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Evaluation of Paintings: Effects of lectures

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This study investigated the influence of lectures about the Renaissance and abstract art on ratings of paintings from these two periods in art history. The study included two sessions. In the first, 72 naive participants rated the representational and abstract paintings. In the second session participants were divided into three groups: one received a lecture on Renaissance art, one attended a lecture on abstract art, and one group attended no lecture. Afterwards, the three groups rated a new, parallel set of paintings. Three first-order factors were extracted: Aesthetic experience, Relaxation tone, and Arousal. However, the higher-order General Aesthetic Experience factor explained a much higher amount of variance than the first-order factors, indicating its strong and generalized influence on naïve participants' experience with artworks. After the lecture on abstract art the participants rated paintings, especially abstract, as more aesthetically pleasing than the participants who attended the lecture on Renaissance art or the group without a lecture. Proposed explanation for this is that the naïve observers` ratings of abstract paintings are more susceptible to the influence of style-related information. When rating abstract artwork naïve observers may be significantly influenced by additional information gathered outside of the artwork.

Keywords: aesthetic experience, abstract art, Renaissance art, education, paintings

When art is discussed, especially modern art, opposing opinions are often heard. On the one hand there are authors, such as Dutton (2002) who claim that aesthetic experience represents basic human experience; therefore art appreciation is a general human phenomenon, or as Ramachandran and Hirstein (1999) argue, aesthetic behaviour is a typical or even exclusive human expression. On the other hand, it is increasingly argued that modern art is an unknown phenomenon and that it uses a language unknown to us (Yenawine, 1991). Even in traditional art, where the meaning seems to be obvious and there is apparently nothing to be interpreted, there is sometimes a challenge to enjoying it and finding it pleasing (Arnhajm, 2003). If we assume that art operates as a medium of communication (Yenawine, 1991), could its better understanding affect our greater appreciation of it? In this study we shall try to answer the question: does improvement of one`s knowledge about an artistic style lead to greater enjoyment of paintings that belong to this style?

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Our subjective experience of paintings is driven by a complex interaction among characteristics of the artwork; the viewer; the physical, social, and historical environment; and their mutual interaction (Jacobsen, 2006; Locher, 2014). For example pictorial characteristics (Barona & Silvia, 2009; Škorc, 1994), artistic style (Cela-Conde, Marty, Munar, Nadal, & Burges, 2002), structural organisation (Jacobsen & Höfel, 2003; Locher & Nodine, 1989; Tinio & Leder, 2009) and thematic content (Heinrichs & Cupchik, 1985; Silvia & Brown, 2007) contribute to our aesthetic experience. Also, our personality (Chamorro-Premuzic, Burke, Hsu, & Swami, 2010; Furnham & Walker, 2001), intelligence (Furnham & Chamorro-Premuzic, 2004), affective state (Belke, Leder, & Augustin, 2006) and knowledge about art (Bullot & Reber, 2013; Leder, Belke, Oeberst, & Augustin, 2004) influence our experience with artwork. In this paper, we report on a study that examined the impact of style-related information on naïve viewers' preference for different styles of paintings.

Recent models of aesthetic experience of art (Chatterjee, 2004; Jacobsen, 2006; Leder et al., 2004) have emphasized information-processing stages that correspond to certain characteristics of an observer or an artwork. For example, the cognitive processing model identified five essential stages of information processing and a number of variables that affect aesthetic judgments and aesthetic emotions concerning art (Leder et al., 2004). The third processing stage of the model called "Explicit Classification" is based either on depictive content or on style information of the artwork. Which of the two aspects becomes more central depends on a) the amount of the beholder's art expertise and b) the nature of the artwork (Belke et al., 2006). According to this model an increase in comprehension of the artwork might result in an increase of aesthetic appreciation of the artwork. Similar to the cognitive processing model is the Mirror Model of Art (Tinio, 2013). The foundation of this theory is the idea that there is an interface between art-making and art-viewing. At Level 1 the perceiver processes the low-level visual elements of the artwork (colour, texture, brightness, surface features). At Level 2, "initial signs of deliberate processing appear and the resulting outcome of the viewer becomes more dependent on memory." In the last level, Level 3, the perceiver explores the concept behind the artwork and embodies what the artist was attempting to achieve. In the recently proposed psycho-historical perspective by Bullot and Reber (2013), the importance of viewer knowledge about art was explicitly emphasized. They use the term historical approach to refer to accounts that appeal to appreciators' sensitivity to particular historical contexts and the evolution of such contexts in order to explain art appreciation. Contextualists argue that contextual knowledge about artefacts and their context-specific functions are essential processes in art appreciation. According to contextualism and the historical approach, the appreciation of an artwork requires that appreciators become sensitive to the art-historical context of this work, including its transmission over time.

