Do People Prefer Curved Objects? Angularity, Expertise, and Aesthetic Preference

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DO PEOPLE PREFER CURVED OBJECTS? ANGULARITY, EXPERTISE, AND AESTHETIC PREFERENCE

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ABSTRACT

Do people prefer curved lines, shapes, and objects over angular lines, shapes, and objects? Angularity is one of the oldest variables in the psychology of aesthetics, but past research has not always controlled for potential confounds. Two experiments manipulated angularity while controlling for symmetry, prototypicality, and balance. Study 1 used arrays of circles and hexagons from the Preference for Balance Test. Study 2 used asymmetrical random polygons; each polygon was digitally rounded to create angular and curved versions. As predicted, people preferred the round circles more than the angular hexagons and the curved polygons more than the angular polygons. Both experiments explored whether individual differences in expertise in the arts moderated angularity's effect on preference. Multilevel models showed that training in the arts interacted with angularity, but the pattern of the interaction varied between the two experiments.

INTRODUCTION

The psychology of art has a long history of studying how low-level features influence aesthetic perception and preference. Gustav Fechner's (1876) research on proportions marks the beginning of empirical research on the arts, and much of the early research on aesthetics studied people's preferences for lines, forms, colors, and shapes (Gordon, 1909; Valentine, 1962). This tradition continues in

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modern research on balance (Locher & Stappers, 2002), contrast (Specht, 2007), color (Polzella, Hammar, & Hinkle, 2005), and geometric orientation (Miller, 2007). In the present research, we revisit an old issue in empirical aesthetics: does angularity affect preference? Do people prefer curved lines, shapes, and objects over angular lines, shapes, and objects?

After reviewing past work on angularity, we present two new experiments. Our experiments seek to replicate past findings, eliminate some confounding factors, and extend past work by examining the role of artistic expertise. Expertise in the arts—a term we'll use to capture artistic training, education, and aesthetic fluency—is receiving more attention in empirical studies of art and creativity (Locher, 2007; Smith & Smith, 2006). Expertise is interesting in its own right: examining similarities and differences between experts and novices illuminates the inner workings of aesthetic preference and perception (Augustin & Leder, 2006; Hekkert & van Wieringen, 1996; Winston & Cupchik, 1992). Furthermore, exploring the role of expertise allows us to examine the intersection of high-level and low-level contributions to aesthetic preference.

ANGULARITY AND AESTHETIC PREFERENCE

The psychology of aesthetics has a deep past. In her textbook *Esthetics*, Gordon (1909) suggested that "curves are in general felt to be more beautiful than straight lines. They are more graceful and pliable, and avoid the harshness of some straight lines" (p. 169). In Lundholm's (1921) experiment—probably the first experiment on angularity—eight people were asked to draw lines that characterized feelings. The lines were then categorized in terms of angularity. Angular lines were associated with feelings such as *agitating*, *hard*, and *furious*; curved lines were associated with feelings such as *gentle*, *sad*, *quiet*, and *lazy*.

In a later study, Poffenberger and Barrows (1924) studied the experience of people viewing curved and angular lines. A huge sample for that time—500 adults—viewed a page of 18 lines. The lines were curved or angular, and they varied in the number of curves or angles per line. People were given 13 different classes of feelings (e.g., *sad*, *quiet*, *merry*, *gentle*, *harsh*, *serious*), and they connected each class to one or more of the lines. The findings replicated Lundholm's (1921) study: angled lines were rated as *agitating*, *furious*, *hard*, and *serious*; curved lines were rated as *sad*, *quiet*, *lazy*, *merry*, and *gentle*.

Hevner (1935) conducted a series of experiments that improved upon the design and materials used by Poffenberger and Barrows (1924). To avoid the contrast effects caused by viewing all objects on the same page, she used a between-group design. Instead of using simple lines, Hevner developed a set of abstract displays composed of curves (circles or wavy lines) or angles (squares or angular lines). People viewed a design for three to five minutes, and they rated it by checking off which adjectives described their feelings. In summarizing her experiments, Hevner concluded that "curves are found to be serene, graceful, and tender-sentimental. Angles are robust, vigorous and somewhat more dignified" (p. 398). Similar effects appear for typography: round letters are experienced as more pleasant, and angular letters are experienced as more serious (Kastl & Child, 1968).

A recent entry in the study of angularity is research by Bar and Neta (2006, 2007). They suggested that people prefer curved objects because angularity conveys a sense of threat. Angles metaphorically express threat, they propose, because sharp and jagged objects are often dangerous. Bar and Neta presented a wide range of stimuli to people—randomly generated objects, random patterns, everyday objects (e.g., watches, couches), and letters—who rated their level of preference. As expected, people preferred the rounded objects to the angular objects (Bar & Neta, 2006). A later study replicated this effect and showed that angular objects evoked greater amygdala activation than curved objects (Bar & Neta, 2007).

ISOLATING ANGULARITY

Past research provides some support for an effect of angularity on preference. Modern researchers will have less confidence in the older experiments, which used awkward dependent measures (marking adjectives from long lists) and lack inferential statistics. Nevertheless, the accumulation of classic and contemporary findings suggests that angularity is worth a closer look from modern researchers.

