How Does Artistic Engagement Change the Way We Experience Aesthetics Outside of a Typical Art Environment?

Joshua Hansel

S4690192

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group number: 13

Supervisor: Msc. Gemma Schino

Second evaluator: Dr. Islam Borinca

In collaboration with: Ashley Drogt, Annkathrin Buchenau, Max Lessing, Kim Hakenberg, Lisa Regorius

February 9, 2024

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.

Abstract

This study investigates the varied nature of aesthetic experiences, exploring their relationship with emotions, perceptions and cognitions beyond traditional artistic contexts. While existing research predominantly links aesthetic experiences to art settings, this study adopts a broader perspective, examining how individuals encounter and engage with aesthetic experiences in their everyday lives. Through a one-month longitudinal survey involving 61 participants, various scales were adopted to capture and assess the participants diverse aesthetic experiences. Specifically, the research explores the influence of artistic engagement, encompassing both knowledge and interest in art, on aesthetic experiences. Key dependent variables include emotional intensity, aesthetic appreciation, recurring themes of the experiences and emotional valence. Results indicate a significant association between art interest and emotional intensity, even though with modest explained variance. However, other hypothesized relationships were not supported by the data. Qualitative analysis of reported themes reveals distinctions between participants with high and low art interest. This study contributes to a broader understanding of aesthetic experiences beyond traditional artistic domains, highlighting the interplay between individual engagement and the perception of aesthetic experiences.

Keywords: diary study, aesthetic experience, art, emotions, themes

How Does Artistic Engagement Change the Way We Experience Aesthetics Outside of a Typical Art Environment?

According to Marković and colleagues (2012), aesthetic experience contains the combined effects of three components. First, attention is directed toward the aesthetic stimulus while other stimuli like place and time are suppressed at the same time (Cupchik & Winston, 1996). Furthermore, it has to elicit fascination and high arousal in the person perceiving it. Second, the person has to have a high degree of identification with the perceived object or stimulus. Studies by Paradiso (1999) and Teasdale (1999) and colleagues have shown higher activation in brain areas associated with the appraisal of emotions. But, aesthetics are not exclusive to positive evaluations and emotions, negative perceived emotions are part of the experience as well (Silvia, 2009; Silvia & Brown, 2007). Third, the evaluation of an aesthetic stimulus requires a certain amount of cognitive work to grasp its symbolic, higher degree meaning (van Heusden, 2022; Kaplan, 1987). Chatterjee and Vartanian (2014;2016) also make this distinction between these three major components in the growing field of neuroaesthetics, namely sensory-motor, emotion valuation, and knowledge-meaning respectively. This new domain of neuroaesthetics emerged with the availability of neuroimaging techniques and grew substantially in the 1990s, emphasizing the biological and neurological foundations of aesthetics. (Nadal et al., 2012)

Several models for describing aesthetic experiences have been suggested. A widely known and very comprehensive model for aesthetic experience has been proposed by Leder and colleagues (2004). This model contains five steps, starting with perceptual analysis, implicit memory integration, explicit classification, cognitive mastering, and evaluation. With the first two steps being automatic, the last steps require more deliberate thinking, successively becoming more cognitively engaging. Here, affective evaluations of aesthetic stimuli happen in every step of the process, creating feedback loops and ultimately

influencing the overall evaluation of the stimulus. Two outputs are proposed by this model: aesthetic judgment and aesthetic emotion. Aesthetic judgment is a result of the higher tier mental cognitive evaluation in the latter stages, whereas aesthetic emotion is a by-product of the combined affective evaluations at each stage of the model (Leder et al., 2004).

While there has been a substantial body of research on the effect of formal art training on the perception of artworks and reception in traditional art settings (Nodine et al., 1993; van Paasschen et al., 2015) as well as research regarding aesthetics focussing on the reception of artworks (Kim et al., 2019; Ramachandran & Hirstein, 1999), little research has been done regarding the effect of artistic engagement in the appreciation and trigger of everyday aesthetic experiences outside of specific domains of art (Koide et al., 2015), architecture (Choo et al., 2017; Vartanian et al., 2013) or nature (Kotabe, 2016; Kull, 2022).

Triggers and Appreciation of Aesthetic Experiences

In the history of the research about aesthetic experiences, philosophy has played a big role in shaping the scientific debate and guiding different schools of thought. The philosophical idea that art should be experienced with “disinterested contemplation” emerged in the 18th century, with Kant (1790) being one of the prominent figures behind this idea. It means that art should be seen objective and without any relevance to the context or personal history of the perceiver. This emphasis on higher cognitive aspects of art also changed the way of approaching aesthetic experience. It is seen as decoupled from a higher purpose and context by solely being aesthetic because of some innate, higher validity. It is important to note that the idea of disinterested aesthetic experience is restricted to the western culture, whereas many non-western cultures emphasize a strong relevance of context, function and purpose. These aspects are often underrepresented in research, where emphasis is placed on the stimulus, not on the situation. (Nadal et al., 2012)

In the existing literature, aesthetic experience is very often related to art and art experience, for example in the works of Tinio (2013) and Seeley (2013), while others like Skov and Nadal (2020) argue that this entanglement hinders progress in the research of (neuro-)aesthetics. This paper aims to lay more emphasis on aesthetic experience in multiple contexts and give more freedom in reporting these experiences, to account for the multi-faceted nature of aesthetic experiences. These contexts can be in the traditional artistic domain, like in a museum, in an exhibition or during an art class. They can, on the other hand, be completely detached from these settings, as for example at home or while being together with friends. The nature of this study, serving as a diary for the participants, makes this free reporting possible.

