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# Seeing the Mind Behind the Art: People Can Distinguish Abstract Expressionist Paintings From Highly Similar Paintings by Children, Chimps, Monkeys, and Elephants

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## Abstract

Museumgoers often scoff that costly abstract expressionist paintings could have been made by a child and have mistaken paintings by chimpanzees for professional art. To test whether people really conflate paintings by professionals with paintings by children and animals, we showed art and nonart students paired images, one by an abstract expressionist and one by a child or animal, and asked which they liked more and which they judged as better. The first set of pairs was presented without labels; the second set had labels (e.g., “artist,” “child”) that were either correct or reversed. Participants preferred professional paintings and judged them as better than the nonprofessional paintings even when the labels were reversed. Art students preferred professional works more often than did nonart students, but the two groups’ judgments did not differ. Participants in both groups were more likely to justify their selections of professional than of nonprofessional works in terms of artists’ intentions. The world of abstract art is more accessible than people realize.

## Keywords

visual art, aesthetic preference, aesthetic judgment, child

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How do people evaluate visual art that is entirely nonrepresentational? They have little difficulty judging skill in representational paintings, but evaluating skill in nonrepresentational art is far more subjective. Works by 20th-century abstract expressionists such as Jackson Pollock, Mark Rothko, and Cy Twombly have often been likened—sometimes pejoratively, sometimes positively—to children’s paintings (Fineberg, 1997). Although art critics assert that the “scribbles” of Twombly are distinct from those made by children (Bar-Lev, 2007), the superficial similarity between abstract expressionist works and markings by preschoolers has led to embarrassing confusions. The art market has been willing to spend large sums for preschoolers’ works—either because these works are seen as equal to professional works (Bar-Lev, 2007) or because they have been mistaken for professional paintings (Chittenden, 2007). In addition, paintings by chimpanzees have been mistaken for “great” art (Hussain, 1965). When asked to compare a random computer-generated design with a painting by Mondrian (the works were unlabeled), people preferred the computer-generated image; when asked to guess which image was by Mondrian, participants more often chose the computer image (Noll, 1966). Also, people found the same image more

aesthetically pleasing when it was labeled as being from a prestigious gallery than when it was labeled as having been generated by a computer (Kirk, Skov, Hulme, Christensen, & Zeki, 2009).

People do not confuse stories by children with literature by established writers. Nor do they confuse scientific reasoning by children with that of established scientists. Why, then, do people make such confusions when it comes to modern art? Either abstract art really is indistinguishable from the markings of the unskilled or these confusions are more apparent than real.

To test the veracity of the claim that abstract art by established artists is indistinguishable from random patterns made by untrained hands, we asked people with and without experience in visual art to respond to two questions about pairs of paintings. Abstract expressionist paintings were paired with superficially similar works by children and nonhumans (apes,

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monkeys, and elephants), and participants were asked which painting they preferred (preference question; a perceptually based response) and which was better (judgment question; a cognitively based evaluative response). We examined preference and judgment separately because information-processing and structural models of aesthetic appreciation differentiate between responses to art that are automatic and based on perception and those that are evaluative and based on cognition (Hagtvedt, Hagtvedt, & Patrick, 2008; Leder, Belke, Oeberst, & Augustin, 2004).

Participants saw the first series of pairs unlabeled; the remaining pairs were labeled either correctly or incorrectly as to who made each painting (artist, child, monkey, or elephant) so that we could determine whether attribution labels altered responses. Research has established that ratings of paintings are more positive when the paintings are accompanied by labels indicating the paintings were made by famous artists (Chittenden, 2007; Farnsworth & Misumi, 1931). These findings are consistent with social psychological studies showing that participants' willingness to believe a message is influenced by the messenger's prestige (Aronson & Golden, 1962; Gilovich, 1991; Haider-Markel & Joslyn, 2004; Harris, 2002; Harris & Koenig, 2007; Hovland, 1951; Hovland & Janis, 1959; Kaufman, Stasson, & Hart, 1999). We expected that labels would influence judgments more than they would influence preferences because judgments should be based on evaluations of perceived skill. On the basis of previous findings, we expected that correct labels would increase participants' choice of professional works in response to the judgment question. The key test was whether incorrect labels would reduce the frequency of choice of professional works. Would people choose the professional works as better than the nonprofessional works despite the incorrect labels? This result would provide evidence that the content of the artists' images led participants to evaluate them as better.

Finally, we investigated the bases of peoples' choices by asking them to explain their preferences and judgments. An artwork is a communication between the minds of the artist and the viewer (Donald, 2006), and even a nonrepresentational artwork reflects the process by which it was made. Although many people believe that abstract expressionism reflects no skill, art historians and artists would strongly object. Jackson Pollock's paintings were highly planned (Yung, 2006), and Hans Hoffman spoke of the thoughtful process involved in creating an artwork: "The ability to simplify means to eliminate the unnecessary so that the necessary may speak" (quoted in Hess, 2006, p. 13). When people respond to works of art, including nonrepresentational art, they cannot help but speculate about the artist's mind—what the artist planned and intended (Bloom, 2004; Donald, 2006; Freeman & Adi-Japha, 2008). Because the markings of children and nonhumans certainly have more random elements than the markings of mature artists, we reasoned that people should see more intention and planning in works by professional artists.