From a contemporary perspective, two factors may have confounded the effect of angularity in past research. The first is typicality. When using real objects (Bar & Neta, 2006; Kastl & Child, 1968), researchers are probably confounding angularity with typicality. This confound is inevitable with real objects: if an object category (e.g., couches, watches, fonts) contains angular and round objects, then objects at the category's central tendency will be slightly rounded. As a result, the angularity effect may be an instance of the well-known preference for typical objects (Martindale, Moore, & West, 1988; Whitfield, 1983, 2000). When using lines and abstract shapes (Hevner, 1935; Poffenberger & Barrows, 1924), the typical instance within the set of stimuli may be rounded, depending on the frequencies of the round and angular stimuli. We doubt that typicality wholly confounds angularity—Lundholm's (1921) study, which asked people to draw lines that expressed feelings, seems resistant to a typicality explanation—but it is worth eliminating typicality as a confound.

The second possible confound is symmetry. In studies of objects, angularity can be confounded with symmetry. For example, Bar and Neta (2006) used a circular watch for a "round watch face" but a rectangular watch for an "angular watch face." A circle is symmetrical along all axes (horizontal, vertical, diagonal, and all other axes), whereas a rectangle is symmetrical along two (horizontal and vertical). Preference for the round object could reflect its greater symmetry. Likewise, the characters in some of the rounded fonts studied by Kastl and Child (1968) are more symmetrical than the characters in the angular fonts. Angular letters often have serifs, which reduce their symmetry. In studies that used graphical displays (Hevner, 1935), it's possible that the rounded displays have more local symmetry or global balance. Symmetry probably can't explain all of the past research, but it clearly should be controlled in future work.

EXPERTISE AND ANGULARITY

One way to illuminate how angularity affects preference is to examine whether angularity has the same effects on the preferences of experts and novices. Because of their training, experts have extensive domain knowledge that they can bring to bear on a work of art (Augustin & Leder, 2006). Differences due to expertise can thus suggest whether an effect is due to differences in higher-order processes such as knowledge, training, and strategies. Experts and novices differ in some interesting ways: relative to experts, novices prefer simple works (Axelsson, 2007; Hekkert & van Wieringen, 1996; Locher, Smith, & Smith, 2001; Silvia, 2006a), scan visual art for what it depicts rather than for its overall composition (Locher, 2006), and prefer representational art to abstract art (Kozbelt, 2006; Lindauer, 1990, 1991; Winston & Cupchik, 1992). Just as interesting, however, are the ways in which experts and novices are alike. For example, both experts and novices spontaneously appraise the dynamic balance of a work (Locher & Nagy, 1996) and use similar dimensions when appraising art (Silvia, 2006a, Study 2). If expertise interacts with angularity, then we could conclude that angularity's effect is akin to the effects of complexity, color, and representation on preference: experts' preferences are less affected by concrete stimulus features. But if expertise does not interact with angularity, then we could conclude that angularity's effect is resistant to top-down inputs, such as experts' domain knowledge.

THE PRESENT EXPERIMENTS

We conducted two experiments to examine whether angularity affects preference. Our primary goal was to assess the effects of angularity when controlling for possible confounds, such as symmetry and typicality. We used two kinds of stimuli. Study 1 examined preference for arrays of symmetrical objects; Study 2 examined preference for asymmetrical polygons. An additional goal was to explore whether expertise moderated the effect of angularity. We measured expertise via self-reported training in the arts (Study 1) and with Smith and Smith's (2006) aesthetic fluency scale (Study 2), a new measure of expertise in the arts.

EXPERIMENT 1

Experiment 1 tested whether angularity affected preference after controlling for symmetry and balance. We manipulated angularity by selecting stimuli from Wilson and Chatterjee's (2005) Preference for Balance Test. This test consists of randomly generated displays that vary in the level of dynamic balance (Locher, 2006). The displays consist of circles or hexagons that vary in size. The Preference for Balance Test has four appealing features for examining angularity and preference. First, circles are round and hexagons are angular, by their geometric definitions, so this set of stimuli provides a straightforward way of manipulating angularity. Second, the circles and hexagons are symmetrical along vertical, horizontal, and diagonal axes; circles are still more symmetrical, but symmetry differences are smaller in this set relative to stimuli used in past research. Third, the degree of balance in the array can be assessed, thus obviating balance as a potential confound. And fourth, we can control for typicality by including equal numbers of circles and hexagons at each level of balance. If they appear equally often, neither circles nor hexagons should be more typical of the stimuli set.

