PAPER (Standard Paper Format) for PERCEPTION/ Special Issue: "Illusions and Delusions"

Stable aesthetic standards delusion:

Changing "artistic quality" by elaboration

-- this paper is "in press" (Perception) --

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Short title: Stable aesthetic standards delusion

ABSTRACT (150 words; max 200 words)

The present study challenges the notion that judgments of artistic quality are based on stable aesthetic standards. We propose that such standards are a delusion and that judgments of artistic quality are the combined result of exposure, elaboration and discourse. We ran two experiments using elaboration tasks based on the Repeated Evaluation Technique (RET) in which different versions of the Mona Lisa had to be elaborated deeply. During the initial task, either the version known from the Louvre or an alternative version owned by the Prado was elaborated; during the second task, both versions were elaborated in a comparative fashion. After both tasks, multiple blends of the two versions had to be evaluated concerning several aesthetic key variables. Judgments of artistic quality of the blends were significantly different depending on the initially elaborated version of the Mona Lisa indicating experience-based aesthetic processing, which contradicts the notion of stable aesthetic standards.

Keywords: aesthetics, delusion, visual arts, Mona Lisa, perceptual standards, beauty, artistic quality, familiarity, portrait, face, texture, shape, dynamics of aesthetic appreciation, liking

Total number of words: 2690 (body text)

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Introduction

Visual or optical illusions are not only pleasurable to look at but they can serve as important

phenomena in investigating visual processing and perception (see Gregory, 1997). Triggering

processes of low-, mid- as well as high-level vision they "play" with our visual and cognitive

system (for further information and joyful illustrations of visual illusions, see

http://michaelbach.de/ot/, http://www.die-scheune.info/kategorie/katalog/optische-

phanomene/). The results of this can be astonishing and may yield some kind of "Aha" (cf.

"Aesthetic Aha effect", Muth & Carbon, 2013) in the perceiver (so it is no big surprise that

many [strangely not all] people stand open-mouthed when encountering a hollow face and

experiencing the perceptual flip for the first time). Importantly, the same processes that

underlie our surprise in response to visual illusions are an integral part of the standard

repertoire of everyday visual perception during which they will, however, usually go

unnoticed.

While a great variety of visual illusions are well researched and documented, there are

certain illusions or delusions[1] based on more complex processes of high-level vision and

cognition that have rarely been investigated so far. One of these is the delusion of stable

aesthetic standards on which we will focus in the following.

The delusion of stable aesthetic standards

A key assumption of everyday life aesthetics is that there are some specific standards defining

the aesthetic and artistic quality of an art object. According to this assumption, a high artistic

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[1] With regards to the phenomenon of highly flexible instead of stable aesthetic standards which we present here, we will consistently speak of a "delusion" instead of an "illusion" as our results refer to a misconception rather than a misperception.

quality will be ascribed to a given piece of art, if it meets these aesthetic standards, but the

piece will be considered as being of poor artistic quality, if it does not meet them. As it is

further supposed that these standards are rather stable (or not immediately changeable, at

least), such a conception implies as well that artistic quality itself is stable and objectifiable.

In empirical aesthetic research the notion of predefined standards is mirrored by

object-centred approaches starting with Fechner's (1876) experiments on the Golden Section.

Alternative approaches, however, state that the aesthetic appeal of an object is not exclusively

determined by its specific configuration and constitution but also by characteristics of

different perceivers (recipients) and the way they interact with the object in different

(environmental, semantic and historical) contexts, which further means that the aesthetic

appeal of the object is neither entirely objectively definable nor necessarily stable.