Artistic engagement

This paper aims to evaluate the different dimensions of artistic engagement with regard to the trigger and appreciation of aesthetic experiences. According to Specker and colleagues (2020), artistic engagement can be measured between the dimensions of artistic knowledge and artistic interest. Distinctions between artistic- and laypersons have been made on the basis of formal art training, like being enrolled in an art academy (Koide et al., 2015) or working in a museum (van Paasschen et al., 2015), which is a very narrow definition and doesn't include many people who are still engaging with art, producing it or showing greater interest in it, while simultaneously not having received any formal education or training before. Using the sub-scales for assessing artistic engagement gives rise to the opportunity of clarifying the relationship between the predictor variables and the dependent variable in depth. Being able to make distinctions between both dimensions.

Artistic knowledge

Art knowledge is hard to assess. It lacks a proper definition and is a vague concept. Sometimes even confused with artistic interest. This concept is due to the wide range that art

encompasses, difficult to measure reliably. With this concept, there is a possibility for a lot of variety in people. Specker (2020; 2021; 2023) implemented a variety of more general themes and covers a range of different art styles. It generally tries to describe the knowledge a person has about western art.

Artistic interest

The connection between artistic interest and valuation of art is made by multiple studies about aesthetic appreciation, including it into their models about aesthetic experiences. (Leder et al., 2004; Pelowski et al., 2016) On the basis of the questionnaire by Specker and colleagues (2020), art interest is going to be assessed within the study. This follows the assumption that people have a higher interest in art when they are involved in more art-related behaviors like going to the museum or producing art themselves.

Present study

This paper tries to build on the former mentioned shortcomings with the broader definition of artistic engagement by Specker and colleagues (2020, 2021, 2023). It is hypothesized that people with greater engagement in art are reporting differently on their perception of aesthetic experiences, relating more to the latter stages of the model proposed by Leder and colleagues (2004) as well as the higher degree meanings and cognitive evaluations of aesthetic stimuli (Kaplan, 1987; van Heusden, 2022) which are one of the essential parts of aesthetic experience according to Marcović (2012). Furthermore, it is proposed that their choice of words and technical terms will differ from laypersons if participants with prior knowledge are referring to a specific domain of expertise such as architecture or modern art (Gralla, 2014; Tenbrink, 2015), using a more sophisticated vocabulary and present a deeper understanding of the underlying meaning and functions of the single elements that make up the aesthetic experience as a whole.

To further quantify the self-reports about aesthetic experiences, the AI tool Atlas.ti (Version 23.4.0 (29342)) is going to be used. The aesthetic experiences are coded according to the trigger, the theme of the experience and what emotions and cognitions are mentioned by the participants (Linneberg & Korsgaard, 2019).

Hypothesis 1. Higher artistic engagement leads to more intense emotions.

Hypothesis 2. Higher artistic engagement leads to more ambiguous emotions

Hypothesis 3. Higher artistic engagement leads to more aesthetic experiences that are related to art and the art environment.

Methods

On the basis of a checklist developed by the EC-BSS at the University of Groningen, the study was exempt from full ethical review.

Participants

A total of $N = 236$ participants voluntarily participated in the study. The sample study consists of 61 participants who met the final criteria for this study (52 female, 8 male, 1 other). More specifically, respondents who failed to fully complete the experiment by December 10, 2023 were excluded from the analysis of the present study. The study required participants to be 16 years of age or older and to be fluent in Dutch, English, or German (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 227 journal entries, thus, separate aesthetic experiences.

Recruitment methods included – i) targeted advertisement via 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 centers for leisure, culture and educational activities (e.g.: Dat Bolwerk Museum in Zutphen, USVA, bookstores, literary cafes, etc.).

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 $N = 36$ for Repeated Measures analysis . Thus, the obtained sample size of N = 61 is adequate to test the study hypothesis.

Materials

The present study is part of a larger research initiative, utilizing a Qualtrics (www.qualtrics.com) questionnaire with multiple measures. SPSS Statistics (version 28.0.0) for quantitative analysis and Atlas.ti (Version 23.4.0 (29342)) for the qualitative part of the research. For details on additional measures, refer to Table 6. In this section, we focus on a detailed explanation of the measures specifically employed in the present study.

Vienna Art Interest and Knowledge (VAIAK)

Included in this study are the first two parts of the Vienna Art Interest and Knowledge Questionnaire. The first part measures art interest and consists of 11 items, measured with a likert scale from 1 (low) to 7 (high). The second part is shortened and slight adaptations have been made to grant a better reliability of the results, this is the updated version of the scale: VAIAK-R. The second part is shortened in this research, it is administered without the open questions due to time constraints, it contains 6 items and assesses art knowledge. It is a multiple question test with four alternatives (Specker, 2020; 2021;2023). Both measures have high reliability at $\omega = .94$ and $\omega = .85$ for art interest and art knowledge respectively (Specker, 2021).