We can apply this art-historical context approach to contemporary theories on information-processing stages: the initial step of processing is based on automatic processing of low-level features such as colour and contrasts, but as

processing progresses, the importance of knowledge, previous experience, and additional information becomes greater (Bullot & Reber, 2013; Leder et al., 2004; Tinio, 2013). The next step of processing involves explicit identification of the contents of an artwork (identification of the content and style) and the resulting outcomes for the viewer become more dependent on the contents of memory and previous experience with the art. In the final stage a viewer tries to understand the artwork, based on previous experience and current knowledge. It involves high-level processing such as meaning making, aesthetic judgments, and aesthetic emotions (Leder et al., 2004). The results of this phase depend a lot on the perceiver`s knowledge base and additional information about the artwork, artist, style or artistic process become crucial (Tinio, 2013).

Empirical findings up to this point generally confirm the results on the importance of additional information for aesthetic experience. There is evidence that information on the context and conditions under which an artwork was created increase enjoyment of the work (Temme, 1992) and that additional information (paintings' titles) might improve aesthetic experiences when they suggest an alternative explanation to what can be readily inferred from the explicit artwork (Millis, 2001). Russell and Milne (1997) found that presenting titles along with abstract and semi-abstract paintings increased the rating of meaningfulness and decreased the rating of abstractness but had no effect upon hedonic value. Similarly, Leder, Carbon, and Ripsas (2006) showed that elaborative titles increased the understanding of abstract paintings, but not their appreciation. In several studies Silvia demonstrated that training and knowledge can increase one's self-evaluation of coping potential and ability to understand visual art, which leads to ratings of paintings as more interesting (Silvia, 2005a, 2006; Silvia & Berg, 2011). Swami (2013) in several studies showed that elaborative, content-specific information had the greatest effect on both understanding and aesthetic appreciation of abstract paintings by Max Ernst, relative to broad genre information, titular information, or no contextualizing information. He also found that provision of content-specific information resulted in greater understanding and appreciation of abstract artworks by Pablo Picasso, but not the representational works by the same artist. However, the results of the effects that various types of information have on perceptions of artwork have been equivocal. For example, Smith, Bousquet, Chang, and Smith (2006) found little support for the idea that presented labels lead to different ratings of the artworks compared to the ratings without labels. Specht (2010) found that the effects of a visual artist's statement appear to be related to certain salient features of an artist's statement and to be independent of the nature of the artwork (representational and non-objective). These conflicting results motivated the researches in this study to focus on more detailed examination of influence of additional information on art appreciation.

In the present study we examined the impact of changing style-related knowledge of a naïve participant, through providing additional information about the style, on the ratings of paintings. The main study question is concerned

with the effects of the provided style-related information on ratings of paintings. The researchers expected that the presented style-related information about one style will have a positive effect on rating of paintings of the same style. This effect is expected because additional information will improve comprehension, interpretation, and meaningfulness of the artwork (Russell, 2003; Silvia, 2005b). According to models emphasizing the role of knowledge and experience, increasing comprehension of the artwork might result in increasing aesthetic appreciation of the artwork and deeper emotional reactions (Bullot & Reber, 2013; Leder et al., 2004; Tinio, 2013).

We used two groups of paintings different in style and paradigm under which they were created. One group are representational paintings created during the Renaissance and the second group are abstract paintings created in the 20th century. These two groups of paintings differ in style (representational vs. abstract), but also have a different paradigm (one dominant style and concept usual for the Renaissance art vs. high individualisation, competition of styles and concepts usual for abstract art). Linked to this goal is also identification of differences in effects of lectures on different style paintings. The hypotheses is that with artistic styles that require wider elaboration and present a more challenging perceptual problem-solving process (such as abstract paintings (Belke et al., 2006; Leder et al., 2006), additional style-related information will have a more positive effect on their aesthetic evaluation.

Compared to previous studies dealing with the influence of additional information and manipulation of viewer`s knowledge on his/her evaluation of artworks, this study differs in three important elements. Unlike previous study that presented additional information only as textual (Leder et al., 2006; Silvia, 2005a; Swami, 2013) in this study additional information has been provided through oral lecture. Through this distinction, the researchers wanted to examine what effect information presented in a way other than text has on viewer's ratings. The second difference is the use of a greater number of scales for rating the artwork (22 scales). Previous studies used only a few scales for rating of paintings, but by using a greater number of scales the researchers were able to observe a more complex understanding of the viewer's experience, therefore increasing the validity of the study. Finally, the researchers wanted to determine whether there is a change in the structure of individual's experience before and after additional information on a painting is given.

