

**The Effect of Emotional Valence on Information Processes of Aesthetic Judgements**

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PSB3E-BT15: Bachelor Thesis

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June 29<sup>th</sup>, 2023

*"Art enables us to find ourselves and lose ourselves at the same time." - Thomas Merton*

### **Abstract**

This study examined the influence of the valence of aesthetic emotions on aesthetic judgement using the framework of the Vienna integrated model of top-down and bottom-up processes in art perception (VIMAP). A unique experiment was setup in which peers could bring an artwork that was meaningful to them and discuss it. Results showed no significant correlation between emotional valence and aesthetic judgement, suggesting that the interpretation of art encompasses additional factors beyond emotional valence. Furthermore, because of the social nature of the experiment, social dynamics and interpersonal influences on art perception are discussed in light of an unexpectedly high count of aesthetic judgement of high interest and knowledge of the artworks. Also, this study has demonstrated that emotional valence might play a role as a tool for further sensemaking and understanding of art, rather than changing the perception of it. As a second research question, the suitability was studied for the use of the VIMAP, an inherently visual model, for describing the judgement of non-visual art. Results showed that the VIMAP was very much applicable to non-visual art, and the use of a transfer learning process further increased the validity of this conclusion. The biggest limitation in this study was generalizability, which was a problem to such an extent that it would be unjustifiable to infer these conclusions to the general population. Therefore, this study functioned mostly as a pilot, and recommendations are made to repeat the experiment using a more representative sample.

*Keywords:* art, sense-making, emotions, VIMAP, aesthetic judgement

### **The Effect of Emotional Valence on Information Processes of Aesthetic Judgements**

From the first cave paintings to the Middle Ages, to the Renaissance. Whether it was rituals, myths, ordinary events, or historical events, the goal of art seemed always to depict detailed

representations of the subjects, often in a glorified or beautiful fashion. Beauty was believed to be essential in art and its sublimity for a long time (Eco, 2004). This however changed when Burke (1767) was among the first philosophers to claim that sublimity and beauty were not mutually exclusive. This stirred the view of art and eventually led to massive changes in how art could be used. Much like Burke's (1767) view, artists turned their focus away from mere beauty and started focusing on depicting/expressing internal experiences. Movements like expressionism focused more on expressing the subjective emotions of the artist in non-representative ways, and movements like Young British Art focused on shocking their audience.

Psychology made the same steps in trying to explain humans' experience of art. In 1907, Wilhelm Worringer's 'Abstraction and Empathy' (1907) provided one of the first psychological explanatory models for the developments of art in Western culture. In his book, Worringer (1907) addressed that abstraction was looked down upon in his time and that there was much more to the aesthetic experience than perfectly copying nature.

Almost two decades later Abstraction and empathy (Worringer, 1907), in 1925, Lev Vygotsky published 'The Psychology of Art' (1925). In this work, Vygotsky critically stated that contemporary psychology of aesthetic experience relied too much on aesthetic pleasure and appraisal, while actively ignoring the subjective experience of the viewer. Vygotsky claimed catharsis was a central process in the perception of aesthetics, meaning a change of experience that surpasses the content of art, and is the product of a complex internal conflict of emotions (Vygotsky, 1925).

Almost a century after Vygotsky's 'The Psychology of Art' (1925), contemporary theories still seemed to be focused on the subjective experience of works of art. No longer was the aesthetic experience studied as a single mechanism, but rather as a whole with several

complex internal process, better known as a reductionist approach (Kandel, 2016). This new approach, together with the fact that psychological theories had to adapt to the rapid development of artistic styles in the twentieth century (Leder et al., 2004), caused the boundaries of what constitutes as aesthetic experience to become ambiguous. A need was created for a comprehensive model of aesthetic experience, which paved the way for the information-processing model of aesthetic appreciation and aesthetic judgment, by Leder and colleagues (2004). This model explained aesthetic experience as the outcome of different cognitive processes ([Figure 1](#)). The output was described in terms of aesthetic judgement and aesthetic emotion. Aesthetic judgement is the ability to cognitively master a piece of art (Leder et al., 2004). This is influenced by factors like knowledge of art, interests, memories, and previous experience. This process is reciprocal: the outcome of a previous aesthetic judgement can influence the next. Furthermore, a reciprocal process like this does not only happen between, but it also happens within aesthetic experiences. During an aesthetic experience, affective states are created and are also appraised (Leder et al., 2004). These appraisals of affective states are what is meant with aesthetic emotion, and, in their turn, influence aesthetic judgement.

