

Knowledge-Based Assessment of Expertise in the Arts: Exploring Aesthetic Fluency

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Scientific interest in expertise in the arts is growing, but measures of expertise have largely been brief and informal. The present research examines Smith and Smith's (2006) Aesthetic fluency scale, which measures expertise by assessing domain knowledge in the arts. A latent variable study examined Aesthetic fluency in relation to fluid intelligence and the Big Five dimensions of personality. Openness to experience had a large effect, and all other effects were small. Aesthetic fluency appears to be associated with the artistic values and interests typical of people high in openness to experience.

Keywords: Aesthetic fluency, expertise, Aesthetics, openness to experience, assessment

Experts and novices perceive, evaluate, create, and experience art differently (e.g., Axelsson, 2007; Kozbelt & Seeley, 2007), and scientific interest in artistic expertise is growing (Locher, 2007). A straightforward way to study expertise is to recruit groups of novices and experts. For many questions, however, researchers need a continuous measure of expertise. In longitudinal research, for example, it is more typical to estimate growth on a continuum than to estimate transitions between categories. And in individual-differences research, researchers are usually interested in variation along a construct's full range, not just in a construct's extremes.

Continuous measures of expertise have typically been brief and blunt, such as simply asking people how much training they have had (e.g., Locher, Smith, & Smith, 2001; Silvia, 2006). A promising new method, however, measures expertise with a knowledge-based approach. Smith and Smith's (2006) Aesthetic fluency scale presents figures and terms from art history, and respondents indicate how much they know about each one. This scale has some nice features: it emphasizes what people know about art (vs. how much they like it or how good they are at it), and researchers can adapt the scale for other domains by adding items (Silvia & Barona, in press).

Given the youth of this approach, evidence for the scale's validity is preliminary but promising. In their study of museum visitors, Smith and Smith (2006) found that people who visited museums often and who had formal training in art had higher Aesthetic fluency scores. A natural next step is to consider major dimensions of personality and individual differences—what are

people high in Aesthetic fluency like? Locating Aesthetic fluency within a network of other variables, particularly variables that have been widely studied and are well understood, will refine the construct's meaning and expand the evidence for validity. The present research thus explores Aesthetic fluency in relation to fluid intelligence and the Big Five dimensions of personality.

Method

Participants

A sample of 226 university students (178 women, 48 men) participated as part of a research option; most (82%) were 18 or 19 years old. The data were collected as part of a broader psychometric study of creativity and cognition (see Silvia et al., in press, for more details).

Procedure

People completed several measures of individual differences. Aesthetic fluency was measured with Smith and Smith's (2006) Aesthetic fluency scale, which contains 10 items referring to people and ideas in art history (*Mary Cassatt, Isamu Noguchi, John Singer Sargent, Alessandro Boticelli, Gian Lorenzo Bernini, Fauvism, Egyptian Funerary Stelae, Impressionism, Chinese Scrolls, Abstract Expressionism*). To explore other domains, we added five literary terms (*Carl Sandburg, Language Poetry, The Black Mountain School, Beat Writing, Confessional Poetry*) and five terms from the decorative arts (*Alvar Aalto, Charles and Ray Eames, Tapio Wirkkala, Ludwig Mies van der Rohe, Frank Lloyd Wright*). People respond to each item on a 0–4 scale (0 = *I have never heard of this artist or term*; 1 = *I have heard of this but don't really know anything about it*; 2 = *I have a vague idea of what this is*; 3 = *I understand this artist or idea when it is discussed*; 4 = *I can talk intelligently about this artist or idea in art*). The original 10 items correlated highly with the literary items ($r = 0.52$) and with the decorative arts items ($r = 0.46$); the latter two correlated as well ($r = 0.42$).

The Big Five dimensions of personality—Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscien-

These data are from the Creativity and Cognition project, which was first described in Silvia et al. (in press). Chris Barona, Josh Cram, Karl Hess, Jenna Martinez, and Crystal Richard deserve thanks for their help with collecting data. Researchers interested in reanalyzing the data can download the data files (in SPSS and Mplus formats) from the author's Web page.

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Table 1
Descriptive Statistics for the Aesthetic Fluency Items

	M	Median	Mode	Minimum/Maximum	SD	α	1	2	3
1. Aesthetic fluency: Original items	0.753	0.60	0.40	0.00/3.60	0.58	0.83	1		
2. Aesthetic fluency: Literary arts	0.798	0.60	0.60	0.00/2.80	0.67	0.66	0.52	1	
3. Aesthetic fluency: Decorative arts	0.391	0.20	0.00	0.00/3.40	0.55	0.67	0.46	0.42	1

tiousness—were measured with three scales: the 60-item NEO Five Factor Inventory (Costa & McCrae, 1992), the 50-item International Personality Item Pool scale (Goldberg et al., 2006), and a 10-item brief scale (Gosling, Rentfrow, & Swann, 2003). Each scale used a 1 to 5 format. Fluid intelligence was measured with the Ravens progressive matrices; a Letter Sets task, which involved finding rules that distinguished groups of letters; and a Paper Folding task, which involved deciding how sheets of paper would appear if mentally unfolded.