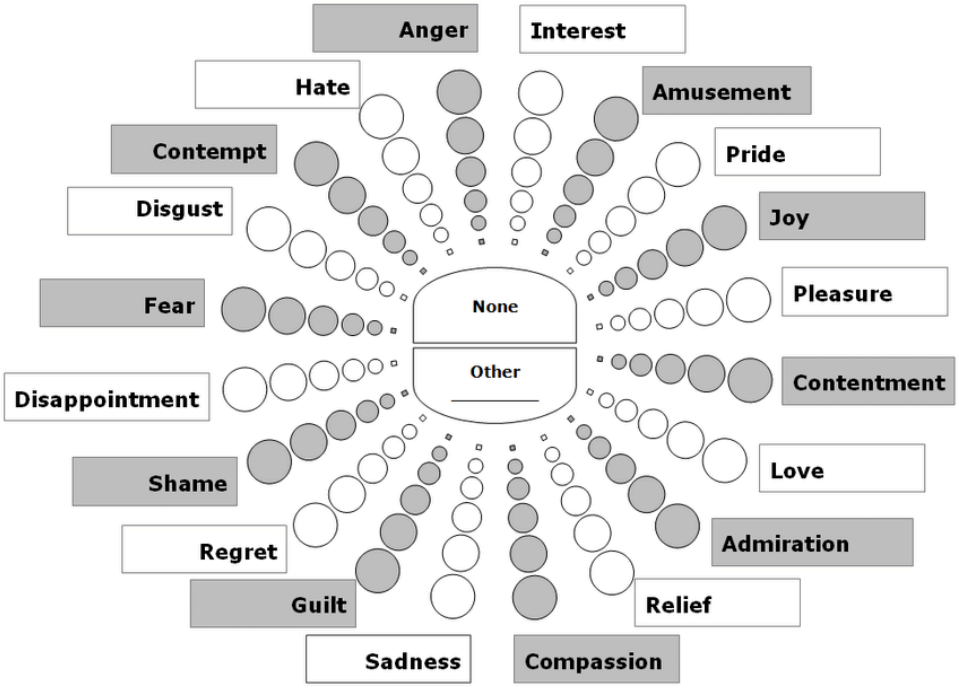
Geneva Emotion Wheel (GEW 2.0)

The GEW2.0 presents as a colorized circle divided in quadrants, which maps 40 equally weighted emotions in 20 emotion families around its circumference, and organizes them along axes of unpleasantness/pleasantness and high/low control (refer to Figure 1 for a visualization). Selecting an emotion requires a placement along radial coordinates, with more inner position indicating weaker, and more outer position indicating stronger intensity. Two alternative choices laid in the circle's center, being 'none' and 'other'. Selecting 'none' means that no emotion was felt, and 'other' was followed by the display of a text box allowing individual description. Participants were able to select up to two points along the radial

coordinates of the GEW to describe their emotional experience. Across different studies, the GEW2.0 has been used in multiple contexts for emotion assessment, shown to be preferred over alternative measures, and judged as clearly understandable and useful for its differentiability and choice (Sacharin et al., 2012; Scherer, 2005).

Figure 1

The Geneva Emotion Wheel



Note. The Geneva Emotion Wheel is organized along the dimensions of pleasantness (horizontal) and control (vertical). The figure is taken from the work of Blaiech and colleagues (2013).

Research Design and Procedure

The online self-report survey was designed collaboratively with the research team to assess several personal attributes of participants both 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 (www.qualtrics.com) and was accessible for a little more than 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 were prompted to report at least five entries relating to separate 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. The pre-questionnaire included Informed Consent (IC) and Information Form (IF), a short definition of AE, demographics and self-perceived occurrence, frequency, and importance of AE. (Buzzo & Sayim, 2023) Furthermore, measures of self-perceived stress level, art knowledge and interest, current mood, and self-reflection were assessed.
2. 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. After the last journal entry, the post-questionnaire could be accessed. It included measures of self-perceived stress level and capability of mental imagery.

Results

The analysis of the data will consist of a multiple regression analysis to analyze the relationship between artistic engagement and emotional intensity. Furthermore, ANOVA's have been carried out, to assess the relationship between artistic engagement and mixed/negative emotions and aesthetic appreciation. Lastly, a qualitative analysis of the relationship between artistic engagement and mixed/negative emotions, as well as the referred theme has been carried out.

Quantitative Analysis

Artistic engagement is measured with two continuous variables, interest and knowledge. The dependent variable emotional intensity is also a continuous variable. The variables that indicate valence/control for assessing emotions are categorical variables, the variable assessing aesthetic appreciation is continuous. Further descriptive statistics are presented in Table 1. Correlation between the variables has been investigated, these results can be seen in Table 2. This framework suggests an analysis through performing a multiple linear regression. To assess the relationship between mixed emotions and artistic engagement, an ANOVA has been conducted.