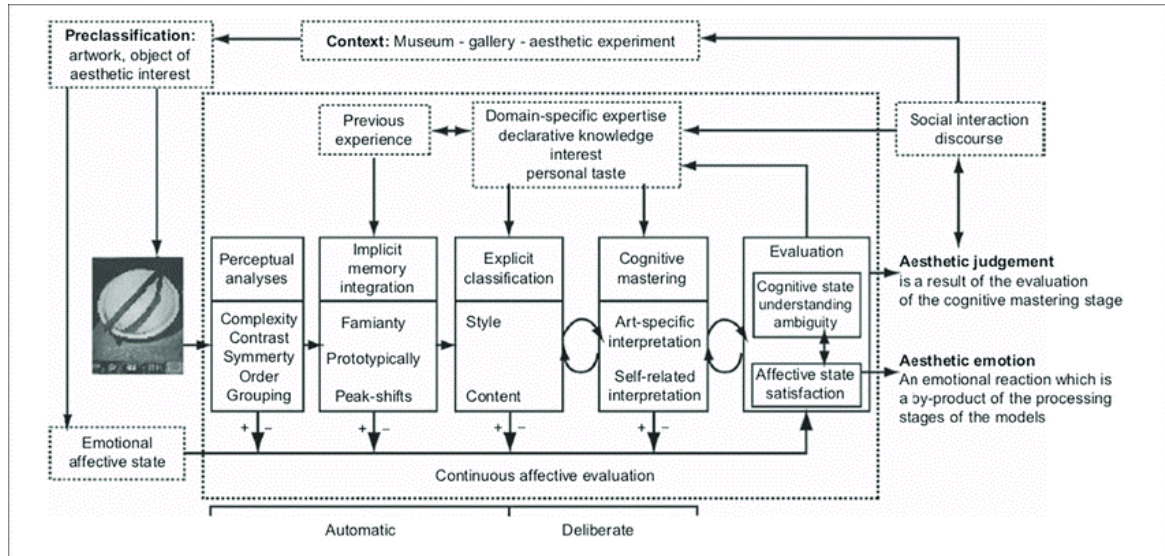
In short, aesthetic experience in this model is defined as “a cognitive process accompanied by continuously upgrading affective states that vice versa are appraised, resulting in an (aesthetic) emotion.” (Leder et al., 2004, p. 293). This process repeats itself in a reciprocal, recursive and iterative way through a number of stages (Leder et al., 2004). The experience starts in the pre-classification stage, which encompasses all past and current knowledge (relevant for aesthetic judgement) and emotional state (relevant for aesthetic emotion). For example, the knowledge of the artist, art preference, current mood, etc. When the artwork is first experienced a person enters the next stage: perceptual analyses. This stage could essentially be seen as the

most basic and quickest first impression of the artwork like the complexity, colors, symmetry, grouping, etc. Next, this basic perceptual information is integrated into the implicit memory. By finding familiarities between the art and existing knowledge, further conceptualization takes place to see if features of the artwork are representative of conceptual categories and how exaggerated these are. Then, the conceptualization first enters consciousness, and concepts like the style and content of the artwork can be described. Finally, an evaluation takes place, based on whether the person understands the concept of the art and whether it resonates with the identity of the person. It is important to note that the stages until now have been processed in a bottom-up manner. This means that information to be processed is not guided by conscious decisions, but by salient sensations and also affective states (Leder et al., 2004). However, even though bottom-up processes happen outside of our consciousness, personal previous experiences and beliefs can influence what we tend to pay attention to and therefore what information we process (Gerdes & Alpers, 2013). This can partially explain the reciprocal nature of this model, and lays the foundation for the goal of the present study: to examine the complex interdependent relationship between aesthetic judgement and aesthetic emotion.

Even though the model of Leder et al. (2004) was built on bottom-up information processing theories, they themselves noted that a bottom-up process could only be part of psychological theory about aesthetic experiences (Leder et al., 2004). Cognitive mastery is operationalized as having a feeling of both adequate knowledge about a subject, as well as understanding how well the information resonates with a person's own identity. This model laid a very useful foundation in explaining aesthetic experiences, and soon an expansion was provided by Pelowski & Akiba (2011). Pelowski & Akiba (2011) argued that the model portrayed aesthetic experience as a single process that is never disrupted and is completely

**Figure 1**

*A model of aesthetic experience (Leder et al., 2004)*



selfless (Pelowski & Akiba, 2011). This is however rarely the case in real-life situations. When experiencing art, people constantly disrupt the automatic information processing flow by consciously reflecting on their own thoughts, or socially interacting with peers (Pelowski & Akiba, 2011). Even though older theories like the one of Leder et al., (2004) do allow for individual differences in the way people self-reflect, these differences are assumed to be stable within each person during the art experience. However, by excluding the changes in one's own identity and knowledge as a result from self-reflection, the meaning of an artwork is now implicitly located outside of the person experiencing the art (Pelowski & Akiba, 2011). In other words, when the judgement someone attributes to an artwork is measured from a single point in time, this measurement now detaches itself from the internal process of creating meaning. However, realistically the judgements we make of art is much more dynamic as these models imply (Pelowski et al., 2017). It might therefore be a solution to not define meaning as a fixed point in time, but as the actual dynamic process itself, accounting for both top-down as bottom-

up information processing. A theory like this could be more successful in modelling how individuals differ in the way changes in their perception are made (Leder et al., 2004; Pelowski & Akiba, 2011).

In 2017, an updated model has been created, called the VIMAP; Vienna Integrated Model of top-down and bottom-up processes in Art Perception (Pelowski et al., 2017) ([Figure 2](#)). By combining the already extensive models from bottom-up theory (Leder et al., 2004) and insights from top-down theory (Pelowski & Akiba, 2011), it is made possible to describe possible outcomes of aesthetic judgements while at the same time accounting for changes of the aforementioned own identity and knowledge of the art (Pelowski et al., 2017). The VIMAP consists of seven stages that can provide five general outcomes etc. (Pelowski et al., 2017). First, the model starts in the pre-classification stage and walks through the same five stages mentioned earlier in the bottom-up cognitive mastery model (Leder et al., 2004). In stage five the bottom-up elements meet with the top-down elements (Pelowski et al., 2017). Here, the art viewer checks how to combine and relate the information that has been gathered in the previous stages, and makes different kinds of conscious interruptions to the automatic information process (Pelowski et al., 2017). Initially, self-knowledge checks and self-relevance checks are made, and the combined outcomes of these checks result in five different types of aesthetic judgements: *Facile/Default, Small Insight, Harmony and Emotional Resonance, Negative Experience and Transformation.*

***Facile outcome (high self-knowledge, low self-relevance)***

A *facile* outcome means that cognitive mastery of the artwork has been achieved by the perceiver and there is little motivation to continue, reinforcing the current cognitive schema for the pre-classification stage of the next experience (Pelowski et al., 2017).