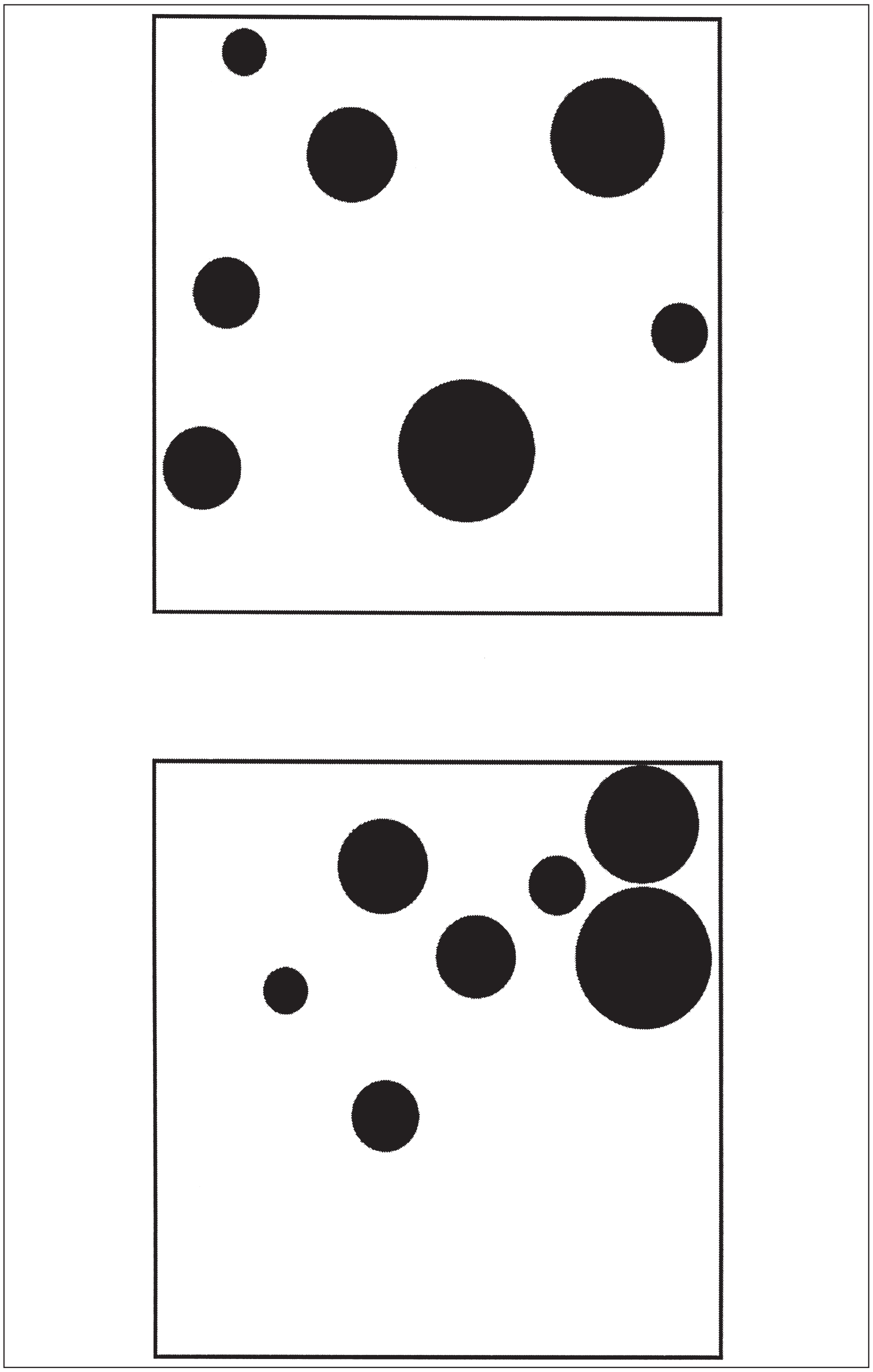
Participants and Design

A total of 40 students (35 women, 5 men) enrolled in General Psychology at the University of North Carolina at Greensboro (UNCG) volunteered as part of a research participation option. The design was a 2 (angularity: circles, hexagons) × 3 (level of imbalance: low, medium, high) design; both variables were manipulated within-subjects. Level of artistic training was measured as a continuous between-person quasi-independent variable.

Procedure

Each person participated individually. The experimenter seated the participant in front of a computer and explained that the study was about how different dimensions of personality relate to perceptions and preferences. People expected to view a series of images and rate how much they liked each image. We presented 18 images from Wilson and Chatterjee's (2005) Preference for Balance Test: 9 arrays of circles and 9 arrays of hexagons. Within each set of 9, there were three levels of imbalance (low, medium, and high), and each level had three images.[1] Sample low and high imbalance images are shown in Figure 1; Wilson and Chatterjee's article describes how the stimuli were generated and presents evidence for validity. Presenting the same number of circles and hexagons ought to control for typicality: neither kind of display should seem more typical to the participants. Each image appeared on screen for two seconds; the image was followed by a rating screen that asked "How *pleasing* is this picture?" (1 = *not at all*, 9 = *very pleasing*). People responded by pressing a number key on the keyboard.

[1] Each image in the Preference for Balance Test has a *displacement value* that denotes the level of imbalance. The images (and their displacement values) used in our study were circles 1 (3.63), 2 (6.30), 3 (8.04), 20 (21.6), 21 (22.02), 22 (22.31), 41 (40.65), 42 (61.67), 43 (43.80) and hexagons 1 (4.42), 2 (4.48), 3 (6.78), 20 (23.35), 21 (23.65), 22 (24.95), 41 (44.34), 42 (44.70), 43 (44.80). For sample images, see Figure 1, which depicts circles 1 and 41 and hexagons 1 and 41.