Assumptions Check

The Shapiro-Wilk test and Kolmogorov-Smirnov test have been conducted to test whether the data is normally distributed, both indicate a violation of this assumption with $p < .001$. This is also visible in the detrended q-q plots of the variables. Distribution of intens_max is skewed to the left (-0.493), whereas knowledge is slightly skewed right (0.142). The scatterplot of the standardized residuals for intensity_max indicates linearity and homoscedasticity. The variance inflation factor is close to one for both predictors (1.083) and suggests that the variance of the coefficient estimates for the independent variables is not significantly inflated due to multicollinearity.. All cook's distances are well below one, one

observation that was more influential than others turned out to be faulty with negative values, which resulted in the removement of that observation. With regards to the independence of the independent variables, a durbin-watson of 1.398 raises concerns about the presence of a positive autocorrelation. Levene's test for homogeneity of variance was conducted, the result was found to be non-significant with $p = .656$, indicating that the assumption of homogeneity of variances is met. There are some positive outliers within intens_max. They don't show a systematic pattern, but seem rather an expression of some extreme emotional reports. There are no outliers within the other variables.

Artistic engagement & emotional intensity

Table 1

Descriptive Statistics

	Mean	Std. Deviation	N
Intens_max	.723	.171	226
Score Interest	3.960	1.230	226
Score Knowledge	2.009	1.091	226

Table 2

Correlations between Variables

	intens_max	Score Interest	Score Knowledge
intens_max	1.000		
Score Interest	.213**	1.000	
Score Knowledge	.155*	.266**	1.000

Note. * indicates $p < .01$. ** indicates $p < .001$

A multiple linear regression was performed with the independent variables being the mean score of art interest, as well as the final score of knowledge for each participant on the

dependent variable emotional intensity, the regression output can be seen in Table 3. The overall model was significant with: $F(2, 223) = 6.592,\ p = .002,\ Adj.\ R^2 = .047$. Artistic knowledge is not significant with $p = .117$. Artistic interest is significant at a p-value of 0.007. The regression model only accounted for a small variance (4.7 %) in emotional intensity. The interaction effect of interest and knowledge is not significant, with $p = .702$.

Table 3

Multiple Linear Regression Model using Score of Art Interest and Score of Art Knowledge predicting Emotional Intensity

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.588	.039		15.017	<.001
	Score Interest	.026	.009	.185	2.736	.007
	Score Knowledge	.017	.011	.106	1.575	.117

a. Dependent Variable: intens_max

Artistic engagement, mixed and negative emotions & aesthetic appreciation

Regression analysis on aesthetic appreciation did not yield statistically significant results: $F(2, 225) = 1.028,\ p = .36,\ \eta_p^2 = .009$. Two-way ANOVA of positive (negative) control/valence on artistic knowledge and interest has been insignificant with $F(3, 217) = 1.257,\ p = .29,\ \eta_p^2 = .017$ and $F(3, 217) = 1.007,\ p = .391,\ \eta_p^2 = .014$ respectively.

Qualitative Analysis

Artistic engagement & mixed and negative emotions

The diary gave the opportunity to describe the AE in one's own words. These descriptions have been used to conduct the qualitative analysis. With the help of the annotation software Atlas.ti (Version 23.4.0 (29342)), the reports about aesthetic experiences have been coded along multiple dimensions. This was done manually for a couple of set themes (Clarke & Braun, 2013), but also explorative, with help of an AI tool, built in the software. Specific tasks were defined according to the research hypothesis, an excerpt of the applied codes can be found in Table 5 in the appendix. These would then be manually overseen and applied to the reports. These codes would be logically grouped along the dimensions of themes, triggers, valence and more. Each report could then be sorted and evaluated according to how high that person scored on the variable of art interest and the amount and sort of codes appearing in the reports. The coding of emotions, their valence, and themes shows support for Hypothesis 2 and Hypothesis 3. As seen in Table 4, the absolute number of references in the field of Art and Culture is higher in people with high art interest, than those that score low on the measure. The low-interest group has, on the other hand, more references to aesthetic experiences in relation to other people and social situations than the high-interest group.

Table 4

Number of Codes per Group by Themes and valence

Group	Themes		Valence	
	Social	Art/Culture	Positive	Mixed/Negative
High Interest	3 (30%)	12 (80%)	7 (30%)	4 (66.7%)
Low Interest	7 (70%)	3 (20%)	16 (70%)	2 (33.3%)

Note. Groups were defined by including approximately the highest and lowest 5% of the sample.

Table 4 also provides information on the emotional valence. Although statistically not significant, there is some qualitative evidence that low interest is associated with reporting more positive experiences than people with high art interest.

To exhibit the different qualitative results that have been found, two reports on aesthetic experiences have been chosen to represent their respective groups:

> This aestethic experience happened in my Slovak National Theater and it was play written by Lev Nikolajevič Tolstoj 'War and Peace.' Actors, who were part of the play are the best in Slovakia. They are very talented and thanks to them I felt incredible and it was amazing to watch this play. It was obvious how they love their work and they were enjoying every moment on stage, also the plot of the play is very interesting and fascinating, because I also learned a lot about history.

This example illustrates that the content of the aesthetic experience takes place in an artistic setting. Further emphasis is placed on the author of the play as well as the actors performing, eliciting deep emotions in the participant. In comparison to the participant with high interest, the following example is a report of a participant scoring low on artistic interest:

> So, this experience is from a long time ago, when I was about 9 or 10 years old, but I remember the experience as aesthetic, and I remember quite clearly the feeling of nature being around me. In particular, we, my then best friend and I, were in the middle of a kind of river swamp like terrain. And we were exploring, cutting deeper and deeper into the wetlands, and having crossed a fork in the river, we discovered a little island in the middle of the stream. It sounds very Huckleberry Finnish, but it's real :) and I have a lasting memory of that feeling, of being around this impenetrable forest and being cut off from the normal life.