***Small insight (low self-knowledge, low self-relevance)***

In this case, the perceiver notices a discrepancy between their expectations and what the artwork presents (Pelowski et al., 2017). However, because the emotions can be distanced, the discrepancy can be resolved. Therefore, the viewer tries to take in more information, starting back into the pre-classification stage with a new expectation of art.

***Harmony (high self-knowledge, high self-relevance)***

The perceiver might notice small details the artist put in the artwork that resonates with the viewers'/audiences' expectations (Pelowski et al., 2017). The viewer might also only focus on one task, being optimally engaged in that task and entering a state of 'flow' (Csikszentmihalyi, 2009).

***Negative experience (low self-knowledge, high self-relevance, low need for coping)***

In the unique case of a low self-knowledge and a high self-relevance, an additional check has to be made, which is the need a person has to cope with this discrepancy. This check has to be made, because it can feel threatening for people to have little knowledge on something that resonates with your identity (Pelowski et al., 2017) A negative outcome means that the observer experiences frustration, not understanding of the artist's motives, the meaning of the art, or the satisfaction of the art. The viewer will stop the experience and possibly even react hostile towards it, reclassifying the art or their own feelings as non-significant.

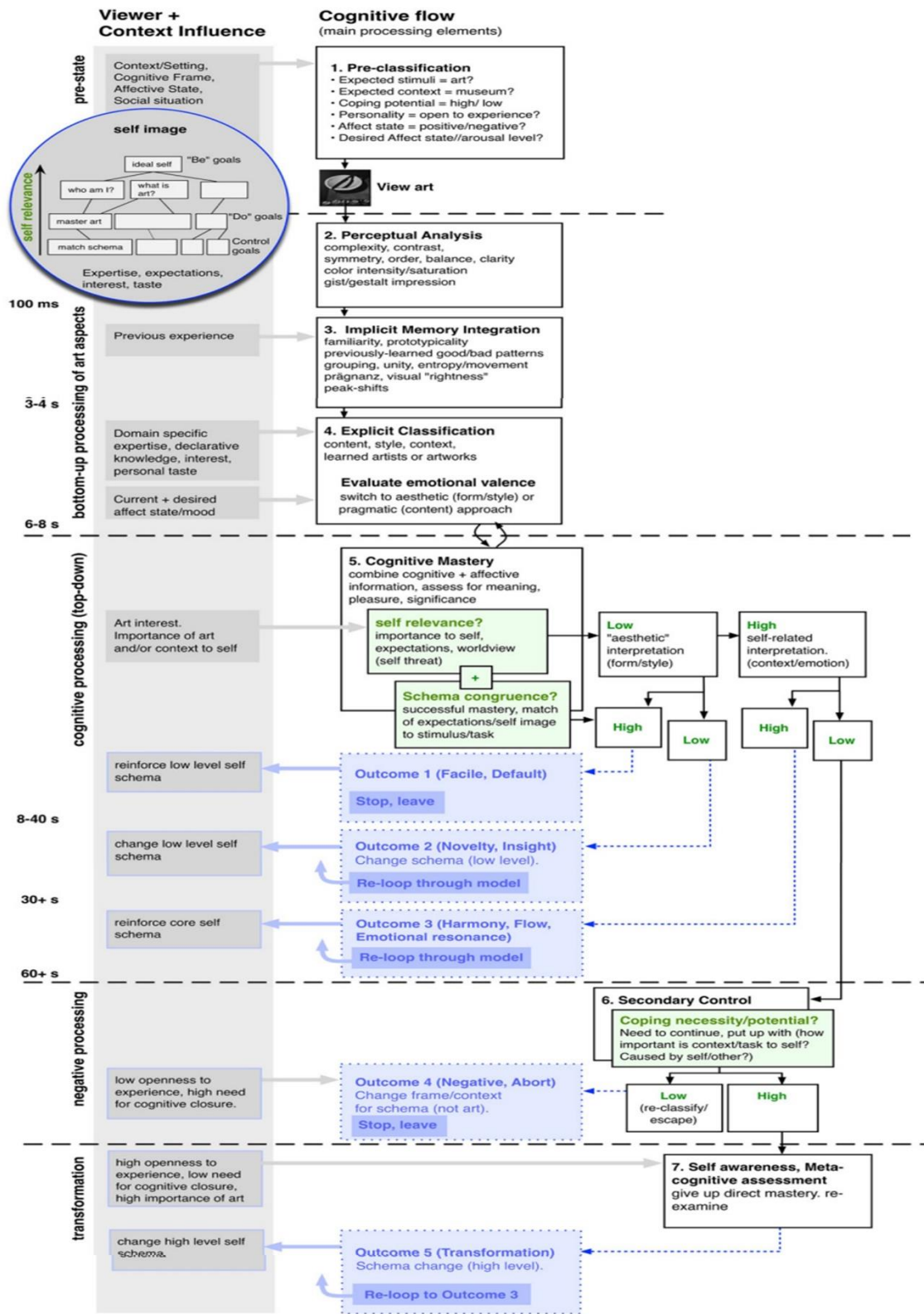
***Transformation (Low self-knowledge, high self-relevance, high need for coping)***

The final and fifth outcome is *transformation*. Here, unlike a negative experience, a viewer feels the need to cope with this feeling. In order to do so, a big change has to be made in the core schema of this person (Rothbaum et al., 1982), in order to reevaluate the art with a completely new look (Pelowski et al., 2017).



