

## What's wrong with an art fake?

### Cognitive and emotional variables influenced by authenticity status of artworks

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**Abstract (100 words)**

What's wrong with art fakes? We tested effects of art "forgery" on aesthetic appreciation and the quality of paintings in a multidimensional manner comprising cognitive and emotional variables: When naïve participants were exposed to replicas of works by renowned artists, information about the alleged authenticity status had a major effect on the perceived quality of the painting, and even on artist-associated values such as artist talent. All these variables were negatively influenced when depictions were labeled as copies compared to identical ones labeled as originals. Our findings show the importance of symbolic and personal values as modulators in art appreciation.

*Keywords:* aesthetics; visual art; forgery; copy; fake; authentic status; uniqueness; cognitive evaluation; quality; visual rightness; devaluation; vision

## What's wrong with an art fake?

### Cognitive and emotional variables influenced by authenticity status of artworks

A short time ago, the biggest German postwar art fake scandal was revealed. Wolfgang Beltracchi placed more than 55 fakes on the market (particularly works “by” Max Pechstein and Max Ernst) and cheated art collectors out of more than 16 million Euros. The fakes passed through expert hands for many years before being detected recently (Meixner, 2011 [1]). Examples like these show that forgeries are not necessarily of low quality and although art fakers and their lives (e.g., Konrad Kujau or Elmyr de Hory) often elicit fascination and interest, their works never seem to be appreciated in the same way as the originals. This indicates that besides mere physical factors such as actual craftsmanship, other factors such as symbolic value (Creusen & Schoormans, 2005 [2]) are also pertinent to appreciation. In the context of artworks, for instance, the symbolic value is increased by a famous artist's name and the association with “the great genius” (see Goodman, 1968 [3]).

Recent approaches in aesthetics have mostly investigated stimuli-centered attributes (e.g., style vs. content dimensions in Augustin, Leder, Hutzler & Carbon, 2008 [4]; Augustin, Defranceschi, Fuchs, Carbon & Hutzler, 2011 [5], the role of visual rightness in Locher, 2003 [6], the role of compositional geometry in McManus & Kitson, 1995 [7]) person-centered attributes (e.g., interest in art see Carbon & Leder, 2005 [8], or personality factors such as rigidity and the appreciation of aesthetic innovation: see Carbon & Schoormans, 2012 [9]). Much less research has been carried out on how context information influences appreciation (e.g., Millis, 2001 [10]; Leder, Carbon & Ripsas, 2006 [11]). Specifically the present research question, how knowledge of forgery influences aesthetic appreciation, has attracted little research as of yet.

Raab (1970 [12]) investigated the effects of associating an artwork with the artist's name on the extent to which it is appreciated, reflecting that the attitude towards the artist tends to influence the appreciation of an artwork. Although it demonstrated the effects of an artist's name on the evaluation of a painting, the study did not investigate the effects of manipulated authenticity status. In contrast, Leder (2001 [13]) investigated the effects of familiarity on aesthetic appreciation by mainly varying the classification of Van Gogh paintings as being either originals or fakes. By presenting Van Gogh paintings as fakes, he revealed a decreased correlation between familiarity and pleasantness. The weakened relationship between both variables was generated by diminished judgments of familiarity, but not by changes of pleasantness. Besides methodological shortcomings such as the small participant sample ( $N=12$ ), the limited stimulus sample (all 54 stimuli were depictions of paintings of Van Gogh) and the problem of a uni-dimensional assessment of aesthetic appreciation (see for a critical reflection Faerber, Leder, Gerger & Carbon, 2010 [14]), the results presented by Leder (see Leder, 2001 [13]) are quite counter-intuitive: Everyday life experiences show that "forgeries" are often perceived as being of lower quality and inferior aesthetic appeal while, from a logical point of view, their familiarity is expected to stay constant in comparison with "originals".