Method

Participants

Seventy two participants, beneficiaries of a local non-governmental organisation, participated in the experiment (54 female, 18 men). The participants were between the ages 20 to 75 (M=42, SD=11.06). In order to avoid the mediated effect of art-related knowledge (Leder et al., 2006) the researchers examined only naïve observes without prior systematic art-related education and art training and with moderate interest in visual art. The group

consisted of naïve viewers most of whom stated that they attended no courses in art before (85%). The majority of them reported that in the last year they did not visit a museum or they visited a museum 1–3 times (38% and 43%, respectively), and did not visit or visited an art gallery 1–3 times (35% and 42%).

Stimuli

There were two groups of stimuli: 20 representational and 20 abstract paintings. The representational artworks included Renaissance paintings from the 14th to the 16th century (paintings from Proto-Renaissance, Early, and High Renaissance). The selected paintings mimetically portrayed reality with minimal deviation from real form. The abstract paintings consisted of abstract paintings from the 20th century. In this group of abstract paintings real objects cannot be recognized and no clear themes are present. The paintings were chosen as representative of two predefined groups of paintings based on relevant books on art history (Doig, Nesbitt, & Shiff, 2008; Grosenick, Riemschneider, & Larsen, 1999; Hasting, 2011; Janson, 1996; Lucie-Smith, 2003; Lynton, 2006; Meyer, 1992; Richter, Pelzer, Tosatto, & Obrist, 1996) and intersubjective agreement of three independent observers. List of paintings is provided in Appendix A.

Instruments

The instruments for measurement consisted of: a) *a general demographic questionnaire* (gender, age), b) an *art expertise questionnaire* and c) a *subjective aesthetic experience questionnaire* (Appendix B). Expertise was measured using a five-item questionnaire designed by the researchers. The questions were concerned with art interest, interest for painting, interest for modern painting, and frequency of museum and gallery visitation. The subjective experience questionnaire was based on two tested instruments, consisting of 22 rating scales. From the first instrument, SDS 16 Instrument for measuring subjective experience of paintings (Markovic & Radonjic, 2008), 12 scales with the highest loadings on four obtained factors were selected: 1. Regularity (bipolar seven-point scales, here only positive end is given – *clear*, *regular* and *arranged*), 2. Arousal (*unusual*, *imaginative,* and *impressive*), 3. Attractiveness (*beautiful*, *pleasant,* and *healthy*) and 4. Relaxation (*unobtrusive*, *mild,* and *relaxed*). From the second instrument, ED9 measuring aesthetic experience (Polovina i Marković, 2006), the following five unipolar seven-point scales were taken with the highest loadings on obtained dimension: *fascinating*, *exceptional*, *overwhelming*, *I would like to have this painting* and *I would gladly hang it in my living room*. To these 17 scales five new scales were added *interesting, comprehensible, meaningful, complex, and appealing* as they were not present in these two instruments, but have been extensively used in other studies (Faerber, Leder, Gerger, & Carbon, 2010; Hekkert & Wieringen, 1990; Silvia, 2005b; Turner & Silvia, 2006).

Procedure

The study had two sessions. In the first session all participants rated the same 10 abstract and 10 representational paintings. One half of the participants first rated abstract and then representational paintings, while the other half rated the paintings in reverse order. Each participant had a monitor who presented the paintings at the pace the participant needed to effectively rate each painting. It was pointed out that the study examined participants` personal experience of paintings and not what they have learned through formal education or the desirable answers.

After seven days the participants attended either a lecture on Renaissance art (“Renaissance” group, N=25) or a lecture on abstract art (“abstract” group, N=22), or did not attend a lecture (control group, N=25). The participants were randomly assigned to each

of the groups. The lectures lasted 45 minutes and were delivered by the same lecturer who holds a degree in fine arts (one of the authors of the study). Both lectures had a similar form and content: historical background of the artistic style, development, sub-styles, explanations of characteristics, and meanings of paintings. Both lectures used PowerPoint presentations that illustrated typical paintings and characteristics of the styles. The paintings used for the lectures were different than those used as stimuli. Each lecture was attended by three to seven participants at a time. Immediately after the lecture the participants rated a new, parallel set of 20 paintings: 10 abstract and 10 representational. The second, parallel set of paintings was complementary to the first set. In the second session in most cases paintings of the same authors, with the same theme, from the same or similar time period (as in the first set) were presented (17 paintings). If this was not possible, paintings similar in style were presented (three paintings). The control group did not attend any lectures, but they rated the paintings.