Figure 2

The VIMAP (Pelowski et al., 2017)



**Research question 1: Does emotional valence affect art experience?**

The VIMAP (Pelowski et al., 2017) describes how our experience can change during the course of art interaction, with several different outcomes regarding our aesthetic judgement and aesthetic emotion. Emotion has been mainly operationalized as self-relevance, indicating how close the artwork resonates with oneself, or in other words how intense the emotion feels (Pelowski et al., 2017). Although this promised an immensely comprehensive model of art appreciation, rarely any focus is put on what actual emotions the artwork induces. Therefore, it might be interesting to start at how emotional valence affects the outcome of art interaction.

It is hypothesized that the valence of emotions on its own will not influence the interaction process with art, however specific correlations are not hypothesized.

**Research question 2: Can data from non-visual art be described using the framework built on the VIMAP?**

The VIMAP is inherently a visual oriented model (Pelowski et al., 2017). The second research question serves as a screening as to whether data from non-visual forms of art can also be described according to the outcomes of the VIMAP. Expectations are that these data are perfectly compatible, however this question is strictly explorative and could only serve as advice for future research.

## **Method**

### ***Participants***

This study consisted of 38 young adults (19 dyads or pairs) of 18 years or older (23 females, 15 males, Mage = 24,21, SDage = 7,58), who voluntarily participated in the study. The study took place from May 1st to May 19th, 2023 (3 weeks). The only criterium for the participants was to be 18 years old and above. Other than age, all other demographic and cultural characteristics were not screened in any way.

Data was gathered by reaching out to potential participants (18+) living in the north of the Netherlands in various ways, with the aim to form a random sample. People interested in participating were invited to find a peer to conduct the experiment with. This design choice aimed to increase the feeling of safety and intimacy during the experiment. Recruitment took place through: 1) targeted advertisement via research panel website (SONA) aimed at first-year psychology students of the University of Groningen, 2) public advertisement on the internet and social media platforms, and 3) flyer distribution at leisure, culture and education centers. Participants were able to choose a type of compensation: SONA credits, a gift voucher worth €10 or a donation of €10 to schools for cultural activities. Participants that have read the SONA advertisement, were also informed about the other types of compensation, so that they were able to choose their preference for compensation.

### ***Procedure of Data Collection***

The entire experiment process for each pair (dyad) aimed to last around 45 minutes. The consent procedure was carried out before the data collection via a Qualtrics survey and repeated at the start of the experiment. The experiment was divided into two phases: the preparation phase and the experimental phase. First a brief description of the experiment will be given. Then

further clarification is given about the choice and use of the instruments. However, since this experiment was conducted in collaboration with other researchers, each with their own research questions, only the instruments relevant to addressing the research question of this thesis will be elaborated upon.

### ***Preparation Phase***

Before the experiment, participants have signed up in pairs with a peer of their choice. Then, participants have been asked to think of a work of art they perceive to be meaningful and bring this item to the experiment location. For the remainder of this method section, these pieces of art will be referred to as items. A form was sent to the participants, explaining what the experiment was about, what items they were expected to bring, and what participants had to consent with in order to participate. The participants were asked not to reveal their item of choice with each other before the experiment. Additionally, in case participants chose an item they could not physically bring, like a famous painting or a scene of a movie, they could submit it to the researchers to be displayed on site. For auditive or audiovisual items, headphones and laptops were present during the experiment.

### ***Experimental Phase***

Upon arrival, the participants took a seat in the same room. Firstly, the participants have been asked to fill out the first questionnaire about preference of style and engagement with art. Then, in a random order for each dyad, they were instructed to experience the items that either they or their peers brought for a minimum of twenty seconds to a maximum of 2,5 minutes. A visual timer indicated the time participants had left for experiencing the item. After the art experience, a second questionnaire followed, measuring sensemaking strategies used by the participant during the art experience. After the second questionnaire, the elicited emotions and

physical arousal were filled in, indicating them on the Geneva Emotion Wheel (GEW) (Scherer, 2005) and the Body Sensation Maps (BSM), respectively. When both participants were finished, the items were swapped and the same process was repeated once more for the other item, starting from experiencing it.

Next, they were instructed to stand up and start a conversation about both items they just experienced, using prompts as guidance. The conversation was aimed to last twenty minutes, and conversations that lasted less than ten minutes were excluded from the data. At this time, auditive and visual recording was started to measure body language and qualitative speech data. The interview lasted a minimum of ten minutes up to a maximum of twenty minutes. One of the researchers stayed in the room with the participants if any questions arose. Both items were placed on a table together in front of the participants. After the discussion of all the prompts the conversation ended. The recordings were stopped and the participants were asked to take a seat again. Then Q2, together with the GEW and BSM, were filled out about the items based on the conversation. After this, two final questionnaires, Generalized Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9), were administered to assess moods of anxiety and depression levels in the last two weeks, respectively.