The present study aims to further and more systematically investigate the effects of experimentally manipulating the authenticity status of depictions of paintings on several variables associated with aesthetic appreciation. These variables comprised perceived quality, emotional value, desire for possession, extraordinariness, visual rightness, familiarity, artist talent and last but not least, pleasure of inspecting the depiction. Based on the assumption that the topic is complex and that effects of authenticity status might not be direct and on the possibility that the intensity of potential effects may vary by certain influencing factors, we

regarded several variables as potential influencing factors on the effects of manipulated authenticity status. This selection of variables reflected key dimensions of the aesthetic experience in art: stimulus-associated factors (familiarity, visual rightness and extraordinariness, in our study both of the aforementioned are taken from evaluations in the “original” condition which we regarded as the natural evaluation of the painting), social factors (prestige and popularity of the artist and talent estimations in terms of myth of talent, which is how the talent estimation attributed to an artist has an effect on the overall impression of one of their works of art, e.g., Moffet, 1975 [15] or Getzels & Csikszentmihalyi, 1976 [16]) and person-associated factors (“Big 5” personality traits, Consumers’ Need for Uniqueness and Impression Management Tendency).

We mainly hypothesised that authenticity status would influence the evaluation of depictions in terms of devaluating all variables except familiarity. Additionally, we assumed that effects should be stronger for famous artworks than for lesser-known artworks of one and the same artist because they are cognitively associated more strongly with the artist. Consequently we chose pairs of replicas of paintings of well-known artists with these features. Furthermore we anticipated that highly esteemed prestige, popularity and attributed talent of an artist may strengthen the intensity of devaluation, given that artists with a high profile of prestige, popularity and talent are said to be something exceptional and inimitable and that the attitude regarding the artist is influential in the evaluation of an artwork (see Raab, 1970 [12]). We also hypothesised the following influences of person-associated factors on the size of devaluations: We supposed that people with high *impression management tendency* might show stronger devaluations, given that one of the techniques for improving the impression you make on other people is to stress status or prestige by putting on display status symbols (Mummendey & Eifler,

1995 [17]). This can be achieved by original but not copied artworks. We further supposed that people with a high *need for uniqueness*, especially within the Consumers' Need for Uniqueness Scale (Tepper-Tian, Bearden & Hunter, 2001 [18]) when scoring high in subscale *avoidance of similarity* would devalue "copies" more strongly because only original artworks are unique, whereas "copies" are not marked by this feature. Lastly, we expected *openness to experience* and *conscientiousness* to be linked with the extent of devaluation. *Openness to experience* has been shown to correlate with different variables regarding artistic preferences and interests (e.g., Chamorro-Premuzic, Reimers, Hsu & Ahmetoglu, 2009 [19] and Silvia, 2007 [20]) and we supposed it could be linked with weaker devaluations because the construct implies tolerating new and unusual experiences. In contrast we expected *conscientiousness* to be associated with higher devaluations because it has been shown to be negatively linked to preference for arts in general (see e.g. Chamorro-Premuzic et al., 2009 [19]) and it is conceivable that people with a higher degree of dependability have less tolerance for changes regarding the oeuvre.

## **Experiment**

### **Method**

#### ***Participants***

Participants were 34 persons not specifically trained in art (17 male, 17 female,  $M = 22.5$  yrs) who could be labelled as "art novices" on the basis of a questionnaire on art. Twenty-four of them were undergraduates in Psychology who participated for course credits, the rest were further volunteers. Two persons had to be excluded from the sample because they guessed the hidden aim of our study and could not be presumed as being naïve.

#### ***Material & Apparatus***

The main challenge in arranging our study was the avoidance of exposing the study's aim and the avoidance of any social desirability associated with devaluating “faked” artworks *a priori*. In order to exclude moral reasons for a possible devaluation we avoided the term “forgery” and named the depictions in the non-authentic instruction “copies” instead. We also stressed in our cover story the usual difficulty — even among experts — in differentiating between masters' and copyists' works.