Results and discussion

Structure of a subjective experience of paintings

An overall score of Expertise for visual art was computed as the mean of all five items from art expertise questionnaire (Cronbach`s alpha = .77). Assignment of participants to high or low expertise groups was based on the median split of this sum. Regarding the sums, the high and low expertise groups differed significantly $t(71)=25.28$, $p<.01$. An equal number of participants (36) were assigned to both groups.

Before the factor analysis, ratings from bipolar scales (from –3 to 3) were transformed into scales from 1 to 7. A problem with transforming these scales that the researchers faced and many previous, similar studies that did so was how to organize the data matrices for the factor analysis (see Markovic & Radonjic (2008)). Namely, factor analysis required a 2-D matrix, whereas we were dealing with a 3-D data structure: Participants x Stimuli x Scales. In order to solve this problem we used the stringing out method proposed by Osgood and his collaborators (Osgood, 1975; Osgood, Succi, & Tannenbaum, 1957) which allows a 3-D data matrix (Participants x Stimuli x Scales) to be organised into a 2-D matrix by arranging the single stimuli matrices one under the other. Choosing the stringing out method was not ideal, but it served as the best possible solution for the purpose of our study. Having in mind that we were not interested in individual differences, but in general factorial structures of the paintings` judgments, we could allow the multiplication of the relatively small sample of participants, but not the reduction of paintings or number of scales (Marković, 2010).

First-order analysis. A Principal component analysis on Subjective Aesthetic Experience Questionnaire items was conducted for all paintings. In order to determine the numbers of factors to be retained, parallel analyses were conducted (O'Connor, 2000). Parallel analysis indicated that three factors should be extracted for paintings in both sessions.

With the fixed number of three factors, they were rotated using Promax procedure (kappa 4), and accounted for a total of 71.9% of the variance. The rotated factors were correlated (range .44 to .60) and the factor-pattern coefficients are presented in Table 1.

Table 1.
Rotated Factor Pattern Matrix for Subjective Aesthetic Experience Questionnaire

Item	Factor			h^2
	Arousal	Aesthetic Experience	Relaxation tone	
Interesting	.75	.23	-.09	0.74
Appealing	**.55**	.31	.15	0.75
Complex	**.83**	.15	-.31	0.61
Comprehensible	**.72**	-.25	.36	0.71
Meaningful	.79	-.12	.21	0.74
Pleasant	.19	.25	**.57**	0.73
Unusual	**.63**	.30	-.25	0.52
Beautiful	**.42**	.30	.33	0.78
Unobtrusive	-.23	.04	**.86**	0.58
Relaxed	-.26	.12	**.96**	0.77
Healthy	.02	.21	**.73**	0.73
Arranged	.38	-.13	**.61**	0.67
Impressive	.77	.19	-.17	0.66
Mild	-.17	.12	**.83**	0.64
Regular	**.42**	-.17	**.55**	0.60
Imaginative	**.66**	.30	-.15	0.63
Clear	.64	-.21	**.42**	0.70
Fascinating	.17	**.80**	-.01	0.83
Exceptional	.19	**.78**	.02	0.84
Overwhelming	.07	**.84**	.08	0.86
...have painting	-.01	**.89**	.10	0.86
...hang it	-.09	.89	.15	0.82
Initial Eigenvalue	11.88	2.37	1.52	
Eigenvalue after rotation	9.82	8.53	8.15	
Factor correlations				
Arousal	1.00			
Aesthetic experience	.60	1.00		
Relaxation tone	.57	.44	1.00	

Note: Pattern coefficients with values of .40 or greater are in bold face. h^2=Communalities of the measured variables.

All items have substantive loadings (>.30) on at least one factor. The first factor was labelled Arousal and includes the following scales: *complex, meaningful, impressive, interesting, comprehensible, imaginative, clear, unusual, appealing,* and *beautiful*. The second factor was related to Aesthetic Experience of a painting. It contained the following scales: *irresistible, exceptional, fascinating, I would like to have this painting,* and *I would gladly hang it in my living room* and included the scales of the ED9 instrument measuring aesthetic experience (Polovina i Marković, 2006). The last obtained factor is Relaxation Tone and it included the scales: *relaxed, unobtrusive, mild, healthy, arranged and pleasant*. Some of the items (e.g. regular, clear, beautiful, appealing) are factorially complex.