We included two demographic predictors. The first was gender (scored 1 for men, 2 for women). The second was whether people's college major was related to the arts, which reflects a commitment to training in a creative field (see Silvia et al., in press). People with arts majors—the visual arts (e.g., fine arts, art history), performing arts (e.g., theater, music performance), or decorative arts (e.g., fashion design, interior architecture)—received 1 point; people with conventional majors (91% of the sample) received 0 points.

Results and Discussion

The Big Five factors, fluid intelligence, and Aesthetic fluency were modeled as latent variables. The three self-report scales were indicators for the Big Five factors, the three cognitive tasks were indicators for fluid intelligence, and the three Aesthetic fluency scores were indicators for Aesthetic fluency. Each latent factor's variance was fixed to 1. The analyses were conducted with Mplus 4.21 using full-information maximum-likelihood estimation. Table 1 presents descriptive statistics for the Aesthetic fluency items.

Aesthetic fluency was regressed on the Big Five factors, fluid intelligence, the creativity of people's college majors, and gender. The fit of the model was acceptable (RMSEA = 0.076, SRMR =

0.073, CFI = 0.88, $\chi^2/df = 2.32$, $\chi^2[196] = 454.79$); measurement models showed that the misfit stemmed from the Big Five scales. Table 2 depicts the paths from the predictors to Aesthetic fluency. The largest effect size—and the only large effect—belonged to openness to experience ($\beta = 0.553$). Several small effects (β s around 0.15) were found for extraversion, conscientiousness, and gender. Neuroticism, agreeableness, and fluid intelligence were essentially unrelated to Aesthetic fluency. The model explained 28.3% of the variance in Aesthetic fluency.

This study thus provides evidence for the validity of Smith and Smith's (2006) knowledge-based approach to measuring expertise in the arts. People high in Aesthetic fluency were not generally smarter; interestingly, they were also not more likely to have a college major related to the arts. Instead, the broad factor of openness to experience—a factor associated with Aesthetic interests, curiosity, unconventionality, and creativity (McCrae, 2007)—strongly predicted people's levels of Aesthetic fluency. This result adds to the emerging view of openness as a general factor in Aesthetics (McCrae, 2007) and in creativity (Silvia et al., in press), and it suggests that people's values and interests are central to Aesthetic fluency. A limitation, of course, is that this study was a cross-sectional analysis of young adults, most of whom were too young to be true experts in the arts. The growth of expertise over time remains a critical question for future research.

References

- Axelsson, Ö. (2007). Individual differences in preferences for photographs. *Psychology of Aesthetics, Creativity, and the Arts, 1*, 61–72.
- Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., et al. (2006). The international personality item pool and the future of public-domain personality assessment. *Journal of Research in Personality, 40*, 84–96.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*, 504–528.
- Kozbelt, A., & Seeley, W. P. (2007). Integrating art historical, psychological, and neuroscientific explanations of artists' advantages in drawing and perception. *Psychology of Aesthetics, Creativity, and the Arts, 1*, 80–90.
- Locher, P. J. (2007). Editorial: Twenty-five years of *Empirical Studies of the Arts*. *Empirical Studies of the Arts, 25*, 117–120.
- 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.

Table 2
Predictors of Aesthetic Fluency

	Standardized β	z Value
Openness to experience	0.553	4.49
Extraversion	−0.162	1.78
Neuroticism	−0.037	0.45
Agreeableness	0.107	1.15
Conscientiousness	−0.183	1.97
Fluid intelligence	0.025	0.25
Gender	0.153	1.79
Arts major	−0.026	0.34

Note. $n = 226$. All variables are latent variables, except for gender and creative college major.

- McCrae, R. R. (2007). Aesthetic chills as a universal marker of openness to experience. *Motivation and Emotion, 31*, 5–11.
- Silvia, P. J. (2006). Artistic training and interest in visual art: Applying the appraisal model of aesthetic emotions. *Empirical Studies of the Arts, 24*, 139–161.
- Silvia, P. J., & Barona, C. M. (in press). Do people prefer curved objects? Angularity, expertise, and aesthetic preference. *Empirical Studies of the Arts*.
- Silvia, P. J., Winterstein, B. P., Willse, J. T., Barona, C. M., Cram, J. T., Hess, K. I., et al. (in press). Assessing creativity with divergent thinking tasks: Exploring the reliability and validity of new subjective scoring methods. *Psychology of Aesthetics, Creativity, and the Arts*.
- 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.

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