Stimuli were 16 depictions of eight artworks by four famous artists, with one work of each artist being highly familiar (e.g., “Mona Lisa”) and the other more obscure (e.g., “Portrait of an Unknown Woman”) while showing matched contents. Works of art were selected in a pre-study out of a sample of 12 pairs of paintings. Those pairs of paintings were chosen which showed the biggest differences in familiarity between the famous vs. lesser-known picture. Details on the selected targets can be retrieved from Table 1.

(Please insert Table 1 about here)

Depictions of one artwork were prepared in two versions each, one with and the other without a frame. We included framing in order to slightly vary the stimuli without changing the depiction as such. Framed and unframed depictions were pseudo-randomly assigned to conditions with the constraint that half of the famous as well as of the little-known pictures were shown with a frame and the other half without a frame. Signatures were removed digitally via Adobe Photoshop.

In order to qualify the participants for appropriate judgments a kind of ‘crash course’ in art evaluation was arranged. To foster deep elaboration descriptions of the precise circumstances of

the painting's creation, plus information about its creator, were presented in addition to authenticity status (see example in Figure 1).

(Please insert Figure 1 about here)

Details regarding our own questionnaires about the evaluation of artwork and artist-related attitudes (prestige, popularity and raters' personal appreciation) can be retrieved from Table 2. Ratings regarding artist-related attitudes refer to the artists occurring in our study and six additional artists and were assessed on a five point rating scale with the poles 1=*not at all* and 5=*very much* (additional artists were: Albrecht Dürer, Caspar David Friedrich, Franz Marc, Claude Monet, Pablo Picasso and Peter Paul Rubens). Ratings regarding the artworks themselves were assessed on seven point rating scales with the poles 1= *I do not agree at all* and 7= *I totally agree*.

(Please insert Table 2 about here)

In order to investigate participants' personality variables we used several questionnaires: a) NeoFFI (Borkenau & Ostendorf, 1993 [20]) — the standardised German version of Costa's and McCrea's "Neo Five-Factor-Inventory", b) Consumers' Need for Uniqueness Scale (see Tepper-Tian, Bearden & Hunter, 2001 [18]) and c) Impression Management Scale (Mummendey & Eifler, 1994 [22]). Details regarding the used questionnaires can be retrieved from Table 3.

(Please insert Table 3 about here)



### ***Procedure***

Participants started with the aforesaid short course in explaining typical evaluation aspects of art before they evaluated the depictions. The presentation of “originals” and “copies” was organised in blocks, with the order of blocks being counter-balanced across participants. Stimuli were presented successively as laminated prints (A5 format, i.e. W x H = 148 x 210 mm), with the size of the whole print kept constant for framed and unframed versions of each artwork (size depended on the proportion of the artworks and was around 130 x 160 mm up to 136 x 179 mm). Related additional information was presented as laminated prints (A6 format, i.e. W x H = 105 x 148 mm). In-between the blocks, participants completed the three personality-oriented questionnaires. At the end of the experiment they filled out a questionnaire on interest in and activities related to art and on artist-related attitudes. All questionnaires were assessed as paper-pencil-questionnaires. The whole procedure lasted approximately 90 min in total.

### ***Results & Discussion***

Average data of the evaluations for each depiction in each condition were submitted to a one-way repeated-measurement Multivariate Analysis of Variance (MANOVA) with *authenticity* (original vs. copy) as experimental factor. As dependent variables we used perceived quality, artist talent, emotional value, pleasure of inspecting, desire for possession, familiarity, extraordinariness and visual rightness, averaged across the eight depictions. *Authenticity* was found significant for all dependent measures with the exception of familiarity,  $F(1,15) = 2.21, p = 0.158, n.s.$  (see details on significance levels and respective effect sizes in Figure 2): As hypothesized, paintings labeled as copies were multi-dimensionally devaluated.