The study we report in this article tested the following hypotheses:

- In all conditions (no label, correct label, and incorrect label), both art students and nonart students should choose professional works at an above-chance level in response to both the judgment question and the preference question. We reasoned that even though people think that works by abstract expressionists are indistinguishable from those by children and nonhumans, in fact differences can be perceived, people see more than they think they see, and works by professionals are more highly valued.
- Professional works should be chosen more often in response to the judgment question than in response to the preference question because judgments of quality should be responsive to perceived skill, whereas preferences are more idiosyncratic.
- Compared with nonart students, art students should choose the professional works more often in response to both the judgment and the preference questions, because of art students' presumably greater experience analyzing images. They should also be more likely than nonart students to show consistency between preferences and judgments because their preferences should emerge from their analyses of the works.
- Labels should affect judgments more than preferences. Correct labels should increase the frequency of choosing professional works in response to the judgment question, but incorrect labels should fail to depress such choices.
- Mentalistic explanations should be more common when people justify choices of professional works than when they justify choices of nonprofessional works. Mentalistic explanations should also be more common for judgments than for preferences, and art students should provide more mentalistic explanations than nonart students, because art students should be better able to perceive the skill inherent in the images.

## Method

### Participants

The nonart students were 40 undergraduate psychology majors (11 males, 29 females; ages 18–23 years,  $M = 19.3$ ); the art students were 32 undergraduate studio-art majors (12 males, 20 females; ages 18–33 years,  $M = 20.3$ ). Groups were matched in gender,  $\chi^2(1, N = 72) = 0.818, p = .44$ . A one-way ANOVA revealed that the art students had an older mean age than the nonart students. This was because of the inclusion of 4 art students who were several years older than their peers (ages 23, 26, 26, and 33). However, excluding these participants did not alter the results, so their data were retained.

**Table 1.** List of Professional Artists Whose Works Were Used

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Karel Appel
Gillian Ayres
James Brooks
Elaine de Kooning
Sam Feinstein
Sam Francis
Helen Frankenthaler
Philip Guston
Hans Hoffman
Franz Kline
Morris Louis
Joan Mitchell
Kenzo Okada
Ralph Rosenborg
Mark Rothko
Charles Seliger
Theodoros Stamos
Clyfford Still
Mark Tobey
Cy Twombly

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### Materials and procedure

Thirty paintings by abstract expressionists whose works are represented in at least one major art-history textbook were selected (see Table 1). Each painting was paired with a similar work by a child or a nonhuman (monkey, gorilla, chimpanzee, or elephant). Most works by children came from online databases of preschool artworks (e.g., Artsonia LLC, 2009; The Natural Child Project, 2009); most works by nonhumans came from online databases of zoo galleries (e.g., Asian Elephant Art & Conservation Project, 2009; Jungle Friends Primate Sanctuary, 2009). In consultation with artists, we matched professional and nonprofessional paintings according to various attributes (color, line quality, brushstroke, and medium). The images that were paired had to share two or more of these attributes; the matching process was conducted holistically rather than according to a quantitative process. Paired images were presented side by side in PowerPoint on a laptop; as much as possible (without leading to distortion), the images were equated in size and resolution within and across pairs. Images were given black borders with no frame visible; signatures were removed using Adobe Photoshop. The left/right position of the images in each pair was randomly determined.

Ten pairs of paintings were presented without attribution labels, 10 were presented with correct labels (“artist,” “child,” “monkey,” or “elephant”), and 10 were presented with incorrect labels; one painting in each pair was always labeled (correctly or incorrectly) as having been made by an artist (see Fig. 1 for a sample pair). All participants first saw 10 pairs with no labels; the remaining 20 pairs with correct and incorrect labels were then presented randomly intermixed. Labeling condition was counterbalanced across pairs: Any given pair was seen



**Fig. 1.** Sample pair of paintings with no attribution labels. The left panel shows a painting by 4-year-old Jack Pezanosky (reprinted by permission of the parents of Jack Pezanosky). The right panel shows *Laburnum*, by artist Hans Hoffman (reprinted by permission of the Renate Hoffman and Maria Hoffman Trust and the Artists Rights Society). The full set of stimuli is available upon request to the first author.

without a label by one third of the participants, with correct labels by another third, and with incorrect labels by the final third. Participants completed the study individually. Following presentation of each pair, they were asked, “Which image do you like more? Why?” (preference) and “Which image do you think is the better work of art? Why?” (judgment).