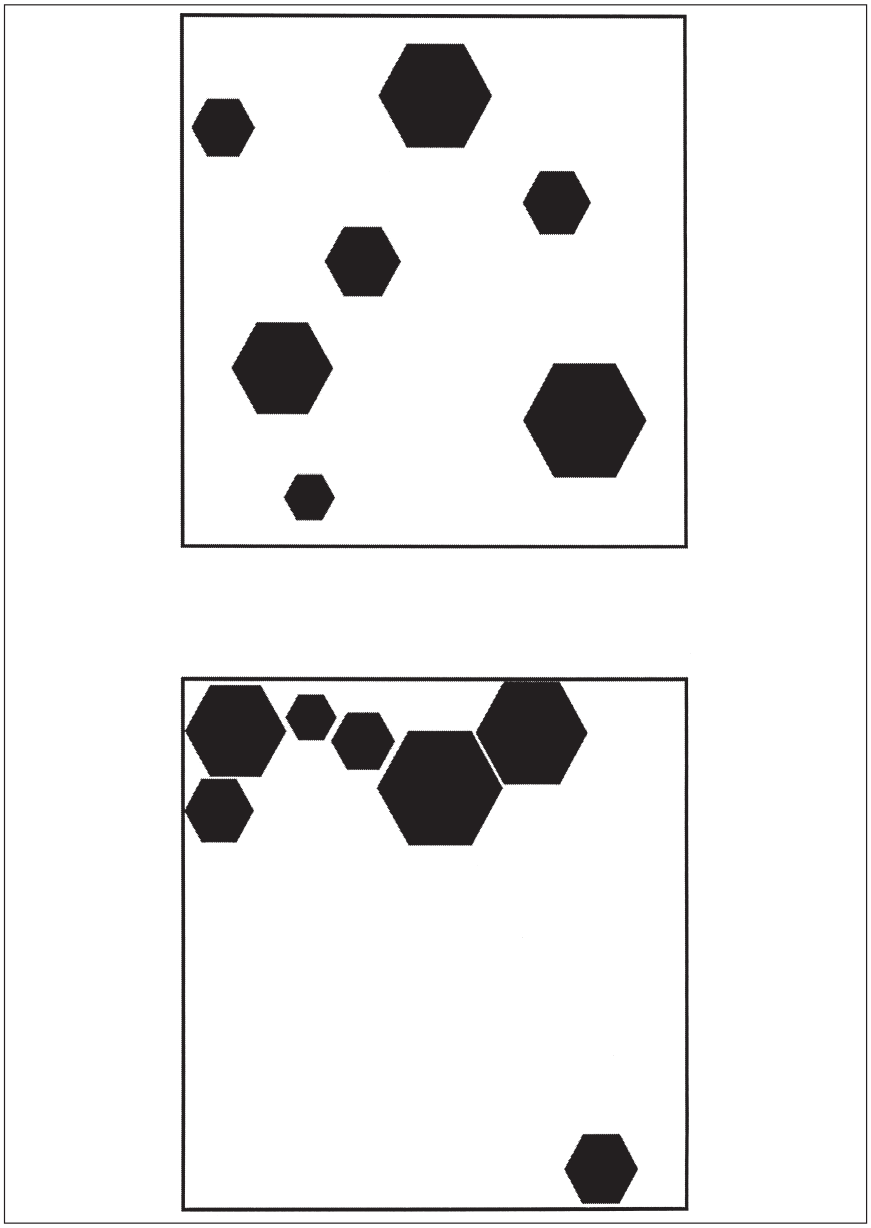


Figure 1. Examples of stimuli from the Preference for Balance Test: Experiment 1. *Note:* The figure depicts circles 1 and 41 and hexagons 1 and 41, which represent examples of the low imbalance and high imbalance images used in the experiment.

Table 1. Descriptive Statistics for Measures of Expertise: Experiments 1 and 2

	M	*SD*	Minimum	Maximum	*n*
Study 1					
Number of Classes	.58	1.03	0	4	40
Interest in Art	3.18	1.11	1	5	40
Training in Art	2.35	1.23	1	5	40
Training Factor Score	0.00	.86	–1.19	2.00	40
Study 2					
Art Items (10)	8.54	4.81	1	19	41
Writing Items (5)	6.26	2.98	0	14	41
All Items (15)	14.80	6.91	2	30	41

After viewing all of the pictures, people completed a brief questionnaire. We used three items to measure people's level of expertise in the arts. In past research, expertise is often assessed as a conjunction of training in the arts and interest in art (Locher et al., 2001; Silvia, 2006a). Among the demographic questions, people were asked "How much training have you had in the arts?" (1 = *very little*, 5 = *a lot of training*), "How interested are you in art?" (1 = *not at all*, 5 = *very interested*), and "How many classes have you taken related to art (including classes this semester)?" (open-ended scale). A principal-axis factor analysis of the three items found a single factor that explained 56% of the variance. We thus used standardized factor scores to represent expertise in the arts. Table 1 presents descriptive statistics for the measures of expertise.

RESULTS AND DISCUSSION

The data have a nested structure: some scores (liking, angularity, and imbalance) are within-person, but other scores (expertise) are between-person. Multilevel modeling, a general form of conventional regression, can estimate within-person and between-person effects simultaneously (Hox, 2002; Luke, 2004; Silvia, 2007a). At Level 1, the within-person level, the scores were centered at each person's mean; at Level 2, the between-person level, the scores were centered at the sample's grand mean. Multilevel models allow us to analyze expertise as a continuous variable, not as two discrete groups. The effects were estimated with full maximum-likelihood estimation using the software program HLM 6. The unstandardized coefficients with robust standard errors are reported. The high intraclass correlation indicated that most of the variance in preference (76%) was at the between-person level.

To evaluate how angularity, imbalance, and expertise affected preference, we estimated the following multilevel model.

Level 1: $\text{Preference}_{ij} = \beta_{0j} + \beta_{1j}(\text{Angularity}) + \beta_{2j}(\text{Imbalance}) + \beta_{3j}(\text{Interaction}) + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Expertise}) + u_{0j}$

$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Expertise}) + u_{1j}$

$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Expertise}) + u_{2j}$

$\beta_{3j} = \gamma_{30} + \gamma_{31}(\text{Expertise}) + u_{3j}$

In this model, preference is a function of a within-person intercept; weights for the effects of angularity, imbalance, and their interaction; and residual within-person variance. These intercepts and slopes are then estimated as a function of expertise, a continuous between-person predictor. Figure 2 depicts this multilevel model graphically. The within-person variables (angularity, imbalance, and their interaction) and residual variance (the lone arrow pointing at preference) predict preference; expertise predicts preference as well as the paths connecting the within-person variables to preference.