A similarity between the reports of high art interest and low art interest is especially regarding the appreciation of nature, like in this case. Although in the low-interest group, the reports are more on aesthetic experiences within social situations than in the high-interest group. In general, people spent more time describing the situation, than describing their cognitions. The least emphasis has been laid on describing emotions in the self-reports.

Discussion

This paper aimed to examine the relationship between artistic engagement, measured in the dimensions of art knowledge and art interest, and the perception, appreciation and reporting of aesthetic experiences through assessing them in a survey design. Three main hypotheses were drawn:

Hypothesis 1. Higher artistic engagement leads to more intense emotions.

Hypothesis 2. Higher artistic engagement leads to more ambiguous emotions

Hypothesis 3. Higher artistic engagement leads to more aesthetic experiences that are related to art and the art environment.

Findings

The first hypothesis stated whether higher artistic engagement is associated with higher emotional intensity, a regression analysis shows support for that claim. The data does not support a significant effect for the second hypothesis (Higher artistic engagement leads to more ambiguous emotions), by looking solely at the measures that have been assessed through the Geneva Emotion Wheel (Figure 1), where participants indicated their current emotion with their fingertip during the diary entry. (Sacharin et al., 2012; Scherer, 2005). After assessing the qualitative data and applying the necessary coding procedures, there is some evidence in favor of the hypothesis that people who score high on art interest are more likely to report negative and ambiguous emotions. No significant results could be found with regards to the relationship of artistic knowledge to the dependent variables.

The third hypothesis has been solely assessed through coding the themes of the available qualitative data. In this case, the data provides evidence that themes revolving around art and culture are mentioned more often in people scoring high on art interest (see

Table 4), which is in line with research about cognitive discourse by Gralla (2014) and Tenbrink (2015).

Interpretation

Even though the regression analysis on emotional intensity has been significant, the low percentage of explained variance limits the practical implications of these findings. On the contrary, the findings of the qualitative research imply an association between the concept of aesthetic experiences with art in participants who scored high on art interest.

An explanation could be provided on the basis of the model of Leder and colleagues (2004): People with artistic interest seem to have benefits in their implicit memory integration and perception of artistic aesthetic stimuli, being faster in their automatic responses to the stimuli that are connected with the domain of art. This processing step relates to the sensory-motor neural system in the biological-based field of neuroaesthetics proposed by Chatterjee and Vartanian (2014;2016). One condition that needs to be met in order to perceive a stimulus as aesthetic is the directed attention towards the stimulus creating arousal, while other sensory impressions are suppressed (Cupchik & Winston, 1996). People with high art-interest seem to prioritize aesthetic stimuli that are related to the concept of art.

Furthermore, high art-interested people also seem to have advantages when it comes to more deliberate thinking processes like cognitive mastering and evaluation of the stimuli when seen in that context, relating to the latter stages of the model of Leder and colleagues (2004). This could be due to the association and in their mind that those concepts are interconnected and thus triggered more easily by artworks or museums than by nature or other triggers (Kaplan, 1987; van Heusden, 2022). This also relates to the concept of negative or mixed emotions accompanying aesthetic experiences as described by Silvia (2009) and Silvia and Brown (2007). Whereas people who are less interested in art seem to connect aesthetic experiences mostly with positive emotions, people with high art-interest more readily connect

aesthetic experiences with mixed and negative emotions. Probably because they are more accustomed to the concept of aesthetics than lay people. Top-down processes also play a role in guiding attention, so these latter stages further enable art-interested people to attend to these stimuli more often . Neural pathways of the meaning-knowledge network could be more sensitive to concepts and meaning of art than in other domains (Chatterjee & Vartanian, 2014, 2016).

Another explanation could be that art-interested people engage in different behavioral routines which enables them to appreciate more aesthetic experiences in that context, by the means of perceiving, creating and attending to art in their lives.

It became evident, especially through the qualitative research, that there is no substantial difference in the evaluation and importance of aesthetic experiences. The difference between people with high art-interest and those with low-interest therefore mostly lies in the content and trigger of their experiences, then in the appreciation or emotional intensity.

According to Leder and colleagues (2004), every step of their model is accompanied by emotions, setting this in the context of the results of the regression analysis, the elicited emotions are stronger for each of the steps in people with high art-interest, resulting in a positive feedback loop between evaluation, where emotions are a part of, and cognitive mastering. A biological explanation lies in a stronger activation of the emotion-valuation network in these people (Chatterjee & Vartanian, 2014, 2016; Paradiso et al., 1999; Teasdale et al., 1999).

Limitations

The study has been conducted with a sample that is almost entirely made of first-year psychology students. In this group, there is still a wide range of scores on art interest, but there has been a floor-effect in the assessment of artistic knowledge. Furthermore, for the

study to be of reasonable length, the scale that assesses artistic knowledge has been reduced to six questions, which influences the reliability and validity of this specific measure negatively (Specker, 2021).

Data collection was still ongoing, but for the scope of this thesis, partial data has been used in relation to reaching data saturation on the basis of calculations made by G*Power. This resulted in less reported aesthetic experiences per participant (mean of 3.72, goal was 5), when taking only those participants into account, which conform to the set standards of three reported experiences together with pre and post-measure.