One important process that has been identified as a source of dynamic changes in the

aesthetic appeal of objects is elaboration in terms of extended active (cf. Carbon & Leder,

2005) and/or deep processing (cf. Craik & Lockhart, 1972; Lockhart & Craik, 1990): Besides

increasing familiarity, which can already have a positive effect on the attitude towards the

object (Zajonc, 1968), elaboration yields deeper processing (cf. Craik, 2002; Craik &

Lockhart, 1972) and a better understanding by potentially enabling alternative access(es) to

and new insights into the meaning of the object. As could be shown, such active, deep

elaboration and the related new perceptual and experiential inputs are able to make an object

more appealing to the perceiver (Carbon, 2011; see also Repeated Evaluation Technique,

Carbon & Leder, 2005).

Elaboration is even a key factor in triggering long-term cyclic changes in the aesthetic

appreciation of design features (cf. Carbon, 2010, "cycle of preference" for curved vs straight

car designs). As Martindale (1990) showed such (cyclic) changes are not limited to design but

can also be found with regards to artistic style in the visual arts. And a recent psychological

study suggests that evaluations of artistic quality are even so fragile that they can easily be

corrupted by authenticity information (Wolz & Carbon, in press). Despite such results and the lessons to be learned from art history, it seems that the above mentioned assumption that outlasting standards define whether an artwork is or is not of high quality persists in the minds. In the following we provide further evidence for the delusive character of this assumption by demonstrating that even the aesthetic quality of a well-known artwork can be changed by means of relatively short periods of deep elaboration.

The present study: The Mona Lisa and the delusion of stable aesthetic standards

The *Mona Lisa* (1503 and later) by Leonardo da Vinci is highly appreciated by arts connoisseurs, experts and laymen. Since its early days, this Renaissance portrait of a young Italian female has been praised for its high artistic quality (see, for instance, Vasari, 1568/2008). The vividness of the sitter's expression and the luminosity of the depiction (though meanwhile reduced due to ageing of the varnish) attained by the subtle use of *sfumato* (see also Elias & Cotte, 2008; Ruhemann, 1961), for instance, are characteristics referred to in order to confirm such appraisal. It can be said, in retrospect, that the Mona Lisa did indeed determine the direction of later developments of the Renaissance portrait genre (Zöllner & Nathan, 2011), and over the centuries, the painting has become part of the collective memory and the canon of (Western) art in terms of an "ideal portrait".

Representing some kind of gold standard of portrait art, the Mona Lisa is perfectly suited to be used as a litmus test of aesthetic standards and their stability, which we did in the present study. Our rationale was as follows: If the artistic quality ascribed to the Mona Lisa and the aesthetic standards on the basis of which this quality is defined were objective and stable, evaluations of the artistic quality would not be easy to modify. If, conversely, it was possible to change evaluations of the artistic quality with little effort, this would question the objectivity and stability of the artistic quality and related aesthetic standards.

Method

In line with our rationale, we ran two experiments testing whether recently experienced, perceptual inputs that are actively and deeply elaborated on are capable of substantially altering evaluations of the artistic quality of the Mona Lisa.

Participants

Thirty-one persons (M_{age} = 21.4 yrs; SD_{age} = 2.7; 27 female) participated in Experiment 1, and thirty-one different persons (M_{age} = 21.4 yrs; SD_{age} = 4.6; 27 female) participated in Experiment 2. For each experiment, participants were randomly assigned to the experimental conditions (Experiment 1: Louvre initial n = 15; Prado initial n = 16; Experiment 2: Louvre initial n = 13; Prado initial n = 18). All participants had normal or corrected-to-normal vision (assessed by a standard Snellen eye chart test) and normal colour vision (assessed by a short version of the Ishihara colour test). They were mostly undergraduate students from the University of Bamberg, Germany, who received course credit points for their participation. The participants had no specific training in the arts and were naïve to the purpose of this experiment.