(Please insert Figure 2 here)

Authenticity status had the strongest effect on estimations of painting quality and artist talent ( $\eta_p^2s > 0.38$ ). The effect on artist talent seems particularly interesting as this kind of evaluation addresses an inference from perceivable (or seemingly perceivable) quality of the painting to the inferred quality of its creator. Additional paired *t*-tests showed that all estimations were independent of block sequence and framing.

To get further insights into the relationship between the size of devaluation and the stimulus-associated, social and person-associated variables we calculated Pearson correlation coefficients between possible influencing factors and the differential amount of estimations between both conditions. These differences were regarded as size of devaluation. Hence, positive differential amounts denote more positive evaluations in the “original” condition, whereas negative differential amounts indicate more negative evaluations in the “original” condition. There were no significant correlations with the size of devaluation among stimulus-associated factors but partly among social- and person-associated factors (details can be retrieved from Table 4).

(Please insert Table 4 here)

## **General Discussion**

The present study aimed to investigate the impact of experimentally manipulated authenticity status on multidimensional evaluations of replica of artworks and its influencing factors. In a repeated measures design we showed participants depictions of eight artworks twice; once labeled as “originals”, and once as “copies”. We revealed multiple effects of authenticity status:

When depictions of paintings were labelled as “copies”, participants showed a decreased appraisal of physically identical versions on variables concerning cognitive as well as emotional dimensions.

Perceived quality of the painting and estimations of artist talent were particularly strongly affected by authenticity status. The intensity of the effects was neither stronger for well-known nor framed artworks. Correlations between the intensity of effects and considered influencing factors were not significant for stimulus-associated factors, but were for social and person-associated factors. Among those, Consumers’ Need for Uniqueness seems to be of special interest. The fact that persons with a high Consumers’ Need for Uniqueness tended to devalue paintings labelled as “copies” more strongly could indicate that the mere fact that forgeries are not unique is influencing their evaluations.

But what is wrong with art “fakes” in the end? Of course our experimental design of the study should be extended in the future to detect underlying processes and structures and to identify further moderating variables. We assumed that the effect of manipulated authenticity status is not a direct one, but is mediated and moderated by certain processes and influencing factors which are triggered by authenticity status and elicit the devaluation of “copied” artworks themselves. At the risk of going out on a limb we would like to illustrate our assumptions:

One basic flaw of copies is a lack of symbolic value, which involves e.g. missing uniqueness, a seemingly important feature of art — and is clearly different from mere craftsmanship. Effects of missing symbolic value might emerge on a cognitive as well as an emotional level. For instance, cognitively evaluated a good without symbolic value is of lower value as such; furthermore, on an emotional basis, a perceived lack of symbolic value may induce a displeasing emotion or at least lower amounts of positive emotions. This hypothesis could explain the devaluation of

emotional regard, though it does not explain the devaluations of other evaluation dimensions, like painting quality, because depictions were objectively the same. Let us merely assume the existence of a cognitive mediating process for devaluating copies: Displeasing emotions might – due to easier expressibility – be justified by a devaluation of cognitive evaluations like quality or talent estimations. Estimations of artist talent as a result of an inference being strongly affected by instruction might be a cue for the existence of such a justification process because in doing so, an experienced negative affective value of “copies” can be explained without being forced to identify blemishes in objectively identical depictions. An alternative explanation would be that participants may infer lower talent from the mere fact that an artist copies other work, so that the rating difference may result from a direct inference rather than from an indirect inference on the basis of work quality.

Huang et al (2011 [23]) present data supporting our assumptions: Analysing fMRI data while assigning a presented depiction as either authentic or copy shows specific activations: during copy instructions the fronto-polar cortex and the right posterior precuneus are more strongly activated than during original instruction, whereas the fronto-polar cortex is supposedly associated with working memory and the precuneus is associated with higher cognitive functions (Huang, Bridge, Kemp & Parker, 2011 [23]). Relating the results of brain imaging research with observed behaviour, where participants accordingly reported about actively trying to detect flaws in the “copies”, findings can be interpreted as cognitive justification processes.