Hypothesis 1 is backed by the available data, although significant, the proportion of explained variance is very small: 0.047. Hypothesis 2 (higher artistic engagement leads to more ambiguous emotions) also lacks a sound statistical base to make claims about its reliability and validity, due to the small sample size which was a result of the difficulties categorizing the qualitative data. The data still contains valuable information and gives rise to many questions and implications for further research.

Future Directions

Although there was little evidence to support our hypotheses, the study gave rise to multiple future opportunities for research. Given the survey design and the time restraints that were part of the present project, there was limited space for further deepening the research into assessing more complex structures in the self-reports. An interesting aspect that could not be inspected due to the homogeneity of the participant sample could be whether the own culture of the participants mediates the relationship between art engagement and the dependent variables of this study. Cultural differences in the appreciation of beauty, emphasized by Nadal and colleagues (2012) could subsequently be assessed through the qualitative part of the study.

Future studies with less time restrictions could build upon the findings of this study with a complete assessment of artistic knowledge by the VAIAK instead of the shortened version used here. Furthermore, designing a survey with a focus on the self-reporting of their experiences and narrowing down the assessment to only include variables that are important to this research question. Being asked a lot of questions before reaching the part where one can freely report their AE can result in less pronounced reports as the participants are already tired of answering the questions asked before.

Although this research could not reach that extent, it became apparent that qualitative data has a crucial value (Johnson & Waterfield, 2004). Especially when dealing with complex experiences, concepts and emotions that are an essential part of the human experience. Qualitative research gives rise to the possibility of generating new knowledge through data instead of trying to fit the data into existing theoretical concepts and testing whether this is significant (Eakin & Gladstone, 2020). This approach can benefit other fields of research as well (Johnson & Waterfield, 2004).

Through new discoveries in other fields, such as artificial intelligence (AI) and information technology, we are now able to analyze qualitative data as fast as ever, while simultaneously having the ability to identify new, deeper concepts with the help of AI, encouraging the inductive approach of qualitative research (Linneberg & Korsgaard, 2019).

In combination with proposals that have been discussed for example by Laitin and colleagues (2021). This approach also has the opportunity to tackle longstanding problems. Such as the file-drawer problem, where only significant results are published, while insignificant results are discarded and often not made public (Rosenthal, 1979). If studies contain some sort of qualitative data, such as written self-reports or interviews, meta-analyses with the help of AI could be performed on these papers, which may have tried to test a completely different question in the past. Nevertheless, research should always be conducted

ethically and the rise of new AI models raises questions about how to use those models in an ethical manner. This counts for research, but also other aspects of our society, such as work and education (Huang et al., 2022).

This also relates to the importance of an open-science community. Beck and colleagues (2022) as well as Dai and colleagues (2018) emphasize the importance of international open science collaboration, where own research is made available to other researchers and proposes a framework.

Additional value for research could be drawn by the means of using a more controlled experimental setting which makes the manipulation of variables possible, creating two groups: One group, which is primed and encouraged to engage more with art during the research, and a control group. This would enable us to draw more causal connections between the variables.

Conclusion

This research investigated the connection between artistic engagement and aesthetic experiences. While higher artistic interest was associated with increased emotional intensity, findings regarding ambiguous emotions were inconclusive. Qualitative analysis suggested that individuals with high art interest more often mentioned themes related to art and culture whereas individuals with low art interest mentioned social settings more often. This implies a connection between artistic interest and experiences associated with art environments. However, limitations include sample homogeneity and constraints in data collection and analysis. Despite this, the study underlines the importance of qualitative research in understanding complex human experiences. Future research could explore cultural influences and implement controlled experimental settings to establish causal relationships. In conclusion, while this study sheds light on the relationship between artistic engagement and

aesthetic experiences, further research is needed to deepen our understanding across more diverse populations and contexts.

References

Beck, S., Bergenholtz, C., Bogers, M., Brasseur, T.-M., Conradsen, M. L., Di Marco, D., Distel, A. P., Dobusch, L., Dörler, D., & Effert, A. (2022). The Open Innovation in Science research field: A collaborative conceptualisation approach. *Industry and Innovation*, *29*(2), 136–185. https://doi.org/10.1080/13662716.2020.1792274

Blaiech, H., Neji, M., Wali, A., & Alimi, A. M. (2013). *Emotion recognition by analysis of EEG signals*. 312–318. https://doi.org/10.1109/HIS.2013.6920451

Buzzo, M. C., & Sayim, B. (2023). *Aesthetic experiences throughout life*. 1st Scientific Meeting on Psychology, Art, and Neuroaesthetics.

Chatterjee, A., & Vartanian, O. (2014). Neuroaesthetics. *Trends in Cognitive Sciences*, *18*(7), 370–375. https://doi.org/10.1016/j.tics.2014.03.003

Chatterjee, A., & Vartanian, O. (2016). Neuroscience of aesthetics. *Annals of the New York Academy of Sciences*, *1369*(1), 172–194. https://doi.org/10.1111/nyas.13035

Choo, H., Nasar, J. L., Nikrahei, B., & Walther, D. B. (2017). Neural codes of seeing architectural styles. *Scientific Reports*, *7*. https://doi.org/10.1038/srep40201

Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, *26*(2), 120–123.