Apparatus and Stimuli

The experiments were programmed and controlled using SR Experiment Builder™ running on a Windows PC with a screen resolution of 1600 x 900 pixels. The stimuli were the same for Experiment 1 and Experiment 2. We used two different versions of the "Mona Lisa" (aka "La Gioconda"), both painted at the beginning of the 16th century: The world-famous version that is exhibited in the Louvre museum in Paris (Figure 1, top left image) and a distinct version owned by the Prado museum in Madrid (Figure 1, bottom right image). This alternative version is a little-known copy of the Louvre version. Most probably, it also stems from Leonardo's studio (though he did not make it himself) and might have been painted

simultaneously to the famous original. The two versions are highly similar concerning their composition but differ slightly in perspective (Carbon & Hesslinger, 2013) and show obvious differences in texture and colorization: It is assumed that both versions originally shared the same colour spectrum; due to the yellowed varnish, however, the Louvre version now looks much darker than the restored Prado version with its brighter, blueish colours (cf. Elias & Cotte, 2008; Zöllner & Nathan, 2011). Higher resolution images of the two paintings can be retrieved from Carbon and Hesslinger (2013) or from the Perception homepage at http://www.perceptionweb.com/perception/misc/p7524/p7524-f1.pdf.

In addition to the Louvre and the Prado versions, we utilized 49 blends of them that we generated via a combination of morphing (7 intermediate texture levels) and warping (7 intermediate shape levels) following the schema shown in Figure 3. The blends were realized through FantaMorph™ Deluxe with linear transitions between the two paintings: While the warping procedure only blends shape aspects, the morphing procedure exclusively blends texture aspects. We adjusted all the resulting 2+49 stimuli to a size of 421×684 pixels yielding visual angles of 8.0° width and 13.0° height when participants, as advised, had a distance of approx. 65 cm from the screen.

[insert Figure 1 about here]

Procedure

The whole procedure of each experiment took about 30 minutes and comprised four phases (see Figure 2): (1) initial single elaboration task, (2) test phase 1/T1, (3) comparative elaboration task, and (4) test phase 2/T2. Both elaboration tasks are based on the elaboration procedure of the Repeated Evaluation Technique (RET; Carbon & Leder, 2005).

(1) For the initial single elaboration task, the participants were exposed to either the Louvre version (condition *Louvre initial*) or the Prado version (condition *Prado initial*) of the Mona Lisa for ten minutes. They were asked to answer multiple questions concerning

different attributes of the presented portrait, which should initiate a thorough elaboration of the stimulus (e.g. "What is the colour composition like? Please describe in detail!", "What might the portrayed person think?", "What can you see in the background?"). They were not provided with any further information concerning the painting or its provenance.

(2) In test phase 1/T1, the participants evaluated the 49 different blends of the Louvre version and the Prado version with regard to two variables. The 49 blends were presented one by one and in randomized order in the course of two iteration loops (first round = Variable A, second round = Variable B; the order of the variables was the same for all participants). In Experiment 1, the variables asked for were *artistic quality* (A) and *personal liking* (B). In Experiment 2, the variables asked for were *familiarity* (A) and *similarity to the Mona Lisa exhibited in the Louvre* (B). For each variable, the participants evaluated the blends using a scale ranging from 1 ("very low") to 7 ("very high"). The evaluation of the more or less Louvre- and Prado-like blends with regard to different variables allowed for assessing the specific impact of the initial single elaboration task and the comparative elaboration task, respectively.

(3) For the comparative elaboration task, the participants were exposed to the Louvre and the Prado versions of the Mona Lisa presented next to each other. They were asked to compare the two portraits in detail by answering multiple questions concerning different attributes of them, which should trigger the elaboration of similarities and differences between the paintings (e.g., "How similar are the two persons depicted in the two portrait? Please compare them to each other!, "Where was the resepective model of each portrait sitting? Please describe!"). Again, they were not provided with any further information concerning the paintings or their provenances.

(4) In Test phase 2/T2, the participants had to evaluate all blends for a second time concerning the variables already asked for in test phase 1. T2 thus served as a retest of T1

allowing for investigating which influence the comparative elaboration of the Louvre and the

Prado versions had on the evaluation of their blends.