Second-order analysis. Since the correlations of the rotated factors (all>.40) implied a higher level of conceptualization, we also conducted higher order factor analysis (Gorsuch, 1983). Second-order PCA confirmed the single

factor, obtained using parallel analysis. All three factors have loading>.80 on this second-order factor (Table 2).

Table 2
Results of Higher Order Analysis of Factor Correlation Matrix

Factor	General Aesthetic Experience
Arousal	.88
Aesthetic Experience	.82
Relaxation tone	.80

Schmid-Leiman technique is used to transform an oblique factor analysis solution containing a hierarchy of higher-order factors into an orthogonal solution (Gorsuch, 1983; Schmid & Leiman, 1957; Wolff & Preising, 2005). In comparison with higher order Factor analysis, the Schimd-Leiman solution provides further insights into factor structure through the calculation of direct relations (i.e., factor loadings) between primary variables and higher-order factors, and the independence of these factor loadings of different levels (Wolff & Preising, 2005). The results of Schimd-Leiman solution are presented in Table 3. Loadings of variables on the higher-order factor named General Aesthetic Experience (GAE) and first-order factors (Arousal, Aesthetic Experience and Relaxation Tone) are depicted, as well as the relative variance explained by the four factors.

Table 3
Results of Higher Order Analysis – Schmid–Leiman Solution

	Second-order factor	First-order factors		
	GAE	Arousal	Aesthetic Experience	Relaxation Tone
interesting	0.78	0.36	0.13	–0.06
appealing	0.85	0.26	0.18	0.09
complex	0.60	**0.40**	0.09	–0.19
comprehensible	0.72	0.35	–0.15	0.22
meaningful	0.76	0.38	–0.07	0.13
pleasant	0.83	0.09	0.14	0.34
unusual	0.59	0.30	0.17	–0.15
beautiful	0.88	0.20	0.17	0.20
unobtrusive	0.52	–0.11	0.02	**0.51**
relaxed	0.63	–0.13	0.07	**0.57**
healthy	0.77	0.01	0.12	**0.44**
arranged	0.72	0.18	–0.08	0.37
impressive	0.70	**0.37**	0.11	–0.10
mild	0.61	–0.08	0.07	**0.50**
regular	0.67	0.20	–0.10	0.33
imaginative	0.70	0.32	0.17	–0.09
clear	0.73	0.31	–0.12	0.25
fascinating	0.80	0.08	**0.47**	–0.01
exceptional	0.82	0.09	**0.45**	0.01
overwhelming	0.82	0.04	**0.49**	0.05
...have painting	0.79	–0.01	**0.51**	0.06
...hang it	0.76	–0.04	**0.51**	0.09
% Variance Explained	73.3	7.5	8.9	10.3

Note: Factor loading over .40 appear in bold

Factor GAE accounts for 73.3% of the variance explained (Table 3) and it represents an appropriate generalization of the relation between variables (Gorsuch, 1983). First-order factors account for only 8 – 10% of the variance. Due to high variance in the following analysis we used only GAE factor. The highest loadings on GAE have items (*beautiful*, *appealing*, *pleasant*) which are used in experimental aesthetics or history of art most often as attributes describing aesthetic experience, which indicates validity of this higher-order factor. Finally, it is important to note that all items have higher loadings on second-order factor than on first-order factors and that all loadings on GAE are bigger than .50.

Influence of Expertise. In order to identify the influence of expertise on factor structure, the same procedure was repeated separately for the Low and High expertise groups. The results showed that the size of the variance explained by higher-order factor is slightly smaller in the High expertise group (72% and 67% for Low and High expertise group respectively). Pearson correlation coefficient between individual item loadings on two structures was .84 ($p<.001$).

Effects of Lectures on the General Aesthetic Experience

GAE scores were calculated for each participant as an average score, separately for representational and abstract paintings before and after the lecture. Before conducting further analysis we compared the three experimental groups in the pre-session assessment in order to determine the level of equivalency between them. There were no significant differences on GAE on abstract ($F(2,71)=0.90$, ns) and representational paintings ($F(2,71)=0.14$, ns) between three groups, no difference in the composite score of Expertise for visual art ($F(2,71)=1.08$, ns) and all variances were homogenous in the first session. We may conclude that in the pre-lecture assessment there were no differences between experimental groups.

The researchers first compared the values on the General Aesthetic Experience factor between representational and abstract paintings before and after the lectures. Representational paintings were rated higher than abstract paintings on GAE in both sessions (all $p_s<.01$) (Table 4).