Our research showed the importance of cognitive and emotional processes in art appreciation and the need to extend research on features beside the artwork as such; like the influence of its creator’s identity or of socially shared myths about creativity and craftsmanship, or the level of the beholder’s expertise (Belke, Leder, Harsányi & Carbon, 2010 [24]). Future research is

needed to clarify the impact of moderating and mediating variables in order to gain further insight into the complex field of art appreciation.

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We want to thank Katharina Rieger for discussing several aspects of the paper referring to the procedure and the material of the present work. Furthermore we thank the York Project for the permission to reproduce Da Vinci's "La Gioconda" and his "Portrait of an Unknown Woman". We are also indebted to the editor Nick Cronbach and 3 anonymous reviewers who helped us in improving the manuscript. Last but not least, CCC would like to stress that this piece of research was inspired by Orson Welles' cinematic masterpiece "F for Fake" (France / Iran / West Germany, 1975).

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## Glossary

### Big Five Personality traits:

Individual manifestation of the personality traits neuroticism, extraversion, openness to experience, agreeableness and conscientiousness (according to Borkenau & Ostendorf, 1993, p. 5 [20])

### Consumers' Need for Uniqueness:

“The trait of pursuing differentness relative to others through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one's self-image and social image” (Tepper-Tian, Bearden & Hunter, 2001, p. 52 [17])

### Correlation:

Statistical measure for the relationship between aspects. The correlation can be positive or negative and describes the direction of the relationship between two measures, but not the causality of the relation. Correlation coefficients can be located between -1 and +1, whereby +/-1 means a perfect relation and 0, no relation at all.

### Devaluation:

Mathematical expression of a more negative evaluation in one of the conditions (here in the “copy” condition); resulting from the differential amount of estimations between both conditions

### Effect Sizes:

Standardised statistical measure for the (relative) size of a statistical influence.  $\eta_p^2$  specifies the ratio of explained variance to unexplained variance on sample level.

### Impression Management Tendency:

An individual's tendency to induce in other people the attribution of certain features of this individual (according to Mummendey & Eifler, 1994, p. 3 [21])

### Repeated-measurement Multivariate Analysis of Variance:

Analysis of Variance is a statistical procedure in which it is tested if the means of several groups are equal or not and therefore if an investigated experimental factor is statistically influencing another dependent measure. Repeated measure means that the same sample evaluates the same

aspects two times by two different experimental conditions; multivariate means that there is more than one dependent measure.

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Table 1. List of used artworks.

Artist	Painting's title	Year	Familiarity level	Familiarity score (pre-study)
Leonardo Da Vinci	Mona Lisa [La Gioconda]	1503–1505	high	100.0
	Portrait of an Unknown Woman [La belle Ferronière]	1490–1495	low	25.0
Salvador Dalí	The Persistence of Memory [La persistencia de la memoria]	1931	high	75.0
	Invisible Afghan with the Apparition on the Beach of the Face of Garcia Lorca in the Form of a Fruit Dish with Three Figs [Afgano invisible con aparición sobre la playa del rostro de García Lorca en forma de frutero con tres higos]	1938	low	0.0
Edvard Munch	The Scream [Skrik]	1893	high	100.0
	Separation 1 [Løsrivelse 1]	1896	low	12.5
Vincent Van Gogh	12 Sunflowers in a Vase [Les Tournesols]	1888	high	100.0
	Fritillaries in a Copper Vase [Fritillaires couronne impérial dans un vase de cuivre]	1887	low	25.0

Table 2. Concept definitions and item list used for assessing artworks' evaluations and artist related attitudes.