Results and Discussion

As our results show, the participants differentiated between the different blends mainly on the

basis of variations in texture, but not shape, which is not very surprising as the two versions of

the Mona Lisa, out of which the blends were generated, are very different with regard to the

texture dimension while looking very similar with regard to shape. So, in the following, we

will focus on the main results concerning the texture dimension.

The *similarity* ratings made by the participants in both conditions were nearly linearly

related to the mathematical similarity of the different morphing levels (see Figure 3; only

main effects of texture were found after the initial elaboration: $F(6,174) = 40.45$, $p < .0001$,

$\eta_p^2 = .582$, and after the comparative elaboration: $F(6,174) = 83.99$, $p < .0001$, $\eta_p^2 = .743$):

Blends that were in fact more Louvre-like were also rated as being more similar to the

original Mona Lisa. This relation was not affected by elaboration.

In accordance with previously reported findings (e.g., Carbon & Leder, 2005; Faerber,

Leder, Gerger, & Carbon, 2010), elaboration had a significant impact on the aesthetic

appreciation in terms of *personal liking*, which was reflected by specific liking patterns

depending on the initially elaborated version of the Mona Lisa (significant interaction

between initial elaboration and texture for T1/after initial elaboration task: $F(6,174) = 3.86$, p

$= .0012$, $\eta_p^2 = .117$; for T2/after comparative elaboration task: $F(6,174) = 5.62$, $p < .0001$, η_p^2

$= .162$).

[insert Figure 3 about here   ]

Participants who had initially elaborated the Louvre version showed higher liking with

increasing similarity of the blends to the Louvre version. Participants who had initially

elaborated the Prado version, in contrast, did not show clear preferences, neither for more

Louvre-like nor for more Prado-like blends. So, initial elaboration of the Prado as compared to the Louvre version lead to more equalized liking for different blends. One might also interpret this as the preference for the famous original being cut off after the deep processing of a "competing" version. Most interestingly, the elaboration tasks also had significant effects on the evaluation of the *artistic quality*: Participants who had actively elaborated the well known Louvre version during the initial single elaboration task evaluated the artistic quality the higher the more similar a blend was to the Louvre version, but essentially, participants who had elaborated the Prado version during the initial task rated blends that were more similar to the Prado version as being of higher artistic quality (interaction between initial elaboration and texture level, $F(6,174) = 4.03$, $p = .0008$, $\eta_p^2 = .122$). This means, the two groups showed converse evaluation patterns. Importantly, the subsequent comparative elaboration of the Prado and the Louvre versions side by side did attenuate but not completely "reset" the ratings of the participants who had initially elaborated the Prado version. They kept on clearly deviating from the ratings of the participants who had initially elaborated the Louvre version and who still ascribed higher artistic quality to the more Louvre-like blends (interaction between initial elaboration and texture level, $F(6,174) = 5.15$, $p < .0001$, $\eta_p^2 = .151$). This result is contrary to the idea that artistic quality is determined by stable aesthetic standards. If this actually was the case, the participants' ratings should have been made independent of the initial elaboration task. On average, the participants—also those who had elaborated the Prado version—should have ascribed higher artistic quality to blends being more similar to the Louvre's Mona Lisa which is commonly considered being kind of an ideal portrait and having high artistic quality. But precisely this did not happen, not even after the comparative elaboration task during which both the original and the (seemingly lower-quality) copy could be inspected next to each other—though the more Louvre-like blends were now rated as maximally familiar also by participants who had initially elaborated the Prado version.

Conclusion

Our results underline the delusive character of assumptions of stable aesthetic standards. When assessing the artistic quality of artworks we do in fact not refer to standards "written in stone" but to the combined result of exposure, elaboration and discourse. Here we showed how these processes impact evaluations on the micro-level, in the individual perceivers' minds. On the macro-level we find parallel processes such as cultural discourse determining aesthetic canons. Knowing the underlying cognitive processes enables us to cast off (probably decrepit) standards and contributes to gaining a more detached, unprejudiced access to aesthetics and the arts.