Table 4
Means (SD) of GAE ratings in the pre– and post-session for representational and abstract paintings

Session	Paintings	M	SD
First	Representational	5.07	0.79
	Abstract	4.20	0.74
Second	Representational	5.09	0.68
	Abstract	4.21	0.81

By comparing factor structures of the same style paintings between two sessions, Pearson correlation coefficients higher than .90 were obtained. By comparing the structure of GAE in the first and the second session between two styles of paintings, both correlation coefficients obtained were higher than .85.

A mixed ANOVA was used with two within-subjects factors: *Session* (2 levels, Pre– and Post-session) and *Style* (2 levels, representational and abstract paintings) and one between-subjects factor *Lecture* (3 levels, lecture on Renaissance paintings, abstract paintings and control group without lecture) (Table 5). The ANOVA revealed that *Style,* $F(1,69)=75.12$, $p<.001$, $\eta_p^2=.52$, had a significant effect (representational paintings were rated higher than abstract, d=0.87). ANOVA yielded a significant two-way interaction *Session x Lecture* ($F(2,69)=4.67$, $p<.05$, $\eta_p^2=.12$). An analysis of the simple main effects of *Lecture* on *Session* revealed that the factor *Lecture* was significant for post-session, $F(2,69)=5.48$, $p<.01$, $\eta_p^2=.14$, but not for pre-session, $F(2,69)=0.171$, ns[4]. Ratings of General Aesthetic Experience were significantly higher for Abstract lecture group than Renaissance ($p<.01$) or control group ($p<.05$). There was no difference between Renaissance and control group in the ratings of GAE. The interaction *Session x Lecture x Style* although not significant ($F(2,69)=2.49$, $p=.09$) indicates that *Style* may have some influence on the *Session x Lecture* interaction i.e. that the impact of *Lecture* is more dominant on abstract paintings.

Table 5
Mean General Aesthetic Experience score (and Standard Error) as a function of Lecture, Style and Session

	Lecture on Renaissance paintings		Lecture on abstract paintings		Control group	
	M	SE	M	SE	M	SE
Pre-session						
Representational	5.07	0.16	5.01	0.17	5.13	0.16
Abstract	4.10	0.15	4.38	0.16	4.16	0.15
Post-session						
Representational	5.03	0.14	5.16	0.15	5.10	0.14
Abstract	3.91	0.15	4.75	0.16	4.03	0.15

Discussion

One of the goals of the conducted study was to explore the structure of naïve participants` aesthetic experience and potential changes of the structure due to additional style-related information provided. In the first-order analysis three factors were obtained – Arousal, Aesthetic Experience and Relaxation Tone. However, higher-order factor analysis revealed a very strong general factor of aesthetic experience. A strong second-order General Aesthetic Experience factor indicates a strong influence on individual first-order factors. The structure of aesthetic experiences of artwork with this group indicates that its individual elements (first-order factors) are interrelated through a strong effect of the higher-order factor. Naïve viewers` appreciation of paintings is under a strong

4 Again showing no difference between experimental groups in the pre-session

influence of general impression of an observed painting. Therefore, a viewer`s ratings of a painting on different scales are similar.

Somewhat weaker influence of the higher-order factor on lower-order factors in the High Expertise group indicates that with the increase of expertise, the influence of the general factor gets weaker and that the ratings become more differentiated, which is the result obtained in some previous studies (Leder, Gerger, Dressler, & Schabmann, 2012). These results may indicate that with the increase of one`s knowledge of art, one`s art appreciation becomes more complex and more flexible. However, the obtained results must be taken with reserve since the participants of this study were naïve observers having a narrow scope of expertise.

The results indicate that representational paintings are rated more positively than abstract paintings on GAE in both sessions, a result similar to previous ones (Winston & Cupchik, 1992). The result proves that the naïve observers more appreciate the paintings containing recognisable objects and having a clear theme.

This study showed that there were no changes in ratings of representational and abstract paintings after the lecture on Renaissance art, but the lectures about abstract art improved the General Aesthetic Experience ratings of paintings, especially abstract paintings. A proposed explanation as to why there were no changes after the lecture on Renaissance art, especially on representational paintings, is that the attitudes of the naïve observers on representational paintings are relatively stable and "resistant" to changes of their perception caused by receiving additional information on the style. Namely, it is known that when naïve observers observe a painting, they make a decision on the quality of the painting mainly based on its theme (Winston & Cupchik, 1992). Information provided on the Renaissance art is not strong enough to prevail over the influence of the painting`s theme, and therefore it has no influence on the rating of these paintings.