Cupchik, G. C., & Winston, A. S. (1996). Confluence and divergence in empirical aesthetics, philosophy, and mainstream psychology. *Handbook of Perception and Cognition: Cognitive Ecology*, 61–85. https://doi.org/10.1016/B978-012161966-4/50005-0

Dai, Q., Shin, E., & Smith, C. (2018). Open and inclusive collaboration in science. *OECD Science, Technology and Industry Policy Papers*, *7*, 1–29. https://doi.org/10.1787/2dbff737-en

Eakin, J. M., & Gladstone, B. (2020). "Value-adding" analysis: Doing more with qualitative data. *International Journal of Qualitative Methods*, *19*, 1609406920949333.

https://doi.org/10.1177/1609406920949333

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. https://doi.org/10.3758/BF03193146

Gralla, L. (2014). *Linguistic representation of problem solving processes in unaided object assembly* [Doctoral dissertation, Universität Bremen]. http://nbn-resolving.de/urn:nbn:de:gbv:46-00104756-16

Huang, C., Zhang, Z., Mao, B., & Yao, X. (2022). An Overview of Artificial Intelligence Ethics. *IEEE Transactions on Artificial Intelligence*, *PP*(99). IEEE Publications Database. https://doi.org/10.1109/TAI.2022.3194503

Johnson, R., & Waterfield, J. (2004). Making words count: The value of qualitative research. *Physiotherapy Research International*, *9*(3), 121–131. https://doi.org/10.1002/pri.312

Kant, I. (1790). *Critique of judgment*.

Kaplan, S. (1987). Aesthetics, Affect, and Cognition: Environmental Preference from an Evolutionary Perspective. *Environment and Behavior*, *19*(1), 3–32. https://doi.org/10.1177/0013916587191001

Kim, S., Burr, D., & Alais, D. (2019). Attraction to the recent past in aesthetic judgments: A positive serial dependence for rating artwork. *Journal of Vision*, *19*(12), 19. MEDLINE. https://doi.org/10.1167/19.12.19

Koide, N., Kubo, T., Nishida, S., Shibata, T., & Ikeda, K. (2015). Art Expertise Reduces Influence of Visual Salience on Fixation in Viewing Abstract-Paintings. *PLOS ONE*, *10*(2), e0117696. https://doi.org/10.1371/journal.pone.0117696

Kotabe, H. P. (2016). *Disorder, naturalness, and their influence on aesthetics and behavior*. https://doi.org/10.6082/M1542KJQ

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

Laitin, D. D., Miguel, E., Alrababa'h, A., Bogdanoski, A., Grant, S., Hoeberling, K., Hyunjung Mo, C., Moore, D. A., Vazire, S., & Weinstein, J. (2021). Reporting all results efficiently: A RARE proposal to open up the file drawer. *Proceedings of the National Academy of Sciences*, *118*(52), e2106178118. https://doi.org/10.1073/pnas.2106178118

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

Linneberg, M. S., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative Research Journal*, *19*(3), 259–270. https://doi.org/10.1108/qrj-12-2018-0012

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

Nadal, M., Flexas, A., Gálvez, Á., & Cela-Conde, C. J. (2012). Neuroaesthetics: Themes from the past, current issues, and challenges for the future. *Rendiconti Lincei*, *23*(3), 247–258. https://doi.org/10.1007/s12210-012-0185-1

Nodine, C. F., Locher, P. J., & Krupinski, E. A. (1993). The Role of Formal Art Training on Perception and Aesthetic Judgment of Art Compositions. *Leonardo*, *26*(3), 219. https://doi.org/10.2307/1575815

Paradiso, S., Johnson, D. L., Andreasen, N. C., O'Leary, D. S., Watkins, G. L., Boles Ponto, L. L., & Hichwa, R. D. (1999). Cerebral blood flow changes associated with attribution of emotional valence to pleasant, unpleasant, and neutral visual stimuli in a PET study of normal subjects. *American Journal of Psychiatry*, *156*(10), 1618–1629.

https://doi.org/10.1176/ajp.156.10.1618

Pelowski, M., Markey, P. S., Lauring, J. O., & Leder, H. (2016). Visualizing the impact of art: An update and comparison of current psychological models of art experience. *Frontiers in Human Neuroscience*, *10*, 160. https://doi.org/10.3389/fnhum.2016.00160

Ramachandran, V. S., & Hirstein, W. (1999). The Science of Art: A neurological theory of aesthetic experience. *JOURNAL OF CONSCIOUSNESS STUDIES*, *7*(6/7), 15–51. British Library Serials.

Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin*, *86*(3), 638. https://doi.org/10.1037/0033-2909.86.3.638

Sacharin, V., Schlegel, K., & Scherer, K. R. (2012). Geneva emotion wheel rating study. *Center for Person, Kommunikation, Aalborg University, NCCR Affective Sciences. Aalborg University, Aalborg*.

Scherer, K. R. (2005). What are emotions? And how can they be measured? *Social Science Information*, *44*(4), 695–729. https://doi.org/10.1177/0539018405058216

Seeley, W. P. (2013). Art, Meaning, and Perception: A Question of Methods for a Cognitive Neuroscience of Art. *British Journal of Aesthetics*, *53*(4), 443–460. https://doi.org/10.1093/aesthj/ayt022

Silvia, P. J. (2009). Looking past pleasure: Anger, confusion, disgust, pride, surprise, and other unusual aesthetic emotions. *Psychology of Aesthetics, Creativity, and the Arts*, *3*(1), 48. https://doi.org/10.1037/a0014632

Silvia, P. J., & Brown, E. M. (2007). Anger, disgust, and the negative aesthetic emotions: Expanding an appraisal model of aesthetic experience. *Psychology of Aesthetics, Creativity, and the Arts*, *1*(2), 100. https://doi.org/10.1037/1931-3896.1.2.100

Skov, M., & Nadal, M. (2020). A Farewell to Art: Aesthetics as a Topic in Psychology and Neuroscience. *Perspectives on Psychological Science*, *15*(3), 630–642.

https://doi.org/10.1177/1745691619897963

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

Teasdale, J. D., Howard, R. J., Cox, S. G., Ha, Y., Brammer, M. J., Williams, S. C., & Checkley, S. A. (1999). Functional MRI study of the cognitive generation of affect. *American Journal of Psychiatry*, *156*(2), 209–215. https://doi.org/10.1176/ajp.156.2.209

Tenbrink, T. (2015). Cognitive Discourse Analysis: Accessing cognitive representations and processes through language data. *Language and Cognition*, *7*(1), 98–137. https://doi.org/10.1017/langcog.2014.19

Tinio, P. P. L. (2013). From artistic creation to aesthetic reception: The mirror model of art. *Psychology of Aesthetics, Creativity, and the Arts*, *7*(3), 265–275. https://doi.org/10.1037/a0030872

van Heusden, B. (2022). Perception, Action, and Sense Making: The Three Realms of the Aesthetic. *Biosemiotics*, *15*(2), 379–383. https://doi.org/10.1007/s12304-022-09482-y

van Paasschen, J., Bacci, F., & Melcher, D. P. (2015). The Influence of Art Expertise and Training on Emotion and Preference Ratings for Representational and Abstract

Artworks. *PLOS ONE*, *10*(8), e0134241. https://doi.org/10.1371/journal.pone.0134241

Vartanian, O., Navarrete, G., Chatterjee, A., Fich, L. B., Leder, H., Modroño, C., Nadal, M., Rostrup, N., & Skov, M. (2013). Impact of contour on aesthetic judgments and approach-avoidance decisions in architecture. *Proceedings of the National Academy of Sciences*, *110*(supplement_2), 10446–10453. https://doi.org/10.1073/pnas.1301227110

Appendix

Table 5

Excerpt of the Codes Generated by Atlas.ti or Coded Manually for the Qualitative Analysis, Grouped Together

Own Codes	Reported Emotions	Art/Culture	Recurring Themes
Cognition	Absorption	Art	Adventure
Cooking	Amazement	Artistic Experience	Animals
Description of Experience	Awe	Claude Monet	Beauty
Emotion	Disbelief	Concert	Candles
Heritage	Enjoyment	Graffiti	Coffee
Love	Excitement	Opera	Cooking
own behavior	Fear	Painting	Family
Social	Happiness	Poetry	Hiking
	Intimacy	Song	Memory
	Joy	Theater	Nature
	Love		Peace
	Mesmerization		Travel
	Nostalgia		Walking
	Peacefulness		Work
	Pride		
	Relaxation		
	Surprise		
	Tranquility		
	Vulnerability		
	Wonder		

Note. Groupings have been made according to the overarching theme. This table is not exhaustive.

Table 6

Table of Used Measures for this Research Project

Inventory/Scale	Source	Purpose	Items/method	Used in
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	Assessing specific moods	8 facial expressions representing distinct moods, one neutral option	Journal entries
Vienna Art Interest and Knowledge (VAIAK)	Specker et al. 2020; Specker 2021; Specker et al. 2023	Assessing the participants interest and knowledge of art	Scale Interest: 11 likert scale items (1-7) Scale Knowledge: 6 Items, 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, 12 items (*1 = strongly disagree, 7 = strongly agree*)	Pre
BSM	Nummenma et al., 2014	Assessing bodily sensations, evoked through emotions during aesthetic experiences	Point out on body map where activity is felt to intensify or diminish	Journal entries
*The Geneva Wheel of Emotion (*GEW)	Scherer, K. R. (2005)	Assessing the participants emotions and emotional intensity	For emotional intensity (*1 = not at all intense*, 7 = *extremely intense*)	Journal entries
The Flow Short Scale (FSS)	(Rheinberg et al., 2023)	Assessing participants' immersion during an aesthetic experience.	10 items (*1 = strongly disagree, 7 = strongly agree*)	Journal entries

Inventory/Scale	Source	Purpose	Items/method	Used in
Questionnaire for mind-wandering	composed of: 3 items adopted from Taruffi (2021), 4 items from Deil et al. (2022), 1 item from the MWI	Assessing components of MW within AEs	6 items ranging from 1 to 7 (descriptors are individual, but ranging from *low to high*); 2 multiple-choice items	Journal entries
The Plymouth Sensory Imagery Questionnaire (Psi-Q)	Andrade et al., (2013)	Assessing participants mental imagery ability across 7 sensory modalities and one global score (e.g. visual, sound, smell, taste, touch, Bodily sensation, feeling)	35 items with 5 items per subscale. Response ranging from (0) "*No image at all*" to "*Perfectly clear and as lively as seeing it for real*" (10)	Post