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AUTHORS' NOTE

FIGURES

Figure 1. Illustration of the stimuli used: The Mona Lisa as exhibited in the Louvre

museum/Paris is shown top left, and the widely unknown version owned by the Prado

museum/Madrid is shown bottom right. Furthermore, the construction of 49 different blends

of the Louvre and the Prado versions of the Mona Lisa is sketched. The blends were generated

by fully crossing 7 levels of texture morphing and 7 levels of shape warping, the levels being

25%, 33%, 42%, 50%, 58%, 67%, 75% of the Louvre version's texture ("T") and shape ("S"),

respectively. The item coding in the figure accordingly provides the amount of the Louvre

version's texture and shape contained in the blend, e.g. "T075/S075" means that this blend

has 75% texture and 75% shape aspects of the Louvre version (and, thus, 25% texture and

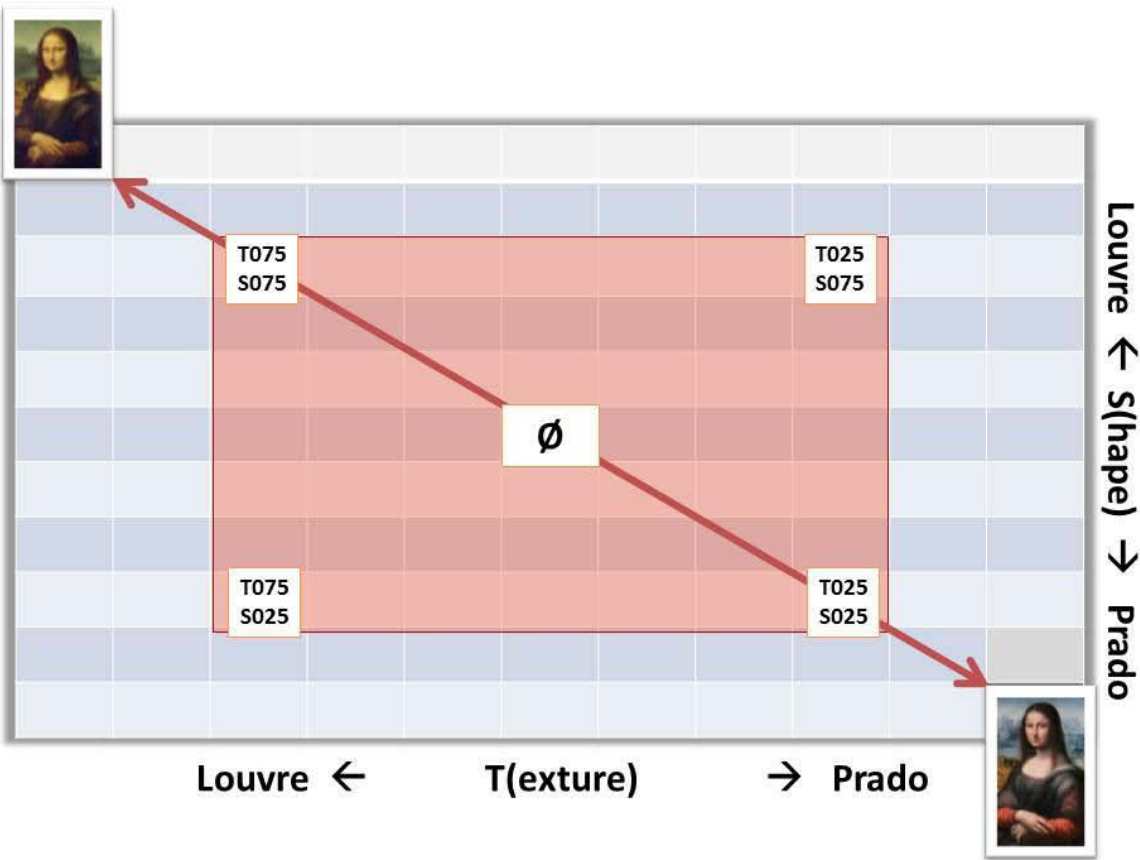25% shape aspects of the Prado version).