Paintings are rated as more aesthetically pleasing after the lecture on abstract art and this impact is especially strong on abstract paintings. The most important characteristic of abstract paintings is that they do not have a clear and recognisable theme and objects which represent key elements for naïve observers when they define their attitude towards a painting. Without a clear theme and objects other pictorial characteristics have a stronger effect (colour, shape, rhythm) on evaluation. Our results indicate that information provided through lectures is also a significant factor in changing abstract paintings` aesthetic rating. A possible explanation for this is that the observers, when lacking specific and direct evidence, such as theme and recognizable objects, decide based on more global judgments, such as an overall attitude toward the paintings of a specific style or based on knowledge of other attributes of the paintings (Sanbonmatsu, Kardes, & Sansone, 1991). The researchers assume that the naïve observers` ratings of abstract paintings are more susceptible to the influence of the style-related information because additional sources of information not contained in the observed paintings are used more intensively for determining the rating.

Based on the conducted experiment a clear conclusion may not be derived on the mechanism of positive effect of the course on abstract art on the rating of representational paintings. As a working hypothesis we may propose that improving aesthetic rating of paintings belonging to a particular style may generally have a positive impact on improving aesthetic rating of paintings of other styles, which may be checked in further experiments.

Conclusions

The study partially supports the hypothesis that lectures about art style may have a positive impact on the appreciation of paintings among naïve participants. Effect of lectures is mediated by the level of representativeness of painting. Appreciation of abstract paintings is under stronger influence of additional style-related information than appreciation of representational paintings. The study showed positive impact on abstract paintings' Aesthetic experience ratings after retrieving style-related information about abstract art. The lecture on Renaissance art had no impact on the ratings of the observed paintings. It showed that with naïve observers the structure of aesthetic experience is under a strong influence of a general factor.

Further studies of the impact of lectures may be directed towards more detailed exploration of mechanisms behind the observed changes, examining durability of these effects, and their transfer to paintings from different movements/schools or works of other art forms (sculpture, music, dance, film). Effects of combining the lectures with different types of textual information, multimedia content and immediate experience in museums and galleries could be further examined.

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Appendix A – List of paintings used in the study

	Representational paintings	Abstract paintings
First Session	Rogier van der Weyden, Annunciation (detail), circa 1440, Jacopo Robusti, Tintoretto, The Discovery of St Mark's Body, 1562–66, Raffaello Sanzio, Madonna col Bambino con il libro, c.1503, Andrea Mantegna, The court of Mantua (detail), 1471–74, Leonardo da Vinci, Madonna of the Distaff, after 1510, Hans Holbein the Younger, Portrtait of Jane Seymour, 1536–7, Giotto di Bondone, The Meeting at the Golden Gate, 1304–06, El Greco, View of Toledo, c.1597, Giovanni Bellini, Resurrection of Christ, 1475–79, Albrecht Durer, Self Portrait, 1498.	Robert Delaunay, Rhythm, Joie de Vivre, 1930, Victor Vasarely, Recorder, Morris Louis, Theta, 1961, Lucio Fontana, Space Concept, c. 1960, Mark Rothko, White Stripe, 1958, Gerhard Richter, Stream, 1992, Antoni Tapies, Creu I R, 1975, Hans Hofmann, The Door, 1960, Cy Twombly, Feragosta, 1961, William de Kooning, Gotham News, 1955.
Second Session	Rogier van der Weyden, St Luke Drawing a Portrait of the Madonna, circa 1450, Jacopo Robusti, Tintoretto, Secret Supper, 1592–94, Giovanni Bellini, Madonna degli Alberetti, 1487, Andrea Mantegna, The court of Mantua, 1471–74, Leonardo da Vinci, Virgin of the Rocks, 1483–1486, Hans Holbein the Younger, Lais of Corinth, 1526, Giotto di Bondone, The Kiss of Judas, 1304–1306, El Greco, The Burial of the Count of Orgaz, 1586–1588, Giovanni Bellini, Baptism of Christ, 1500–1502, Albrecht Durer, Self Portrait at 22 (Self-portrait with flower), 1493.	Sonia Delaunay, Electric Prisms, 1914, Victor Vasarely, Syta, 1988, Morris Louis, Floral V, 1959–60, Lucio Fontana, No title, Mark Rothko, White Center, 1950, Gerhard Richter, Abstract painting, 1994, Antoni Tapies, Figura paisaje en gris, 1956, Robert Rauchenberg, Satellite, 1955, Cy Twombly, Naples Bay, 1961, Emilio Vedova, No Title.