## **Instruments**

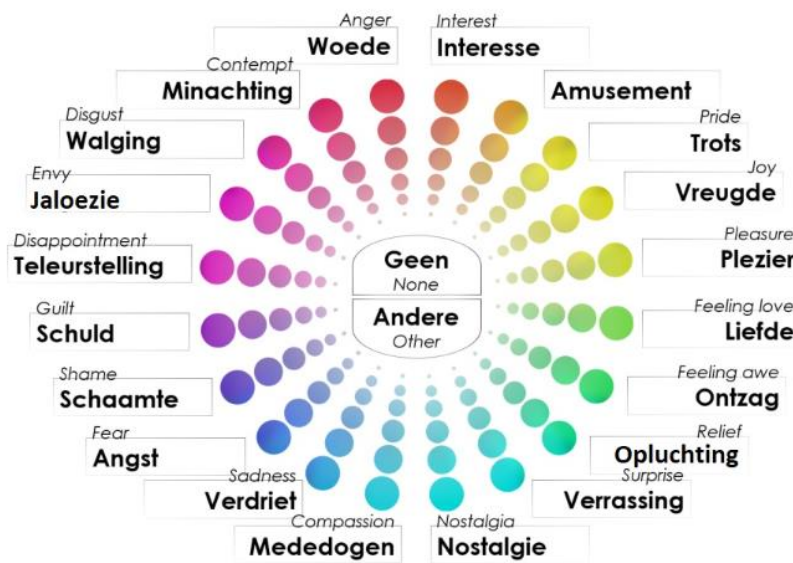
### ***Geneva Emotion Wheel (GEW)***

The GEW ([Figure 3](#)) was used to measure emotions in response to art experience. It consists of twenty emotion families listed both in English and in Dutch (Scherer, 2005). These emotions were systematically aligned in a circle. Each emotion was based on three dimensions: valence (positive and negative), control (high and low), and intensity (high and low). The

dimension of valence makes the GEW an exceptionally fitting instrument for the research question. The data measured after the first experience of each item will be used, to assess the effect the emotional valence on the interaction with art.

### Figure 3

*The Geneva Emotion Wheel (Scherer, 2005)*



### *Audio recordings of conversation*

The participants engaged in a guided conversation about the items that were brought, for an aimed duration of twenty minutes. The purpose of the conversation was to qualitatively measure how participants judged, related to, felt about and made sense of the items. During the conversation, eight prompts were presented (included in appendix A). The prompts were based on emotions, semiotic strategies (i.e., perception, imagination, conceptualization and analysis), and self-referential patterns, to motivate deep and reflective conversations about the artworks. Of each conversation, audio has been recorded to analyze the interaction with the artworks, described according to the outcomes of the VIMAP (Pelowski et al., 2017)

## ***Medium***

The type of medium was also noted for answering research question 2. The type of medium was distinguished into two categories: non-visual and visual. In this experiment, non-visual referred to any type of media that was not purely visual. For example, even though a scene from a movie is somewhat a visual medium, it would be noted as a non-visual medium, because it is also an auditive medium.

## **Data Analysis**

### ***Qualitative Data***

The audio recordings of the dyadic interactions were transcribed using F4transkript software. Then, frequently used utterances from the transcripts of the conversations were used to code the transcripts into analyzable data. Outcomes could be measured by operationalizing utterances into two categories: congruence with self-knowledge and levels of self-relevance (Pelowski et al., 2017). Congruency with self-knowledge is operationalized as the instance in which a participant shows that they have the cognitive capabilities to master an item. This includes finding a referential frame to process the art, identifying individual parts and/or whole of the art, classifying the art, identifying combinations and showing understanding of the conceptual meaning in relation to their own memories and expectations. Self-relevance is operationalized as an instance in which the participant assesses whether or not they really care about the outcome of their art experience, or whether or not they really have an interest in or need to process the art (pelowski et al., 2017). This includes assessing how important the art is to the participant, whether the artwork poses a threat to their conceptual self, and whether to continue the art experience (see appendix B for an overview of the coding scheme).

When instances of congruence and self-relevance are recorded, they are combined and categorized into four outcomes from the VIMAP: *Facile* (high congruence, low self-relevance), *Small Insight* (low congruence, low self-relevance), *Harmony* (high congruence, high-self-relevance) and *Transformation* (low congruence, high self-relevance). Note that the outcome of *Negative Experience* from the VIMAP is missing. This is because according to the VIMAP, a negative experience would mean immediate arrest of the aesthetic experience (Pelowski et al., 2017). However, if the experience is stopped, the data wouldn't have been included in the analyses. Therefore, it is impossible to have this outcome included in the data. Finally, a Chi-squared test will be conducted between the four categories of aesthetic experience that were just discussed and the two categories of emotional valence (positive and negative)

### ***Quantitative Data***

To analyze whether different media would result in the same kind of data, an extra step was introduced in process of creating the coding scheme, based on the principles of customized transfer learning procedure (Pan & Yang, 2010). The coding scheme was first created from only data from visual items, and then applied to code data from both visual and non-visual art items. The number of datapoints will be counted for each type of medium, and an independent t-test will be conducted to examine any differences in the mean datapoints that were collected per medium. Additionally, a visual analysis will be performed to assess the similarity of the data distributions.