<b>Concept</b>	<b>Concepts' definition</b>	<b>Items</b>
Perceived quality	Evaluation of objective criterions regarding workmanship	The artwork's colour selection is appropriate The way of colour application is well chose The harmony of colours is well balanced The way of painting is precise The used forms are harmonious The proportion between dark and bright elements is well balanced
Talent	Evaluation of artist's craftsmanship and creative talent	The artwork's artist is very talented
Emotional value	Degree of positive emotions elicited by beholding the artwork	I'm admiring the artwork For me, the artwork is triggering a pleasant emotion The artwork is fascinating me Beholding the artwork is making me happy Being allowed to contemplate the artwork is bringing me joy
Pleasure of inspecting	Degree of preference for the artwork	All in all, I like the artwork
Wish of possession	Degree of desire to own the artwork	If it was possible, I would be glad hanging up the artwork in my living room
Familiarity	Degree of acquaintance with the artwork	The artwork is familiar to me
Extraordinariness	Degree of exceptionality opposed to prototypicality	This artwork is more extraordinary than other artworks I have seen before
Visual rightness	Degree of good structural integration of artworks elements	The harmony of the artwork's structure is turned out well
Artists' prestige	Evaluation in terms of expert consensus regarding each artists' achievement	How important do you think are the following artists for history of art?
Artists' popularity	Evaluation in terms of majority's opinion regarding each artist	How relevant do you think are the following artists for your fellow men?
Raters' personal appreciation	Evaluation in terms of rater's individual sympathy for each artist	Plainly spoken: how much do you appreciate the following artists personally?

Table 3. Details regarding used questionnaires (Abbreviations: CP= Chamorro-Premuzic et al., 2009 [19]; B&O= Borkenau & Ostendorf, 1993 [21], TTB&H= Tepper-Tian, Bearden & Hunter, 2001 [18]).

Concepts' definition	Scales' format	Subscales	Subscales definition
Assesses the individual manifestation of the personality traits neuroticism, extraversion, openness to experience, agreeableness and conscientiousness (according to B&O, 1993, p. 5)	Five point rating scales with following poles: 1=strong disapproval and 5= strong approval; altogether 60 items	Neuroticism  Extraversion  Openness to experience  Conscientiousness  Agreeableness	“measures emotional instability and predisposition to experience psychological distress and have maladaptive coping responses” (CP, 2009, p. 502)  “measures quantity and intensity of interpersonal interaction, activity level, external stimulation and capacity for joy” (CP, 2009, p. 502)  “measures intellectual curiosity, creative interests, and preference for new experiences and toleration of the unfamiliar” (CP, 2009, p. 502)  “measures degree of organization, persistence, dependability and goal-directed behaviour”  measures degree of altruism, understanding and benevolence and affinity to confidence, indulgence and need for harmony (according to B&O, 1993, p. 5)
Assesses “the trait of pursuing differentness relative to others through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one's self-image and social image” (TTB&H, 2001, p. 52)	Five point rating scales with following poles: 1=strongly disagree and 5=strongly agree; altogether 31 items	Creative Choice Counter-conformity  Unpopular Choice Counter-conformity	refers to “one's personal style in material displays [...] accomplished through the purchase of original, novel, or unique consumer goods ...” (TTB&H, 2001, p.52)  “...use of products and brands that deviate from group norms and thus risk social disapproval that consumers withstand in order to establish their differentness from others” (TTB&H, 2001, p.52)
Assesses an individual's tendency to induce other people to attributions of certain features of this individual (according to Mummendey & Eifler, 1994, p. 3)	Four point rating scales with following poles: 1= not correct at all and 4= totally correct; altogether 17 items	Avoidance of Similarity  None	“refers to the loss of interest in, or discontinued use of possessions that become commonplace in order to move away from the norm and re-establish one's differentness” (TTB&H, 2001, p. 53)

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Questionnaire

Big 5  
Personality  
Traits

Consumers'  
Need for  
Uniqueness

Impression  
Management  
Tendency

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Table 4:

Significant correlations between regarded influencing factors and size of devaluation.