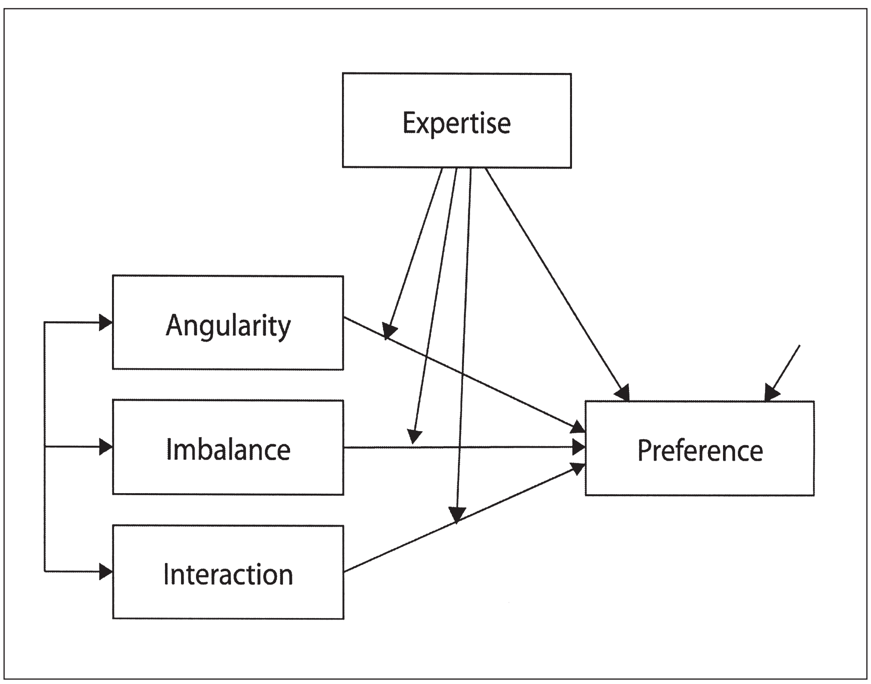


Figure 2. Graphical depiction of Experiment 1's multilevel model.

The multilevel analyses showed a significant within-person effect of angularity (b = –0.428, SE = .158, $t(38) = 2.70$, p = .011). Consistent with past research, people found the angular hexagons less pleasing than the round circles. The analyses found no effect of imbalance on preference (b = –0.023, SE = 0.056, $t(38) = 0.41$, p = .69), although the slope was in the right direction. This finding was surprising, given that effects of balance on preference have appeared with a wide range of art works, including the Preference for Balance Test (see Locher, 2006; Wilson & Chatterjee, 2005). The interaction of angularity and imbalance was not significant, b = 0.137, SE = 0.099, $t(38) = 1.38$, p = .17. (A separate model explored quadratic effects of imbalance, but neither the linear nor quadratic effect was significant.)

Did expertise in the arts moderate these effects? Expertise didn't predict overall level of preference (b = 0.17, $t < 1$), but it did moderate the effect of angularity on preference (b = .334, SE = 0.166, $t(38) = 2.01$, p = .051). This effect, known as a cross-level interaction, indicates that expertise explains in part why people vary in angularity's effect on preference. Figure 3 shows the estimated pattern of effects.

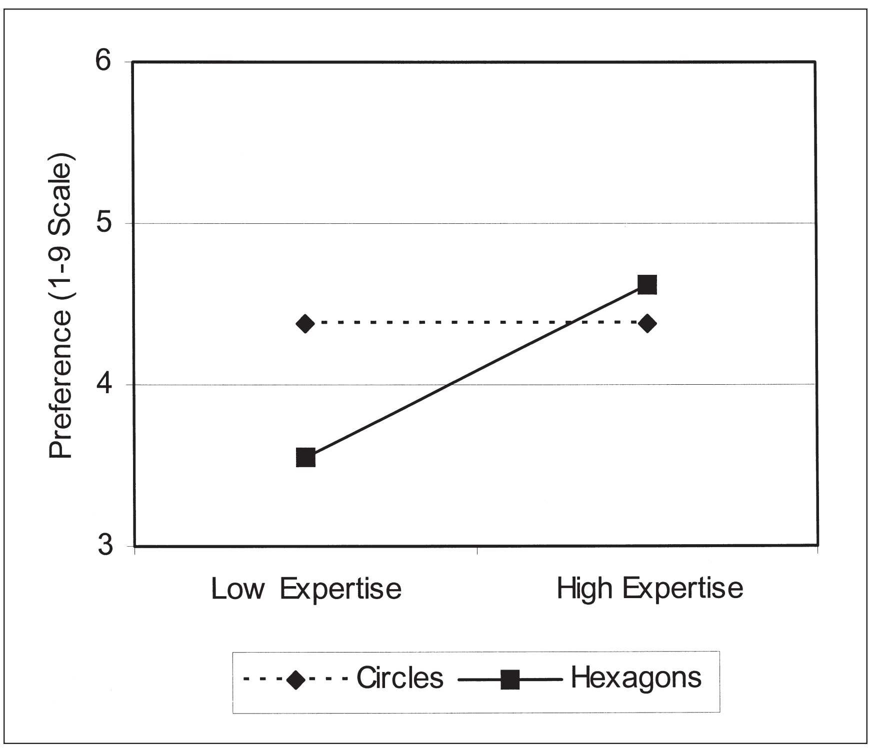


Figure 3. Estimated effects of expertise and angularity on preference: Experiment 1.