## Results

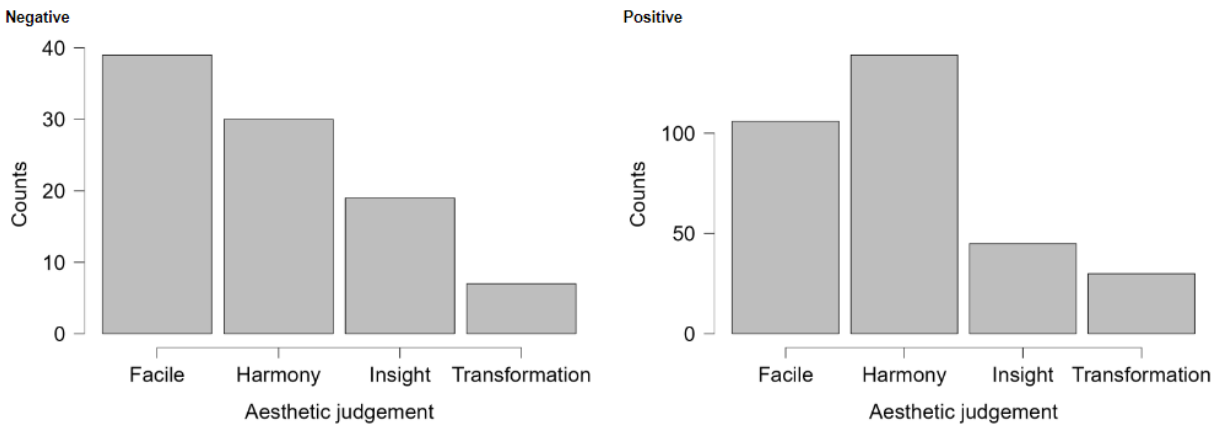
Thirty-eight people participated in the experiment, who were divided into 19 dyads. Two participants (i.e.: one dyad) were excluded from the analysis as their audio file was damaged due to technical problems and another pair failed to reach the inclusion point (as their conversation lasted less than ten minutes.). The final sample consisted of 34 participants above 18 years of age (N= 34, n=13 males, n=21 females,  $M_{\text{age}}=24,41$ ,  $SD_{\text{age}}=7,92$ ,  $M_{\text{age male}}=26,46$ ,  $SD_{\text{age male}}=8,82$ ,  $M_{\text{age female}}=23,14$ ,  $SD_{\text{age female}}=7,24$ ). In total, there have been 415 utterances that indicate aesthetic judgement outcomes. *Harmony* (40,7%) and *Facile* (34,9%) make up the majority of aesthetic judgments outcomes that have been recorded. 15,4% of all utterances fell under the category of *Insight*, and 9% fell under the category of *Transformation*.

### *Emotional valence and aesthetic judgement*

Participants who were categorized as experiencing negative emotions made 95 (22,9%) of the utterances, while participants categorized as experiencing positive emotions made 320 (77,1%). For brevity, [\(Figure 4\)](#) is provided, featuring two distribution plots with the count of utterances for each aesthetic judgement, divided into those with negative (left) and positive (right) aesthetic emotions. A chi-square test of independence was conducted ( $\chi^2(3)$ , N = 415) = 5,85,  $p = .119$ ), showing there was no significant association between emotional valence and aesthetic interaction outcome. These findings demonstrate that, after taking either positive or negative emotion into account, there is no difference in the distribution of aesthetic judgement outcomes. Therefore, it cannot be said that people interact differently with art that elicits different aesthetic emotions, supporting the first hypothesis: the valence of aesthetic emotions of artwork will not significantly influence the aesthetic judgement with art.

**Figure 4**

*Histograms showing utterances per aesthetic judgement, divided by emotional valence*

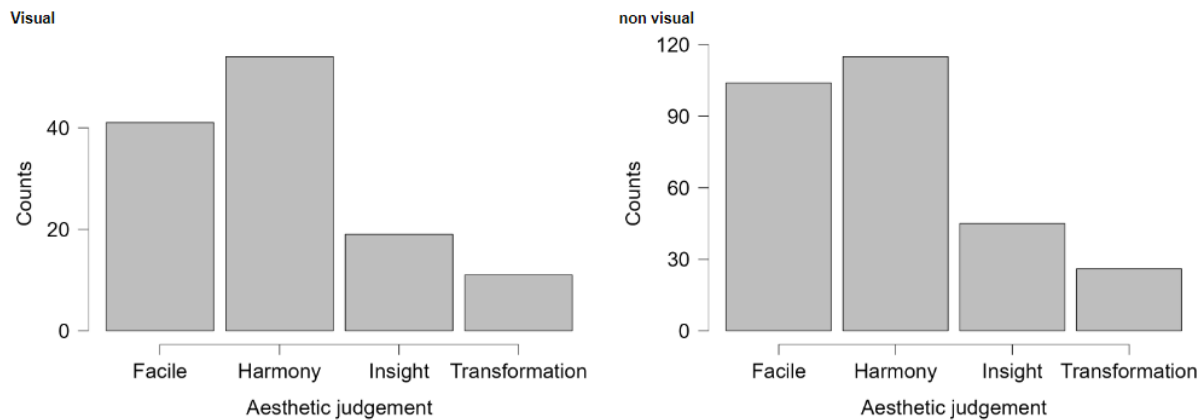


### ***Medium of the stimuli and VIMAP***

Ten (29,4%) of the 34 pieces of art that were brought in were visual, and 24 (70,6%) were non-visual. A total count of 125 utterances (31.1%) were about visual and 290 (69.9%) were about non-visual works of visual art. An independent t-test has been conducted to analyze the means using the qualitative data. The mean count of utterances of the 24 non-visual art pieces ( $M = 12.08$ ,  $SD = 3.47$ ) and the ten visual art pieces ( $M = 12.5$ ,  $SD = 3,47$ ) did not differ significantly;  $t(32) = -.414$ ,  $p = .681$ . [Figure 5](#) includes two distribution plots that display the number of utterances per aesthetic judgement outcome, broken down into visual (left) and non-visual art media (right). A visual inspection shows that both histograms follow very similar response patterns. This similarity, combined with the non-significantly differing means provides convincing support for the second hypothesis; the VIMAP can be used for non-visual art.

**Figure 5**

*Histograms showing utterances per aesthetic judgement, divided by medium*



## Discussion

Firstly, the first research question will be discussed. Several explanations for the findings will be explored, including social dynamics, how the nature of the study might have influenced the results and an alternative approach to the use of emotions in aesthetic judgement. Secondly, the second research question will be discussed. The discussion will end considering some of the limitation of this study, mainly regarding generalizability.

### *Research question 1: Does emotional valence affect art experience?*

The outcomes of aesthetic judgements did not seem to be significantly influenced by the valence of aesthetic emotions. This result indicates that the interpretation of art encompasses much more than just the emotional valence, as the inner experience involves additional factors. The results show interesting outcomes that request further exploration of the data and perhaps could uncover some of these additional factors. First of all, according to the VIMAP (Pelowski et al., 2017), the Facile outcome (also called the Default outcome) was expected to far succeed any other outcome, since this is usually how people interact with art: they experience an artwork,

identify the features and meaning, they reinforce their self-schema, and then they move on to the next experience. As seen in the results ([Figure 4](#)) however, *Harmony* was the most recorded outcome of them all. To investigate and better understand the reasons behind these divergent outcomes, conducting a deeper analysis of the content within the transcripts could prove beneficial.

Firstly, when analyzing the transcripts, it seemed the way participants talked about the artworks was greatly influenced by the fact that they were in a social setting. For example, sometimes participants would admit they wouldn't feel inclined to be engaged with the artwork if it wasn't for the fact that they knew their friend liked it. In another noteworthy instance, an emotional reaction from one participant was observed, which subsequently influenced the emotional state of the other participant. This shared emotional response led to both participants expressing aesthetically harmonious judgment outcomes (as described in the VIMAP by Pelowski et al., 2017). These examples suggest that social dynamics and interpersonal influences play a role in shaping individuals' perceptions and evaluations of artworks. In the VIMAP, social factors are included in the pre-classification stage as one of the contextual influences our surrounding might have on our future judgements. It's stated that compared to going to an art experience as a social endeavor, going as an individual would be expected to prompt more of a pragmatic mode, meaning that individuals pay more attention to the content, meaning and relation of the art to the self (Pelowski et al., 2017). These are some interesting contrasts to our findings, as the high counts of *harmony* recording during the experiment, which was inherently a social endeavor, showed that there was a great deal of attention focused on the content and meaning, with a high relation to the self. Therefore, something in the experiment must have caused this inversion of what could have been expected from social endeavors.

The requirement for participants to bring personally significant artworks could serve as a fitting explanation of the observed findings. Because of this selection criterium, at least half of the artworks were already by default imbued with personal meaning for the participants. Moreover, during the conversation, participants had the opportunity to share the significance of their own artworks with their peers. This exchange of personal meaning could have influenced how the artworks were perceived and evaluated, ultimately resulting in a majority of the art being deemed meaningful. This explanation provides a rationale for the observed high levels of aesthetic harmony, as well as the deviation from typical expectations in a social context (Pelowski et al., 2017). Furthermore, this suggests that the experiment design itself holds promise for investigating the mechanisms underlying harmonious aesthetic judgment. Its focus on personal significance and the subsequent sharing of meaning among participants offers an intriguing avenue for further research in understanding the dynamics of harmonious aesthetic judgment.

Another interesting finding in the transcripts is that participants sometimes actually did base their judgments of artworks on their interpretation of the emotions conveyed. For instance, metal music was described as angry, while a cartoon was associated with happiness. This suggests that emotional valence does seem to play a role, to some extent, in the evaluation of art. Additionally, it was observed that such comments sometimes led to the outcomes of *small insights*, likely resulting from the explanation of the emotions experienced by the other person. These observations imply that it could be valuable to examine patterns in the development of aesthetic judgments over time, particularly after expressing the emotions felt during the art experience. It is possible that emotions serve as a tool for further sense-making and exploration of the artwork, rather than serving as a final judgment of its aesthetic value. In this particular

experiment, only the initial emotional response was measured, followed by a count of aesthetic judgment utterances. This approach aimed to explore the influence of these emotional responses on the sense-making process. However, if the felt emotion during each utterance, rather than just at the beginning, were included, it could potentially reveal meaningful patterns and provide deeper insights into the interplay between emotions and aesthetic judgments.

***Research question 2: Can data from non-visual art be described using the framework built on the VIMAP?***

In order to adequately address this question, it is crucial to provide additional clarification on the coding scheme employed. The coding of speech content has posed challenges due to the inherent variations in how individuals express their judgments. Determining participants' level of interest, such as through attentive listening or active engagement during discussions about the artwork, can be challenging due to potential ambiguity. For instance, silently listening or excessively focusing on a single subject can, at times, be interpreted as either a sign of interest in the topic at hand, or disinterest in other topics. When faced with these ambiguous situations, qualitative interpretation may be necessary to discern the intended meaning, which can introduce potential limitations to the reliability of the data. Consequently, such statements may need to be excluded from the data analysis to ensure its accuracy and validity. Therefore, it is imperative to utilize a coding system that accommodates individual differences, minimizing data loss and enhancing the reliability of measurements. During the post-experiment coding stage, the selected coding system proved applicable in the majority of cases, resulting in the collection of a substantial amount of data. Based on this experience, the chosen approach can be considered successful.

Now, turning to address the research question, the findings section revealed that the outcomes of aesthetic judgment did not differ significantly between visual and non-visual art, as indicated by the independent sample t-test. It is important to note that a t-test can only determine whether the two different types of media yielded different or similar results (Agresti & Finlay, 2018). However, similarity alone does not automatically confirm the suitability of the VIMAP for non-visual data. However, the assertion that distinct types of media can be assessed using a coding system based on the VIMAP (Pelowski et al., 2017) can be further substantiated by the process through which the coding system was developed. The approach discussed involves a customized transfer learning procedure (Pan & Yang, 2010). Initially, a classification system was created based on the utterances related to visual art, and this methodology was subsequently applied to non-visual art. Through the utilization of this approach and taking into account the closely matched distribution of the data resulting from visual analyses, additional validity has been conferred to the similarities observed in the data between the two types of media. As a result, there is a strong endorsement for the application of the VIMAP in describing experiences related to non-visual art.

