table C2

ANOVA results

Variables	Values
SR and meaningfulness	$F(3,57) = [0.70]$, $p = 0.55$
SR and AE per month	$F(3,57) = [1.87]$, $p = 0.15$
IN and meaningfulness	$F(3,57) = [2.39]$, $p = 0.78$
IN and AE per month	$F(3,57) = [1.65]$, $p = 0.19$

Appendix D: Qualitative Analysis

Table D1

Coding scheme

Coding category	Description
Past and Nostalgia	References to childhood, memories, past experiences, explicitly mentioning "nostalgia"
Future and Inspiration	References to imagining own future, finding inspiration, looking forward in time
Achievement	Reflection of personal achievements, pride, accomplishment
Realization	Explicitly mentioning "it made me realise", sudden clarity
Relationships	References to significant others, i.e., friends, family and partners
Culture and Tradition	References to personal heritage, culture and traditions
Explicit Self-Reflection	Explanations beyond description of personal attributes or states, integration of memories, emotions, events
Pondering Life	External focus on the world, reflecting upon human nature itself, unrelated to direct personal reflection
Relaxation	References to peace, relaxation, harmony and relief

Note. Example statements can be found in the next section.

D2: Example Statements

Past and nostalgia

"I looked up to see the main building before entering the library, I was not alone but also not with the person I would have liked to be with. I always found the building nice to look at in the night as it's lit up, but this time things felt different. I didn't know if I was seeing things differently because my memories were wrong, but was later reassured the lighting is now orange. Things around me change, places where I share memories change too and for moments I feel alone with the memory of a person there despite other things happening and continuing to. I find the lights cozy and safe, but in this moment they bring with them melancholy. I've inflicted my own heartbreak and cut things off with someone, now I must desensitise myself to the memories of my environment. It stops me to take in a previously aesthetic scene differently now that my emotions towards my memories with it have likewise changed." (Also coded as "Relationships" and "Explicit Self-Reflection")

Future and inspiration

"My experience consisted of cycling home on a sunny day. I really enjoyed this bike ride and admired the people who passed me. You are always surrounded by people when you cycle down the street, but I normally don't notice many people. When I was almost home, I saw a father walking with his son and he threw him in the air (the boy laughed with joy). This brought me a lot of love and joy. I admired this little moment between father and son. And I saw the humanity in strangers that I normally don't even notice. Moreover, this created a whole stream of thoughts in me about my future, with perhaps a son who can also spend quality time with his father. In conclusion, this experience was valuable to me because I saw beauty in the little moments and humanity in strangers living their own lives just like me. I was completely sucked into this moment and these thoughts, so I was not concerned with my

surroundings (traffic)." (Also coded as "Explicit Self-Reflection". Although excluded from further analysis, this statement also illustrates "Pondering life")

Achievement

"I decided to cook a whole new dish I had never done, I tried cooking my first ramen. i was so absorbed by the whole process of cooking and enjoyed every second. the dish turned out to taste so good I was so proud of myself and couldn't believe what I just made. it made me want to go to a culinary school."

Realization

"Empowering and revealing. It made me realise and helped me understand a lot of things that were happening in my life."

Relationships

"This experience was meaningful for me as it was my first time seeing these particular cliffs last summer and it was unforgettable. I experienced this with my family which made it more meaningful and it was a gorgeous day on the day we went."

Culture and Tradition

"I was with my friends to make traditional Chinese food, dumplings, which is usually what we eat during festivals for celebration. First step is to prepare the filling of dumpling, we have shrimp, pork, beef, celery, green onion, carrot all mixed toghter with olive, seasame oil, soy source, then we need to put the filling into the skin of dumpling, the way we wrap it is kind of like creating handcraft art, the dumplings are beautiful and once we boil or fried it, it turns into different colors, the skin become a little bit transparent from which we can see the color of the filling. This experience reminds me my memory back in China, my time with my family

and friends, I was so pleasant at that moment and also grateful." (Also coded as "Relationships" and "Past and Nostalgia")

Explicit Self-Reflection

"This was the morning after the night when my sister and dad had left Groningen. I came to study Psychology in University of Groningen at the end of August and my family stayed here for 1o days to settle me in and spend time with me until university started. Until that night I had never slept by myself in my house. Either my sister or a friend was always with me and the day my family left I cried myself to sleep and had the feelings of wonder, scared of what the future held, anxiety and loneliness. However, in the morning I woke up pretty early, surprisingly thinking that I went to sleep around 5 in the morning. It was almost noon and my curtains were semi-open letting the bright and joyful sunlight in. The house was very cleaned and organized and it felt like it was actually "home" instead of a university dorm. You could see the sun hitting the strawberry jam my grandmother made, the cookies left from when my sister was here and my dads sweet surprise: the bouquet of flowers in a pretty vase we chose together. I was very calm and the way it felt like an energy was in the house right after I opened my eyes and it was so strong. I would normally never leave bed that fast but that morning I flew out of bed , opened the curtains fully and soaked in the sunshine as it always made me happy. I made myself some Turkish coffee as I am Turkish and enjoyed it while trying to figure out what I was feeling about calling this place my home now." (Also coded as "Relationships" and "Achievement")

Additional: Pondering Life

"meaningful because it was a very nice evening/night with a good friend that I will never forget. Lying on a beach bed under an endless starry sky, + shooting stars there was a kind of deep connection with the universe and a feeling of insignificance in the grandeur of space."

Additional: Relaxation

"Just sitting down and watching nature around you calms you down. I felt like my mind shut off and my body just relaxed. It felt safe as well and like home, like being surrounded by all that nature nothing bad could happen."