(Recall that expertise was analyzed as a continuous variable; it is depicted as categorical in Figure 3 for convenience.) People low in expertise preferred the circles to the hexagons, but people high in expertise preferred the circles and hexagons equally. In short, angularity reduced preference only for people relatively naive in the arts. Expertise didn't moderate the non-significant effect of imbalance on preference ($b = -0.02$, $t < 1$) or the non-significant interaction between imbalance and angularity ($b = 0.09$, $t = 1$), indicating that these effects were non-significant across all levels of expertise.

In summary, the experiment found support for an effect of angularity on preference. Overall, people preferred the round circles to the angular hexagons. As an aside, our findings replicate findings from Wilson and Chatterjee's (2005) two experiments. They did not compare differences between circles and hexagons, but their regression analyses found that the preference intercepts for circles were higher than the intercepts for hexagons and squares. The stimulus set controlled for symmetry, dynamic balance, and typicality, so our findings suggest that past findings are reliable. Interestingly, expertise interacted with angularity: angularity reduced preference only at lower levels of expertise in the arts. As expertise increased, the effect of angularity decreased.

EXPERIMENT 2

In Experiment 2, we sought to replicate the effects of angularity and expertise on preference. We used black-and-white random polygons as our stimulus set. All of the polygons were asymmetrical, so we controlled for asymmetry by keeping it constant. Randomly generated polygons typically have sharp angles, so they afford a straightforward manipulation of angularity. We digitally rounded half of the polygons, thus allowing a comparison between preference for angular and curved versions of the same polygon. In addition to measuring pleasingness, we also measured appraisals of the polygons' complexity. It's possible that curved objects are more pleasing because they seem simpler. The simple-complex dimension reliably discriminates pleasing, enjoyable objects from interesting, arousing objects (Berlyne, 1971, pp. 213-220; Silvia, 2006b, chap. 1; Turner & Silvia, 2006).

Participants

Fifty undergraduate students enrolled in General Psychology at UNCG volunteered as part of a research option. We excluded non-native English speakers and 4 people who had no variance in preference scores, leaving a final sample of 41 (25 women, 16 men).

Procedure

People participated in groups ranging from two to eight. The experimenter explained that the study was about personality and perceptions of objects. People received a questionnaire containing measures of expertise and a set of random polygons. We measured expertise in the arts with Smith and Smith's (2006) aesthetic fluency scale (Silvia, 2007b). This scale presents 10 terms and figures from art history (*Mary Cassatt*, *Isamu Noguchi*, *John Singer Sargent*, *Alessandro Boticelli*, *Gian Lorenzo Bernini*, *Fauvism*, *Egyptian Funerary Stelae*, *Impressionism*, *Chinese Scrolls*, *Abstract Expressionism*). People mark how much they know about the term or person on a 0 to 4 scale (0 = *I have never heard of this artist or term*, 4 = *I can talk intelligently about this artist or idea in art*). To expand the range of terms, we included five terms related to creative writing (*Confessional Poetry*, *Imagism*, *Language Poetry*, *The Black Mountain School*, *Beat Writing*). The sum of the creative writing items correlated highly with the sum of the original items, $r = .55$, $p < .001$. Table 1 presents descriptive statistics for the aesthetic fluency scores.

After completing the self-report measures, people viewed 12 random polygons, which were printed four per page. Each page had two rounded polygons and two angular polygons. After viewing each polygon for as long as they wished, people rated the polygon on two scales. Pleasingness was measured with "How *pleasing* is this polygon?" (1 = *not at all*, 7 = *very*); complexity was measured with "How *complex* is this polygon?" (1 = *not at all*, 7 = *very*). The rating scales appeared below each polygon. Everyone saw the same set of 12 polygons: half were angular, and half were rounded. People saw only the angular or round version of a given polygon, so order was included as a between-person counterbalancing factor. We rounded the polygons using Adobe Illustrator's "round corners" function. This effect slightly rounded the polygons without compromising their overall shape. Figure 4 shows examples of the angular and rounded polygons. Because several polygons were visible at a time, we can't rule out the possibility of contrast effects in perceptions of angularity (cf. Poffenberger & Barrows, 1924). Such a contrast effect wouldn't compromise the findings, however, because heightened perceptions of angularity would not necessarily change the within-person covariance of angularity and preference or the effect of expertise on the angularity–preference relationship.

RESULTS AND DISCUSSION

The fifteen items in the aesthetic fluency scale showed acceptable internal consistency (Cronbach's alpha = .76), so the items were summed to create an overall expertise score. As before, we analyzed the data with multilevel modeling. At Level 1, the scores were centered at each person's mean; at Level 2, expertise was centered at the sample's grand mean. As in Study 1, expertise was analyzed as a

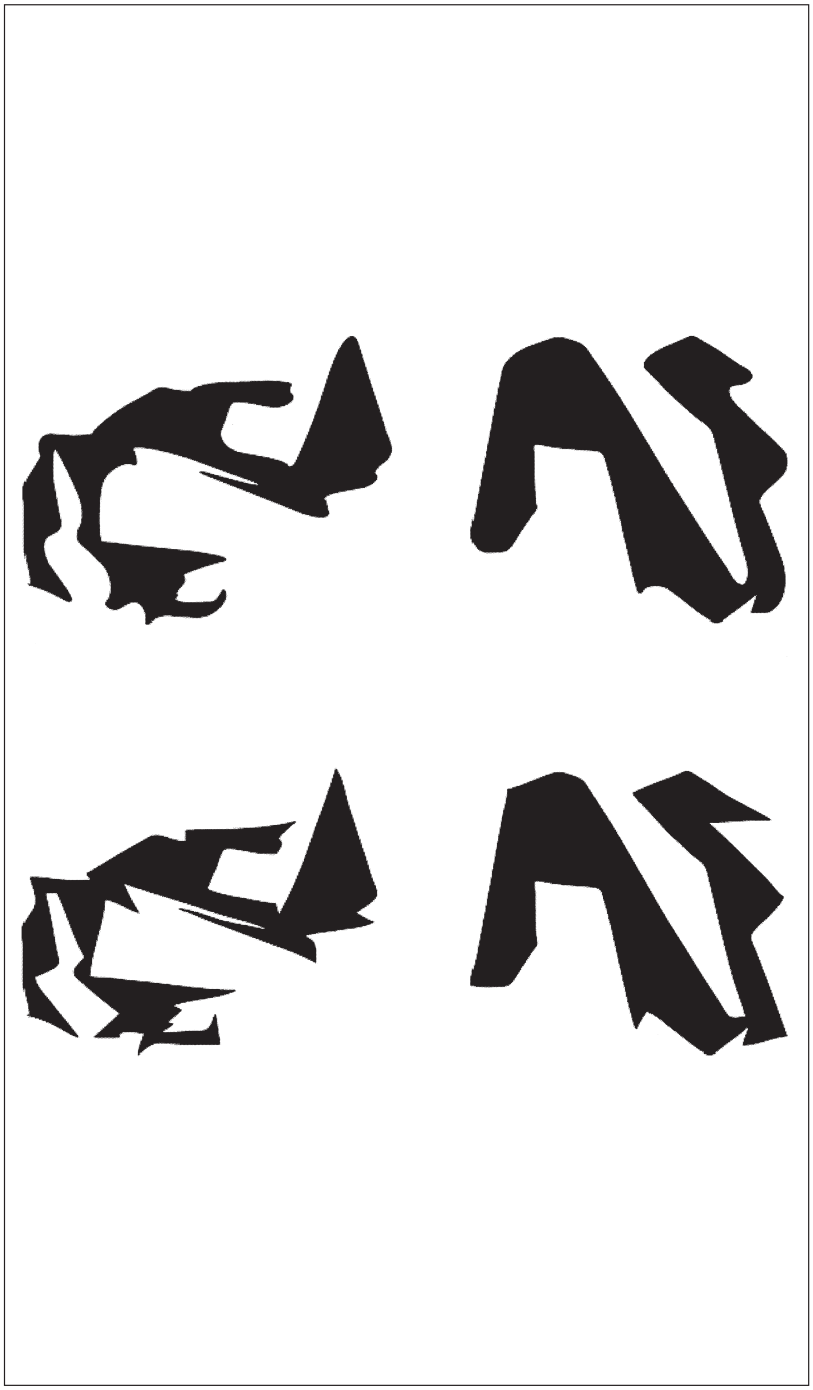


Figure 4. Examples of angular (left) and rounded (right) random polygons. Experiment 2.

continuous variable, not as two discrete groups. The effects were estimated with full maximum-likelihood estimation using HLM 6. The unstandardized coefficients with robust standard errors are reported. The moderate intraclass correlation (.29) indicated that around 70% of the variance in preference was at the within-person level.

To evaluate how angularity, complexity, and expertise affected preference, we estimated the following multilevel model.

Level 1: $\text{Preference}_{ij} = ß_{0j} + ß_{1j}(\text{Angularity}) + ß_{2j}(\text{Complexity}) + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Expertise}) + \gamma_{02}(\text{Order}) + u_{0j}$

$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Expertise}) + \gamma_{12}(\text{Order}) + u_{1j}$

$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Expertise}) + \gamma_{22}(\text{Order}) + u_{2j}$

In this model, preference is a function of a within-person intercept, weights for the effects of angularity and complexity, and residual within-person variance. These intercepts and slopes are then estimated as a function of expertise and the order of administration, both between-person predictors.

Angularity significantly affected preference ($b = -.416$, $SE = 0.21$, $t(38) = 1.97$, $p = .055$): people preferred the rounded polygons to the angular polygons. Expertise predicted preference: people high in fluency liked the polygons more overall ($b = .059$, $SE = 0.022$, $t(38) = 2.64$, $p = .012$). Expertise also moderated the effect of angularity on preference, albeit marginally so ($b = -.016$, $SE = 0.009$, $t(38) = 1.67$, $p = .10$). A marginal order effect appeared as well ($b = .214$, $SE = 0.138$, $t(38) = 1.55$, $p = .13$). Regarding secondary effects, complexity did not predict preference ($b = -.21$, $t < 1$), and neither expertise ($b = .002$, $t < 1$) nor order ($b = .203$, $SE = .163$, $t(38) = 1.25$, $p = .22$) moderated the complexity–preference relationship.

Figure 5 illustrates the pattern of results for angularity, expertise, and complexity. (Recall that expertise and complexity were analyzed as continuous variables; they are depicted as categorical in Figure 5 for convenience.) When expertise was low, people preferred the round and angular polygons equally. When expertise was high, however, people preferred the round polygons to the angular polygons, and preference increased overall. This pattern appeared across levels of complexity. In short, angularity reduced preference only at high levels of expertise. Comparing Figures 3 and 5 reveals that the two experiments found different relationships between expertise, angularity, and preference. We'll consider this intriguing disparity in the General Discussion.

GENERAL DISCUSSION

To date, research has identified many low-level contributors to aesthetic preference, such as color, balance, proportion, contrast, and orientation. Our experiments examined angularity, an old variable in the history of psychological aesthetics. Consistent with historical and contemporary research, we found strong

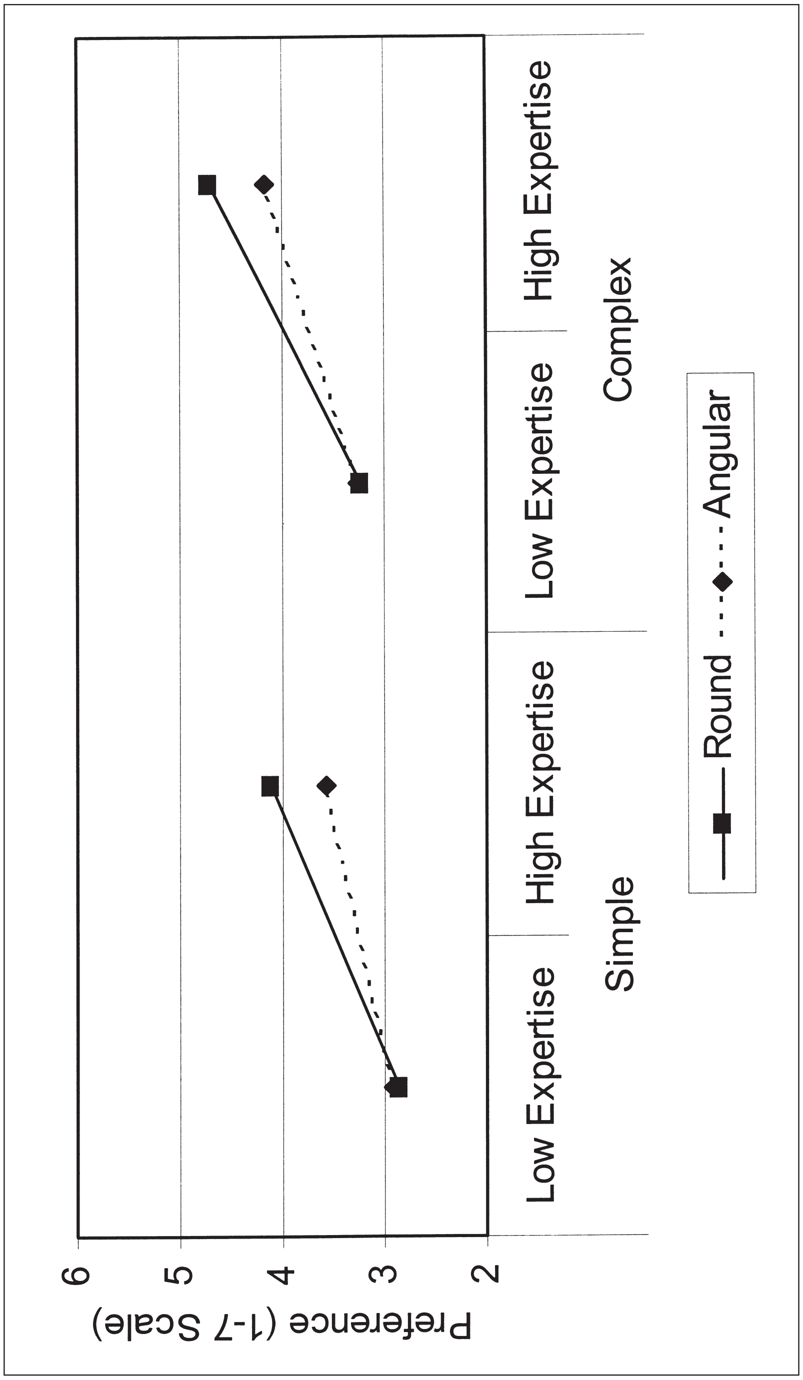


Figure 5. Estimated effects of expertise, angularit, and complexit on preference: Experiment 2.

support for an overall effect of angularity. Study 1 found a main effect of angularity on preference for arrays of circles and hexagons; this effect remained after controlling for the level of imbalance in the arrays. Study 2 found a main effect of angularity on preference for random polygons; the effect remained after controlling for appraisals of complexity. Both experiments attempted to control for symmetry and typicality, so the effect of angularity appears to be robust.

The role of expertise, however, was not straightforward. Expertise interacted with angularity in both experiments, but the form of the interaction differed. In the first experiment, an effect of angularity appeared only for novices; in the second experiment, an effect of angularity appeared only for experts. The diverging effects of expertise are dissatisfying aesthetically: the two experiments lack the "good form" of two interlocking, consistent studies. At the same time, the diverging effects are an open door for future research on how expertise interacts with low-level stimulus features. The stimuli from Experiments 1 and 2 differed in some key ways. Experiment 1 used arrays of symmetrical objects; on the whole, the arrays were relatively simple. Experiment 2 used asymmetrical, complex objects. Expertise was assessed differently as well. Study 1 measured expertise with self-reported training and interest in the arts; Study 2 measured expertise with self-reported knowledge about the fine arts and creative writing. Given the sample—university students—the range of expertise probably extended only to modest levels.

Differences in symmetry, complexity, object unity, or assessment may have caused the different results, but it isn't immediately clear why they would do so. Nevertheless, including these dimensions as factors in a large-scale experiment would be a natural next step. We also suspect that the interaction of expertise and angularity is a good candidate for verbal reports (Ericsson & Simon, 1980; Locher, 2006). Asking participants for open-ended descriptions of how they perceive, understand, and feel about the stimuli could illuminate the source of the differences between experts and novices. All told, there is some scientific comfort in knowing that angularity, one of the oldest variables in the psychological study of aesthetics (Gordon, 1909), remains vexing and intriguing.

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