Appendix B – Used Instrument

Demographic questionnaire

Dear participant,

Thank you for participating in the study in the field of psychology of art.

Please take part in the next testing as well because only with both tests useful and valid data could be collected for the scientific data processing, which may be used in the research paper. You may get more information about the second session from the person giving you this test.

Please answer all questions as correctly and truthfully as you can.

Your answers will remain fully confidential and anonymous. Processed results will be used only for scientific purposes and will not be given away to anyone else.

1. Gender: M F
2. Year of birth: _____
3. The highest education level that you have:
   a) primary school,
   b) 2 or 3 year secondary school
   c) 4 year secondary school
   d) two-year post-graduate education
   e) faculty
4. How many times have you visited a museum/museums over the past year?
   a) 10 times or more
   b) 7–9 times
   c) 4–6 times
   d) 1–3 times
   e) 0
5. How many times have you visited artistic galleries over the past year?
   a) 10 times or more
   b) 7–9 times
   c) 4–6 times
   d) 1–3 times
   e) 0
6. How interested are you in art?
   a) very interested
   b) interested
   c) moderately interested
   d) a little interested
   e) not interested

7. How interested are you in painting?
   a) very interested
   b) interested
   c) moderately interested
   d) a little interested
   e) not interested
8. How interested are you in modern painting (since the beginning of the 20th century)?
   a) very interested
   b) interested
   c) moderately interested
   d) a little interested
   e) not interested

Subjective Experience Questionnaire

There are 22 scales for rating on this paper. Your task is to give YOUR OWN evaluation. We are interested exclusively in your sincere opinion, and we are not interested in general opinion or what you think others would say. This is not a knowledge test and there are no right or wrong answers.

You should write your rating for each painting on a separate paper. Make sure that the number on the top of the page is identical to the number of the painting. So, if you rate the painting number 5 you should write your answers on the answer page number 5.

You answer by circling a number in a row. If you make a mistake, cross the wrong answer and circle your right answer.

Please answer carefully and do not skip answers. Please do not forget that we are interested in your opinion and your impressions about the observed paintings.

Boring (Dosadna)	–3	–2	–1	0	1	2	3	Interesting (Interesantna)
Unappealing (Ne dopada)	–3	–2	–1	0	1	2	3	Appealing (Dopada)
Simple (Jednostavna)	–3	–2	–1	0	1	2	3	Complex (Složena)
Incomprehensible (Nerazumljiva)	–3	–2	–1	0	1	2	3	Comprehensible (Razumljiva)
Meaningless (Bez smisla)	–3	–2	–1	0	1	2	3	Meaningful (Sa smislom)
Unpleasant (Neprijatno)	–3	–2	–1	0	1	2	3	Pleasant (Prijatna)
Ordinary (Obična)	–3	–2	–1	0	1	2	3	Unusual (Neobična)

Ugly (Ružna)	–3	–2	–1	0	1	2	3	Beautiful (Lepa)
Obtrusive (Nametljiva)	–3	–2	–1	0	1	2	3	Unobtrusive (Nenametljiva)
Tense (Napeta)	–3	–2	–1	0	1	2	3	Relaxed (Opuštena)
Sick (Bolesna)	–3	–2	–1	0	1	2	3	Healthy (Zdrava)
Disarranged (Nesređena)	–3	–2	–1	0	1	2	3	Arranged (Sređena)
Unimpressive (Neupečatljiva)	–3	–2	–1	0	1	2	3	Impressive (Upečatljiva)
Strict (Stroga)	–3	–2	–1	0	1	2	3	Mild (Blaga)
Irregular (Nepravilna)	–3	–2	–1	0	1	2	3	Regular (Pravilna)
Unimaginative (Nemaštovita)	–3	–2	–1	0	1	2	3	Imaginative (Maštovita)
Unclear (Nejasna)	–3	–2	–1	0	1	2	3	Clear (Jasna)

1	2	3	4	5	6	7	Fascinating (Opčinjavajuća)
1	2	3	4	5	6	7	Exceptional (Izuzetna)
1	2	3	4	5	6	7	Overwhelming (Neodoljiva)
1	2	3	4	5	6	7	I would like to have this painting (Voleo/la bih da imam ovu sliku)
1	2	3	4	5	6	7	I would gladly hang it in my living room (Rado bih je okačio/la u dnevnoj sobi)

(Original version of items in Serbian language are in brackets)