Figure 2. Procedure and time course applied in Experiments 1 and 2 illustrated by the example of Experiment 1 with the condition *Prado-initial*, where participants were exposed to the Prado version of the Mona Lisa at the beginning of the study.
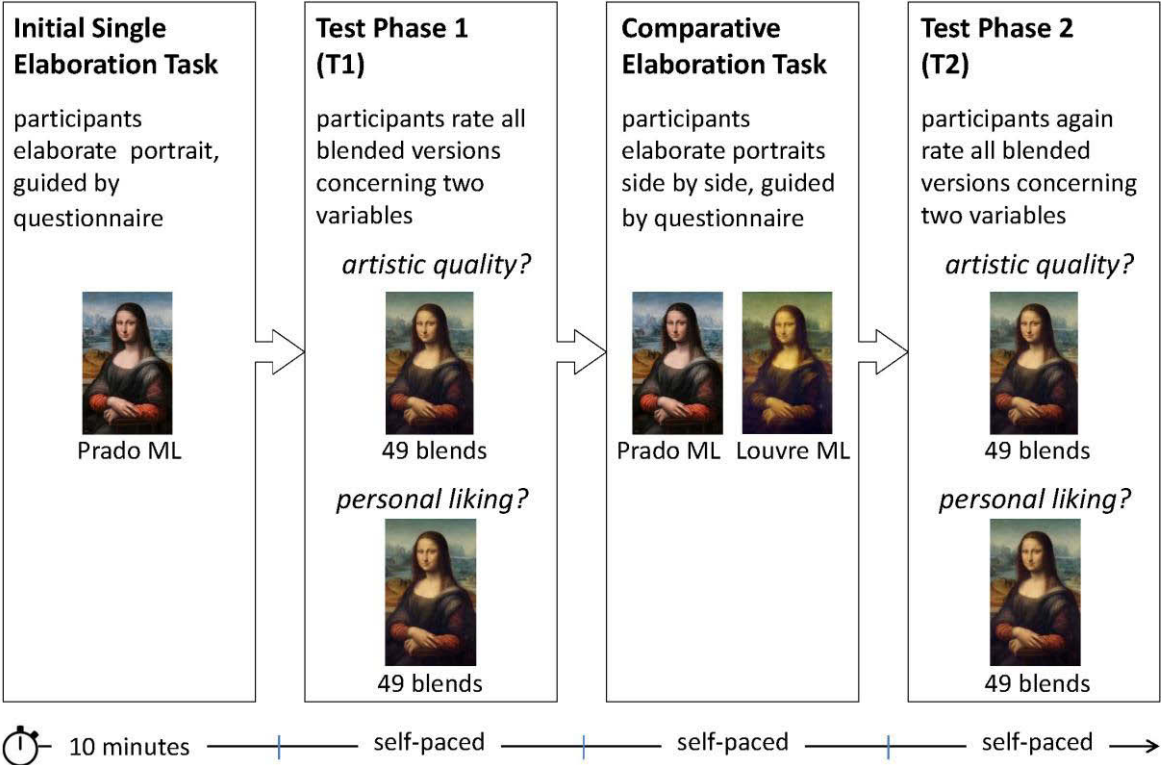
Figure 3. Evaluation of the four dependent variables for all texture levels split by *elaboration* (Louvre vs Prado) in T1 (left panel) and T2 (right panel): *Artistic quality* and *Personal liking* (Experiment 1) and *familiarity* and *similarity to the famous version* (Experiment 2). The x-axis shows the amount of texture related to the Louvre version, i.e. "75%" means 75% of the texture of the Louvre version (thus, 25% of the Prado version).