	NeoFFI			CNU			Social influencing factors	
	NeoFFI O	NeoFFI A	NeoFFI C	CNU CCC	CNU UC	CNU AS	Prestige	Popularity
<i>Diff Q</i>								$r=-0.402^*$
<i>Diff P</i>						$r=0.469^*$	$r=-0.397^*$	
<i>Diff WP</i>		$r=-0.449^*$		$r=0.438^*$	$r=0.475^*$	$r=0.493^*$		
<i>Diff E</i>			$r=0.469^*$					
<i>Diff VR</i>	$r=-0.439^*$							

\* level of significance ( $p < 0.05$ ) was obtained after Bonferroni adjustment ( $p = 0.05/3 = 0.0167$  for NeoFFI and CNU;  $p = 0.05/2 = 0.025$  for social influencing factors)

(Abbreviations: Diff Q= Mean devaluation (MD) of quality; Diff EV=MD of emotional value; Diff P=MD of pleasure of inspecting; Diff WP=MD of wish of possession; Diff E=MD of extraordinariness; Diff VR=MD of visual rightness; NeoFFI O= NeoFFI's Subscale Openness to experience; NeoFFI A= NeoFFI's Subscale Agreeableness; NeoFFI C= NeoFFI's Subscale Conscientiousness; CNU= Consumers' Need for Uniqueness Scale, Total Value; CNU CCC= CNU's Subscale Creative Choice Counterconformity; CNU UC= CNU's Subscale Unpopular Choice; CNU AS= CNU's Subscale Avoidance of Similarity).



### Figure Captions

Figure 1 caption. Exemplary stimulus representation for Leonardo Da Vinci. Legal note: Leonardo's "Mona Lisa" as well as his "La Belle Ferronière" are both from the Yorck Project and are under the rights of Wikimedia Commons, a freely licensed media file repository.

Figure caption 2. Means (M) with respective error bars ( $\pm 1$  standard errors of the mean; SEMs), levels of significance and effect sizes ( $\eta_p^2$ s) of the used variables regarding instruction.

(Abbreviations: M(quality)=mean estimation (ME) of quality; M(talent)=ME of talent;

M(emotional value)=ME of emotional value; M(pleasure)=ME of pleasure of inspecting;

M(wish of possession)=ME of wish of possession; M(familiarity)=ME of familiarity;

M(extraordinariness)=ME of extraordinariness; M(visual rightness)=ME of visual rightness).

This paper is "in press" (Leonardo)

Figure 1:

„Original“

„Copy“

„Mona Lisa“ is a famous oil painting by Leonardo da Vinci [...]. This painting rendered on a thin board is about 76.8 cm x 53 cm tall and was produced between 1503 and 1505. It is not clear, who is depicted in this painting. It was rumored that it is a mistress of a nobleman, the ideal woman, ...



High  
familiarity



This copy of Da Vinci's „Mona Lisa“ is made by Julian Bobber. Julian Bobber (\*1959) is an artist who became famous on account of his chalk artworks. [...] Beside his famous 3D pictures in chalk Bobbers is drawing murals and copies of famous artworks by order. The result of such an order is the present version of „Mona Lisa“, which was drawn in 1991 ...

„Portrait of an Unknown woman“ or „La belle Ferronière“ is a work by Leonardo da Vinci and was produced between 1490 and 1495. The size of the original is 62 cm x 44 cm. The present painting was produced in the Milan years of Da Vinci. It is not clear, who is depicted; experts think it is either ...



Low  
familiarity



This copy of „Portrait of an Unknown woman“- the original is by Leonardo da Vinci- is made by Francesco Melzi (1491-1570), a disciple of Da Vinci and can be dated to the year 1511 [...]. The copy of „Portrait of an Unknown woman“ was painted by Francesco Melzi during his period of apprenticeship under survey of Leonardo Da Vinci himself.

This paper is "in press" (Leonardo)

Figure 2:

