Glossy 1

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Aesthetic Preference for Glossy Materials: A Replication and Extension

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The research materials, data files, and statistical scripts are available at Open Science

Framework (https://osf.io/7d62a/).

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Abstract

The psychology of art and aesthetics has a long-standing interest in how low-level features, such as symmetry, curvature, and color, affect people's aesthetic experience. Recent research in this tradition suggests that people find glossy, shiny objects and materials more attractive than flat, matte ones. The present experiment sought to replicate and extend research on the attractiveness of paper, by far the most widely used material in this growing literature. To control for several possible confounding factors, glossiness was manipulated between-person and varied with methods that held constant factors like weight, color quality, and resolution. To extend past work, we explored art expertise and Openness to Experience as potential moderating factors. A sample of 100 adults viewed landscape photographs on either high-gloss photo paper or on identical paper in which a flat, matte spray finish had been applied. Ratings of attractiveness showed weak evidence for replication. The main effect of glossiness revealed that people found the glossy pictures more attractive than the matte ones, but the effect size was small (d = -.23 [-.62, .16]) and not statistically significant. This effect was significantly moderated, however, by individual differences in the aesthetic appreciation facet of Openness to Experience. When aesthetic appreciation was high, people found the images attractive regardless of condition; when it was low, people strongly preferred the glossy images over the matte ones, thus showing the classic glossiness effect. We conclude with some methodological caveats for future research.

Keywords: art, aesthetics, gloss, reflection, evolutionary aesthetics

A major strand of thought in the psychology of aesthetics explores how low-level stimulus features—such as symmetry, complexity, prototypicality, color, and curvature—affect people's emotional experiences (Chatterjee, 2013; Coss, 2003; Gómez-Puerto et al., 2018; Halberstadt, 2006). One intriguing low-level feature is *glossiness*: whether objects appear relatively dull or shiny. A handful of studies suggests that people prefer shiny materials, possibly because glossiness connotes water. In an early study, Coss and Moore (1990) showed adults different papers that varied in their surface finishes, such as glossy, flat, sandy, and sparkly papers. Semantic differential ratings showed that the glossier papers were experienced as "wetter" and as more appealing. And in a major series of recent experiments, Meert, Pandelaere, and Patrick (2014) presented images printed on either glossy or plain paper to children and adults and asked them to rank-order them from most to least attractive and to provide an attractiveness rating. They consistently found that glossy images were more rated as more attractive.

The effect of glossiness on attractiveness was recently replicated in a study of metal objects—people preferred shiny silver coins over dull ones and mirror-polished copper cylinders over cylinders with brushed or dull surfaces (Silvia et al., 2018)—so the effects aren't limited to paper. Nevertheless, paper is interesting in its own right and an important material in everyday aesthetics (Patrick, 2016). The glossiness of paper is used in common consumer products and packaging to grab attention and increase sensory appeal, and consumers appear to have complex learned associations with the glossiness of product packaging (Decré & Cloonan, 2019). For snack foods, for example, glossy packaging implies greasy contents (De Kerpel, Kobuszewski Volles, & Van Kerckhove, 2020; Ye, Morrin, & Kampfer, 2020), whereas matte packaging implies a product that is less refined and more natural (Marckhgott & Kamleitner, 2019).

In the present research, we sought to replicate and extend past research on aesthetic preferences for glossy paper. We made two key procedural changes. First, glossiness was manipulated between-person instead of within-person. All the studies conducted by Meert et al.

(2014) and Coss and Moore (1990) varied glossiness within-person, so their participants viewed both glossy and matte images. This kind of design increases power but also makes glossiness a salient dimension of judgment, especially when people are further asked to rank order the images (Meert et al., 2014). It's unclear if similar effects appear when glossiness is manipulated between-person, which is much less likely to make people explicitly aware of glossiness when making their attractiveness judgments. Second, glossiness was varied while holding constant several potentially confounding factors. Past work has not always been detailed about the physical materials used as stimuli, and glossy and matte papers can vary in many extraneous factors (e.g., weight, brightness, perceived cost) than can affect an image's attractiveness. Glossy photograph paper, in particular, affords higher image resolution and better color fidelity, so comparing glossy photo paper with basic office paper or card stock will introduce many potential confounds.

Finally, we sought to extend the literature on aesthetic preferences for shiny materials by exploring possible moderators. Many low-level factors that make things more appealing—like symmetry, typicality, color, and curvature—are moderated by individual differences related to the arts. Expertise in the arts has widespread effects on how people view, think about, and experience visual art (Parsons, 1987; Silvia, 2013). A common finding is that experts are less affected by low-level features, whereas novices are more strongly affected (e.g., Leder et al., 2019; Weichselbaum, Leder, & Ansorge, 2018). In addition to expertise, we measured openness to experience, a broad higher-order factor of personality (Christensen, Cotter, & Silvia, 2019). People high in openness to experience value the arts more, spend more time on artistic activities, and have greater engagement in the arts (Oleynick et al., 2017; Silvia, Fayn, Nusbaum, & Beaty, 2015). We did not have specific predictions about moderation, so these analyses were exploratory.

Method

Participants and Design

A total of 113 adults at the University of North Carolina at Greensboro volunteered as part of a research participation option in a psychology course. Several participants were excluded based on non-native English proficiency and on checks of inattentive and careless responding (e.g., having high scores on measures of inattentive responding or giving identical responses to a long string of items; Maniaci & Rogge, 2014; McKibben & Silvia, 2016), yielding a final sample of 100 people. This final sample was predominantly young (M = 18.9 years, SD = 3.31, range from 18 to 48) and female-identifying (73%). People were randomly assigned to one of two between-person conditions— $glossy\ photos$ or $matte\ photos$ —using randomized blocks.

Procedure

The project was approved by the UNCG IRB (Study #16-0318), and all participants provided written informed consent. The experiment was conducted in small groups of 1-4 participants, and the surveys were presented and controlled on PC computers running MediaLab. The study was described as a study of the psychology of visual art, personality, and art experiences. Participants first completed the picture ratings and then completed the measures of personality and art knowledge.

Glossiness manipulation. People received a file folder containing 4 color images of landscapes taken from stock photography databases. The images were professionally printed at 8" x 10" size (20.3 x 25.4 cm) on Fuji Film Glossy Quality Dry photographic paper. In the glossy condition, people received the unaltered high-gloss prints. In the matte condition, people received prints in which the glossiness had been diminished via the application of a clear matte spray finish. This approach—producing all photographs using identical materials and processes and then reducing the glossiness of half of them—ensures that the glossy and matte images were processed and printed identically, thus holding key variables (e.g., color rendering and paper quality) constant.

The experiment software guided participants through viewing and rating the photographs. For the instructions, people read:

"Photography is an important kind of visual art. During this part of the study, we're interested in people's aesthetic responses (their impressions and feelings) related to landscape photography. For this part, please open the file folder on your desk. It has 4 photographs in it. Feel free to pick them up and handle them. For each photograph, you'll be asked a few questions about your impressions of it."

The software randomly selected one of the 4 images, displayed a small thumbnail on the screen, and instructed the participants to "please pull out this photograph, have a look, and think about how you feel about it."

People were free to handle and inspect the photograph for as long as they wished, in part because handling objects increases the accuracy of glossiness perception (Lichtenauer, Schuetz, & Zolliker, 2013). After handling and viewing each photograph, they rated it on several dimensions:

- How ATTRACTIVE is this photograph? (1 = Not at all attractive, 7 = Very attractive)
- How APPEALING is this photograph? (1 = Not at all appealing, 7 = Very appealing)
- How INTERESTING is this photograph? (1 = Not at all interesting, 7 = Very interesting)
- How COLORFUL is this photograph? (1 = *Not at all colorful*, 7 = *Very colorful*)
- What is your impression of the OVERALL QUALITY of this photograph? (1 = *Very low quality*, 7 = *Very high quality*)

These items stem from our prior work on the aesthetics of metal objects (Silvia et al., 2018) as well as prior studies of glossy paper. The key outcome in past work was ratings of attractiveness (Meert et al., 2014), so it was our primary outcome measure. The other items were included to explore the potential breadth of glossiness effects.

Measures of individual differences. Art knowledge and expertise were measured with two scales. The *aesthetic fluency scale* (Smith & Smith, 2006) is a popular scale for measuring people's knowledge about the arts (Silvia, 2007; Smith, 2014). It presents 10 figures and ideas from art history (e.g., Fauvism, Isamu Noguchi, Mary Cassatt) and asks people to

report their knowledge of it on a 5-pont scale ranging from 0 (*I have never heard of this artist or term*) to 4 (*I can talk intelligently about this artist or idea in art*). The scores are summed for an overall score (Cronbach's α = .84). The *art experience questionnaire* (Chatterjee, Widick, Sternschein, Smith, & Bromberger, 2010) asks 8 questions about people's formal training in the arts (e.g., classes taken in art history) and how often they engage in activities related to the visual arts (e.g., visiting museums and reading about art) on 6-point and 7-point scales. The scores were summed for an overall score (α = .73).

Personality traits were measured with the HEXACO-100 (Lee & Ashton, 2018), which assesses 6 higher-order traits: Honesty-Humility, Emotionality, eXtraversion, Conscientiousness, Agreeableness, and Openness to Experience (Ashton & Lee, 2007). Our primary interest was in Openness to Experience, given its deep links to artistic knowledge, interest, and engagement (Olevnick et al., 2017). The items are completed on a 5-point scale (1 =strongly disagree, 5 = strongly agree). The HEXACO-100 provides an overall Openness to Experience score (16 items; $\alpha = .83$) as well as four facet scores (4 items each): Aesthetic Appreciation ($\alpha = .65$), Creativity ($\alpha = .73$), Inquisitiveness ($\alpha = .62$), and Unconventionality (α = .56). The Aesthetic Appreciation facet was the key facet for our purposes. We also included the Openness to Experience subscale of Big Five Aspects Scale (BFAS; DeYoung, Quilty, & Peterson, 2007), which includes 20 items, completed on a 5-point scale (1 = strongly disagree, 5 = strongly agree), measuring the aspects of Openness ($\alpha = .74$) and Intellect ($\alpha = .79$). These two aspects are broader and more heterogeneous than the HEXACO facets (Christensen et al., 2019; Silvia & Christensen, in press). The Openness aspect captures engagement in imaginative, aesthetic, emotional, and creative experiences; the Intellect aspects captures engagement in cognitive and intellectual experiences.

Results

Data Preparation and Scoring

The data were screened and coded using R 4.0 (R Core Team, 2020) and analyzed in

Mplus 8.1. We conducted regression models estimated with maximum likelihood and robust standard errors. Descriptive statistics for all outcomes are shown in Table 1. The R, Mplus, and data files are available at Open Science Framework (https://osf.io/7d62a/).

Main Effects of Glossiness

Did participants rate the attractiveness of images in the glossy group differently than they rated images in the matte group? Because the predictor is categorical (glossy = 0, matte = 1) and the outcomes are continuous, we report Y-standardized regression coefficients. These represent the difference, in the outcome's SD units, between the two groups (Long, 1997), so the regression coefficients represent effect sizes in the Cohen's d metric (small = .2, medium = .5, large = .8; Cumming, 2012).

As depicted in Figure 1A, photos with a glossy finish were rated as being more attractive than photos with a matte finish but by a non-significant amount, b = -.23 [-.62, .16], SE = .20, p = .250, with an effect size in the "small" range. Glossiness had the opposite effect on perceived image quality (see Figure 1B). Although participant ratings of quality did not differ significantly between glossy and matte photos (b = .25 [-.14, .63], SE = .20, p = .203), raters judged photographs with a matte finish as being of slightly higher quality than photographs with a glossy finish, again with a small effect size. For the remaining ratings—colorfulness (b = .09 [-.30, .48], SE = .20, p = .644; see Figure 1C), interest (b = -.09 [-.48, .30], SE = .20, p = .658; see Figure 1D), and appeal (b = -.06 [-.45, .33], SE = .20, p = .746; see Figure 1E)—the differences between the glossy and matte conditions were very small and non-significant.

In sum, little evidence was found for replication of the core finding from past work. The main effect of glossiness was in the same direction but small in effect size and not statistically significant.

Exploring Moderators of Attractiveness

Our next step was to explore possible moderators of the main effect of glossiness on attractiveness ratings, again using regression models in Mplus. The moderators, shown in Table

2, were the measures of art expertise (the aesthetic fluency scale and the art experience questionnaire) and openness to experience and their facets. The predictors were centered at the sample's grand mean, and an interaction term was created from the centered variables (Cohen, Cohen, West, & Aiken, 2003).

As illustrated in Table 2, nine interaction models were examined for their potential moderating effects on attractiveness ratings. Of these models, the Aesthetic Appreciation component of the Openness to Experience HEXACO factor had the strongest interaction effect, b = .56 (SE = .19), p = .003, model $R^2 = .12$, as well as the only statistically significant interaction. Figure ?? displays the pattern. People high in aesthetic appreciation found the photos attractive regardless of glossiness, but people low in aesthetic appreciation showed a pronounced preference for glossy over matte photos.

Discussion

In the present research, we sought to replicate and extend past research on the effects of glossy paper materials on aesthetic preferences (Coss & Moore, 1990; Meert et al., 2014). Regarding replication, at best weak evidence for replication was found. For ratings of the attractiveness of glossy vs. matte paper, the effect was in the right direction, but the effect size was small and not statistically significant (d = -.23 [-.62, .16]).

We think a few factors are likely behind the diverging results. The first is sampling variability, of course, which plays a large but difficult to discern role in all research (Silvia, 2020). Beyond that, our smaller effect likely results from using a between-person manipulation. Aside from their higher power, within-person manipulations that expose participants to all levels of a glossiness variable could heighten the salience of glossiness as a parameter of the stimuli and exaggerate the effects, especially when the participants are asked to rank-order the stimuli (Meert et al., 2014). It's also possible that our manipulation of glossiness was relatively mild. To control for several extraneous factors, we created matte images by modifying glossy ones. This method keeps paper weight, color quality, and similar factors constant, but it may be

a relatively subtle manipulation. It would be worthwhile for future research to evaluate the role of possible contrast effects by using both between-person and within-person manipulations within the same sample of participants.

Our second goal was to extend the literature by exploring individual-differences moderators. Evidence for moderation was limited to aesthetic appreciation, a facet of openness to experience associated with valuing and engaging with the arts. Thus, the moderation effect of openness to experience was driven by the aesthetic appreciation characteristic and not the trait as a whole, which supports contemporary trends in personality research that go beyond trait-level associations and focus on lower level facets (Mõttus, 2016). People high in aesthetic appreciation were insensitive to the glossiness manipulation—they gave high attractiveness ratings in both conditions. But people low in aesthetic appreciation showed the classic glossiness effect—they rated the glossy images as more attractive than the matte images. This pattern is consistent with moderation effects in other areas of aesthetics research. A common finding is that art novices are more strongly affected by low-level stimulus features—such as when novices' liking is more strongly affected by symmetry (Leder et al., 2019; Weichselbaum et al., 2018)—whereas art experts are less influenced by surface features and more sensitive to formal, conceptual, and historical features (Locher, Smith, & Smith, 2001; Parsons, 1987).

The evidence for moderation is consistent with past work, but the fact that only one facet of openness to experience—albeit one closely linked to the arts—showed significant moderation, and that neither of the measures of art knowledge or art training had a significant interaction, suggests that these findings should be viewed as tentative pending future research. Likewise, research on art expertise doesn't always find diminished sensitivity to low-level features. In the study of curvature, people and related species prefer rounded, curved objects over angular, jagged ones (Bertamini & Sinico, in press; Gómez-Puerto, Munar, & Nadal, 2015; Munar, Gómez-Puerto, Call, & Nadal, 2015), but most studies on experts have found that experts have an even greater preference for curved objects (Cotter, Silvia, Bertamini, Palumbo, & Vartanian,

2017; Silvia & Barona, 2009; Vartanian et al., 2019). Thus, although the results of the current study were limited, they support the notion that the roles of expertise and personality in preferences for glossy materials deserve more attention in future research.

References

- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, 11, 150-166.
- Bertamini, M., & Sinico, M. (in press). A study of objects with smooth or sharp features created as line drawings by individuals trained in design. *Empirical Studies of the Arts*.
- Chatterjee, A. (2013). *The aesthetic brain: How we evolved to desire beauty and enjoy art.* New York: Oxford University Press.
- Chatterjee, A., Widick, P., Sternschein, R., Smith, W. B., & Bromberger, B. (2010). The assessment of art attributes. *Empirical Studies of the Arts*, 28, 207-222.
- Christensen, A. P., Cotter, K. N., & Silvia, P. J. (2019). Reopening openness to experience: A network analysis of four openness to experience inventories. *Journal of Personality Assessment*, 106, 574-588.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation*analysis for the behavioral sciences (3rd ed.). Mahwah, NJ: Lawrence Erlbaum

 Associates.
- Coss, R. G. (2003). The role of evolved perceptual biases in art and design. In E. Voland & K. Grammer (Eds.), *Evolutionary aesthetics* (pp. 69-130). Berlin: Springer.
- Coss, R. G., & Moore, M. (1990). All that glistens: Water connotations in surface finishes. *Ecological Psychology*, *2*, 367-380.
- Cotter, K. N., Silvia, P. J., Bertamini, M., Palumbo, L., & Vartanian, O. (2017). Curve appeal: Exploring individual differences in preference for curved versus angular objects. *i-*Perception, 8(2), 1-17. DOI: 10.1177/2041669517693023.
- Decré, G. B., & Cloonan, C. (2019). A touch of gloss: Haptic perception of packaging and consumers' reactions. *Journal of Product & Brand Management*, 28, 117-132.
- De Kerpel, L., Kobuszewski Volles, B., & Van Kerckhove, A. (2020). Fats are glossy but does

- glossiness imply fatness? The influence of packaging glossiness on food perceptions. Foods, g(1), g(2).
- DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, 93, 880-896.
- Gómez-Puerto, G., Munar, E., & Nadal, M. (2015). Preference for curvature: A historical and conceptual framework. *Frontiers in Human Neuroscience*, *9*(712). DOI: 10.3389/fnhum.2015.00712.
- Gómez-Puerto, G., Rosselló, J., Corradi, G., Acedo-Carmona, C., Munar, E., & Nadal, M. (2018).

 Preference for curved contours across cultures. *Psychology of Aesthetics, Creativity, and the Arts*, 12(4), 432–439.
- Halberstadt, J. (2006). The generality and ultimate origins of the attractiveness of prototypes.

 *Personality and Social Psychology Review, 10, 166-183.
- Leder, H., Tinio, P. P., Brieber, D., Kröner, T., Jacobsen, T., & Rosenberg, R. (2019). Symmetry is not a universal law of beauty. *Empirical Studies of the Arts*, *37*, 104-114.
- Lee, K., & Ashton, M. C. (2018). Psychometric properties of the HEXACO-100. Assessment, 25, 543-556.
- Lichtenauer, M. S., Schuetz, P., & Zolliker, P. (2013). Interaction improves perception of gloss. *Journal of Vision*, 13, 1-13.
- Locher, P. J., Smith, J. K., & Smith, L. F. (2001). The influence of presentation format and viewer training in the visual arts on the perception of pictorial and aesthetic qualities of paintings. *Perception*, 30, 449-465.
- Maniaci, M. R., & Rogge, R. D. (2014). Caring about carelessness: Participant inattention and its effects on research. *Journal of Research in Personality*, 48, 61-83.
- Marckhgott, E., Kamleitner, B. (2019). Matte matters: When matte packaging increases perceptions of food naturalness. *Marketing Letters*, *30*, 167–178.
- McKibben, W. B., & Silvia, P. J. (2016). Inattentive and socially desirable responding:

- Addressing subtle threats to validity in quantitative counseling research. *Counseling Outcome Research and Evaluation*, *7*, 53-64.
- Meert, K., Pandelaere, M., & Patrick, V. M. (2014). Taking a shine to it: How the preference for glossy stems from an innate need for water. *Journal of Consumer Psychology*, *24*, 195-206.
- Mõttus, R. (2016). Towards more rigorous personality trait—outcome research. *European Journal of Personality*, *30*, 292-303.
- Munar, E., Gómez-Puerto, G., Call, J., & Nadal, M. (2015). Common visual preference for curved contours in humans and great apes. *PLoS ONE*, *10*(11), e0141106.
- Murakoshi, T., Masuda, T., Utsumi, K., Tsubota, K., & Wada, Y. (2013). Glossiness and perishable food quality: Visual freshness judgment of fish eyes based on luminance distribution. *PLoS ONE*, 8(3), e58994.
- Oleynick, V. C., DeYoung, C. G., Hyde, E., Kaufman, S. B., Beaty, R. E., & Silvia, P. J. (2017).

 Openness/Intellect: The core of the creative personality. In G. J. Feist, R. Reiter-Palmon, & J. C. Kaufman (Eds.), *Cambridge handbook of creativity and personality research* (pp. 9-27). New York, NY: Cambridge University Press.
- Parsons, M. J. (1987). How we understand art: A cognitive developmental account of aesthetic experience. New York: Cambridge University Press.
- Patrick, V. M. (2016). Everyday consumer aesthetics. Current Opinion in Psychology, 10, 60-64.
- R Core Team (2020). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. Downloaded from https://www.R-project.org
- Silvia, P. J. (2006). *Exploring the psychology of interest*. New York: Oxford University Press.
- Silvia, P. J. (2007). Knowledge-based assessment of expertise in the arts: Exploring aesthetic fluency. *Psychology of Aesthetics, Creativity, and the Arts*, 1, 247-249.
- Silvia P. J. (2013). Interested experts, confused novices: Art expertise and the knowledge emotions. *Empirical Studies of the Arts 31*, 107–116.

- Silvia, P. J. (2020). *Select a sample* (SAGE "Little Quick Fix" Research Methods Series).

 London: Sage.
- Silvia P. J., & Barona C. M. (2009). Do people prefer curved objects? Angularity, expertise, and aesthetic preference. *Empirical Studies of the Arts*, *27*, 25–42.
- Silvia, P. J., & Christensen, A. P. (in press). Looking up at the curious personality: Individual differences in curiosity and Openness to Experience. *Current Opinion in Behavioral Sciences*.
- Silvia, P. J., Fayn, K., Nusbaum, E. C., & Beaty, R. E. (2015). Openness to experience and awe in response to nature and music: Personality and profound aesthetic experiences.

 Psychology of Aesthetics, Creativity, and the Arts, 9, 376-384.
- Smith, J. K. (2014). *The museum effect: How museums, libraries, and cultural institutions educate and civilize society.* Lanham, MD: Rowman & Littlefield.
- Smith, L. F., & Smith, J. K. (2006). The nature and growth of aesthetic fluency. In P. Locher, C. Martindale, & L. Dorfman (Eds.), *New directions in aesthetics, creativity, and the arts* (pp. 47-58). Amityville, NY: Baywood.
- Vartanian, O., Navarrete, G., Chatterjee, A., Fich, L. B., Leder, H., Modroño, C., Rostrup, N., Skov, M., Corradi, G., & Nadal, M. (2019). Preference for curvilinear contour in interior architectural spaces: Evidence from experts and nonexperts. *Psychology of Aesthetics, Creativity, and the Arts, 13*(1), 110–116.
- Weichselbaum, H., Leder, H., & Ansorge, U. (2018). Implicit and explicit evaluation of visual symmetry as a function of art expertise. *i-Perception*, 9(2). https://doi.org/10.1177/2041669518761464
- Ye, N., Morrin, M., & Kampfer, K. (2020). From glossy to greasy: The impact of learned associations on perceptions of food healthfulness. *Journal of Consumer Psychology*, 30, 96-124.

Table 1 **Descriptive Statistics**

Outcome	Glossy Images	Matte Images	Effect Size
Attractive	5.04 (.94)	4.81 (1.05)	23 [62, .16]
Appealing	4.97 (.91)	4.91 (1.04)	06 [45, .33]
Interesting	4.39 (.90)	4.47 (.91)	09 [48, .30]
Colorful	4.76 (1.10)	4.66 (1.04)	.09 [30, .48]
Quality	5.20 (.81)	5.42 (.93)	.25 [14, .63]

Note. The sample size is n = 49 (glossy condition) and n = 51 (matte condition). Standard deviations are in parentheses. The effect size estimate is in the d metric. It is estimated from a regression model using maximum likelihood with robust standard errors, so the coefficient and its confidence intervals will vary slightly from values computed from simple descriptive statistics. Negative signs reflect larger values for the glossy condition.

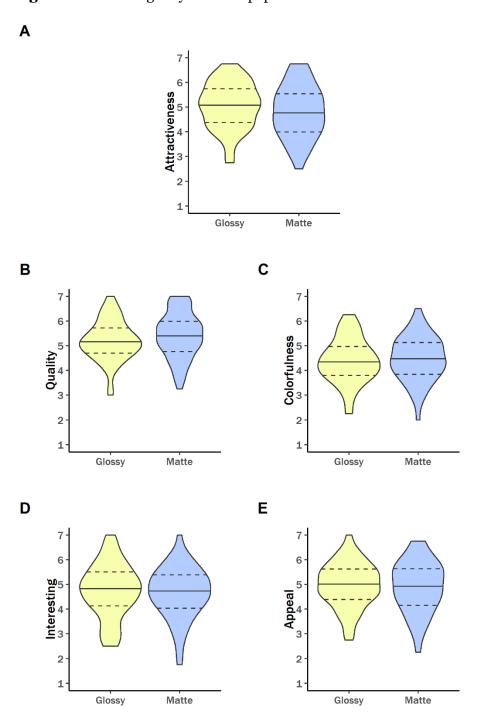
Table 2

Interactive Effects of Glossiness and Individual-Differences on Attractiveness

Moderator	Glossy Effect	Moderator Effect	Interaction	Model R ²
O: Aesthetic	18 (.19), p =	.24 (.09),	.56 (.19),	.12
Appreciation	.328	<i>p</i> = .012	p = .003	
O: Inquisitiveness	13 (.20), <i>p</i> =	.21 (.14), p = .138	08 (.28), p =	.04
	.501		.788	
O: Creativity	22 (.19), <i>p</i> =	.06 (.12), p = .613	.11 (.23), p = .627	.02
	.264			
O: Unconventionality	19 (.19), p = .337	.17 (.16), p = .299	05 (.33), p =	.03
			.890	
HEXACO O	14 (.19), p =	.32 (.16), p = .049	.37 (.32), p = .238	.06
	.448			
BFAS Openness	18 (.20), <i>p</i> =	.39 (.17), p = .020	12 (.34), <i>p</i> =	.06
	.336		.733	
BFAS Intellect	23 (.20), <i>p</i> =	.28 (.22), p = .196	14 (.43), p =	.04
	.236		.744	
Aesthetic Fluency	22 (.20), p =	.01 (.02), <i>p</i> = .572	.02 (.04), p = .677	.02
	.270			
Art Experience		.04 (.02), p = .014	.04 (.03), p = .273	.06

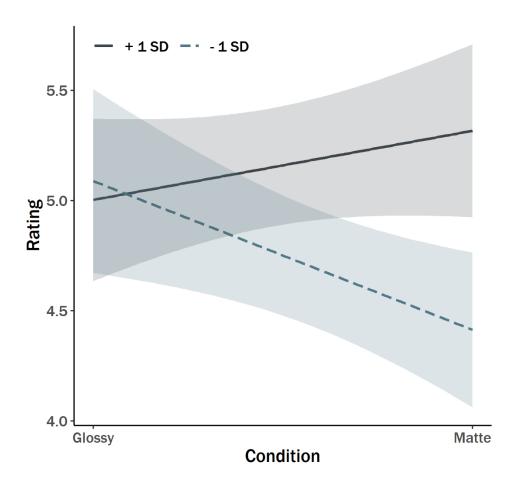
Note. The regression coefficients are unstandardized. Glossiness is coded o (glossy) and 1 (matte). Moderators preceded by 'O:' are individual components of the HEXACO O facet. The only significant interaction—aesthetic appreciation—is depicted in Figure 2.

Figure 1. Effects of glossy vs matte paper on the outcome variables.



Note. The solid line in the violin plot is the median, the dashed lines indicate the interquartile range, and the shape reflects the distribution of scores.

Figure 2. Interaction of paper glossiness and aesthetic appreciation on attractiveness ratings.



Note. The bands around the regression lines are 95% confidence intervals.