### **Limitations**

The primary limitation of this study lies in its limited generalizability. The majority of participants consisted of young psychology students and/or acquaintances of the researchers, which hinders the extrapolation of findings to the broader population. As a result, the study should be viewed as more of an exploratory investigation. While the study design itself is recommended for future use, it is essential to involve a more diverse and representative sample to yield meaningful and applicable results.

Secondly, due to the experimental design, it was not possible to fully capture all possible outcomes, resulting in a lack of captured *negative experiences*. To address this limitation, future research could incorporate multiple artworks per participant, allowing individuals the option to discontinue the experience with certain artworks while continuing with others. Additionally, expanding the coding scheme to include a category for the expressed need for coping would enable the measurement of both the aesthetic judgement outcomes of *transformation* and *negative experience*.

## **Conclusion**

In conclusion, several findings could shed light on the complexities of aesthetic judgement and describing them using the VIMAP (Pelowski et al., 2017), for both visual and non-visual art. From the results, it seems that the valence of aesthetic emotions does not significantly influence aesthetic judgements. This suggests that the sensemaking of art encompasses more factors than just emotional valence. However, this experiment underscored the importance of examining the interplay between emotions and aesthetic judgements over time by only including the emotion felt during the first impression. Therefore, for future research it is recommended to include emotions that were felt during utterances of aesthetic judgement, instead of merely before. This could give insights into the complex nature of aesthetic emotions as a tool for the further exploration and understanding of art.

Secondly, unusually high number of observed counts of harmony outcomes challenged typical expectations of what would happen in a social setting during art experience, according to the VIMAP (Pelowski et al., 2017). A rationale for these observations could be that they were due to the requirement of bringing personally meaningful artworks to the experiment and the subsequent sharing of meaning among participants. Overall, these findings offer some inspiring



ideas for using the setup of this experiment for further research, particularly about the influence of social settings on aesthetic judgement, and a deeper understanding of harmony felt during aesthetic experiences.

Lastly, the findings convincingly support suitability of the VIMAP for non-visual art. Not only because of no clear statistical difference in recorded utterances per media could be found, but also because of the very similar distribution that was observed during visual analysis of the data. Additionally, the transfer learning procedure used during the creating of the coding scheme lend extra validity for this claim.

However, the limitations of this study regarding generalizability make it unjustifiable to infer the conclusions to a more general population. The sample consisted mostly of young psychology students and acquaintances of the researchers. Therefore, this study mostly functioned as a pilot study, encouraging using the experiment's setup in future research, using a more representative and diverse sample.

Lastly, even though the coding scheme was based on the aesthetic outcome judgements of the VIMAP (Pelowski et al., 2017), the coping check was able to measure both outcomes, due to the study's design. Therefore, future studies using this setup should consider incorporating multiple artworks into the design, giving participants more freedom to stop or continue experiencing artworks.

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## Appendix A

### Prompts used during conversation

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#### Prompts used during conversation

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Why did you decide to bring this artwork with you?

What do you think about the other person's artwork?

How does observing, touching, smelling, tasting or listening to these artworks make you feel?

Do you find these artworks beautiful or not? and Why?

In what ways do you relate with these artworks?

Could you please name what emotions you are experiencing as you talk about these artworks?

What purpose do these artworks fulfill by being made in this particular way?

What would you like other people to know about these artworks?

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## Appendix B

### Coding scheme guide with examples

Type of check	Operationalization	Examples utterances high check	Examples utterance low check
Congruence	The instance in which a participant shows that they have the cognitive capabilities to master an item. This includes finding a referential frame to process the art, identifying individual parts and/or whole of the art, classifying the art, identifying combinations and showing understanding of the conceptual meaning in relation to their own memories and expectations.	<p>Telling a lot of details about the art</p> <p>Stating opinions of the art</p> <p>Stating facts about the art</p> <p>Talking about memories that relate to the art</p> <p>Being aware of physical arousal and emotions the art evokes</p> <p>Explaining one's own identity in relation to art</p> <p>Explaining how the art relates to what kind of person you are</p>	<p>Not or misidentifying features, or the whole of the art</p> <p>Forming vague, unclear opinions about the art</p> <p>Not or misunderstanding the purpose of the art</p> <p>Showing inexperience with the type of art</p> <p>Only being able to tell very basic features of the art.</p> <p>Expressing they don't understand the art</p>
Self-relevance	The instance in which the participant assesses, on some level, whether or not they really care about the outcome of their art experience, or whether or not they really have an interest in or need to process the art This includes assessing how important the art is to the participant, whether the artwork poses a threat to their conceptual self, and whether to continue the art experience.	<p>Using imagination to understand concept of art</p> <p>Asking the other for their meaning or opinion</p> <p>Reobserve, retouch, relisten or otherwise reexperience the art</p> <p>Making attempts understanding the art beyond an object's appearance, or primary function</p> <p>Making attempts at explaining the art</p> <p>Becoming emotional</p> <p>Showing interest in how it's made</p>	<p>Not elaborating on why someone has an opinion</p> <p>Seeing an opinion as fact</p> <p>Only interested in a detail or meaning of the art after it got explained</p> <p>Finding out information one hasn't thought about by himself</p> <p>Relativize one's opinion about art</p> <p>Relativizing the importance of the art</p> <p>Being uninterested in the prompts</p>