Justifications for preference and judgment responses were provided by all participants, but only 36 participants (15 art students, 21 nonart students) were recorded when they provided their justifications, which were later transcribed. Responses were coded as “mentalistic” when the skill, thinking, or intentionality of the artist was referenced (e.g., “because the first one looks messy, like a little kid did it, and the second one looks more thought out and intentional” or “it seems less random, it actually seems like it is planned out, or less arbitrary”). Responses were coded as nonmentalistic if they referred to the content of the images without referencing the artist’s thinking (e.g., “because it has simple colors” or “because there is more to look at”). Justifications from 8 art students and 8 nonart students were coded by two coders, who achieved 92% reliability. Disagreements were resolved by consensus. The remaining 20 transcriptions were coded by one coder.

After each session, participants were asked if they had recognized any paintings. None responded affirmatively. We suggest that the images were not recognized because, although they were representative of each artist’s style, they were not the artists’ most famous paintings.

### Results

Table 2 summarizes the choices of the art students and nonart students in the three labeling conditions.

#### **Above-chance selection of professional works**

We first performed 12 one-sample *t* tests (by group and labeling condition for preferences and judgments separately). As predicted, in response to both questions and in all conditions, both groups chose the professional work significantly more

**Table 2.** Mean Percentage of Trials on Which Art and Nonart Students Chose the Professional Work in Response to the Preference and Judgment Questions in the Three Labeling Conditions

Group and question	Labeling condition		
	No label	Correct label	Incorrect label
Art students			
Preference	62.53 (16.16)	65.40 (15.59)	66.71 (15.21)
Judgment	67.53 (17.85)	65.51 (20.29)	68.33 (17.80)
Nonart students			
Preference	56.25 (16.89)	57.75 (16.86)	60.25 (14.93)
Judgment	65.50 (19.61)	79.25 (13.84)	62.50 (18.91)

Note: Standard deviations are given in parentheses.

often than would be predicted by chance (all  $ps < .004$ , Bonferroni corrected).

### Judgment versus preference

As predicted, preferences and judgments diverged. A paired-samples  $t$  test revealed that participants chose the professional works more often for judgments than for preferences,  $t(71) = -5.53, p < .001$ .

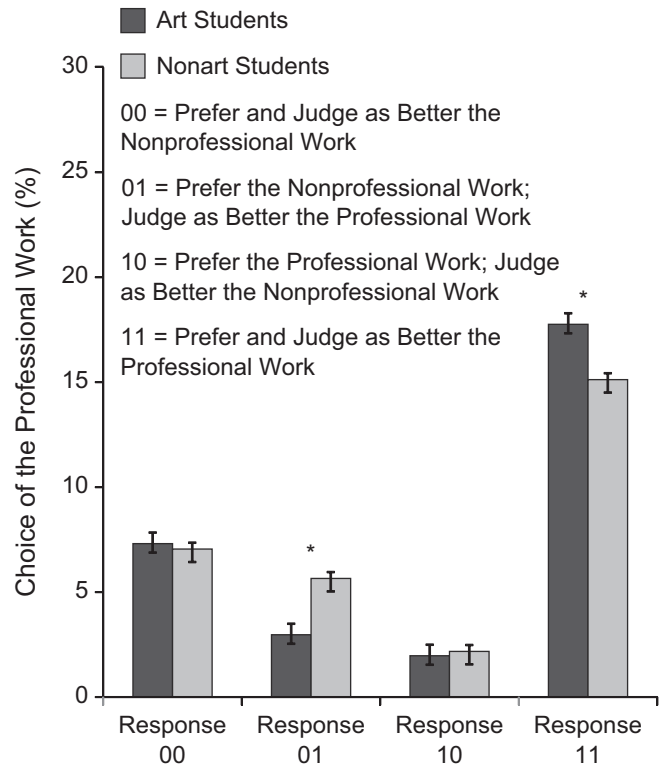
### Art students versus nonart students

Group  $\times$  Labeling Condition ANOVAs performed separately for preferences and judgments showed that, as predicted, art students preferred professional works more often than did nonart students,  $F(1, 70) = 8.94, MSE = 276.03, p < .004$ . However, the two groups' judgments did not differ,  $F(1, 70) = .09, MSE = 38.72, p = .755$ .

To examine participants' consistency in responding to the preference and judgment questions, we coded each participant's responses for each pair according to the following scheme: professional work judged better and preferred, nonprofessional work judged better and preferred, professional work judged better but not preferred, or nonprofessional work judged better but not preferred (see Fig. 2). A one-way multivariate analysis of variance with group as a factor and response pattern as the dependent variable showed that, as predicted, art students were more likely than nonart students to choose the professional works in response to both questions,  $F(1, 67) = 10.53, MSE = 116.61, p < .002$ . Nonart students were more likely than art students to prefer the works by children and nonhumans but judge the professional works as better,  $F(1, 67) = 13.80, MSE = 121.15, p < .001$ .

### Effect of labels

A Labeling Condition  $\times$  Group ANOVA for each question showed that, as predicted, there was a main effect of labeling

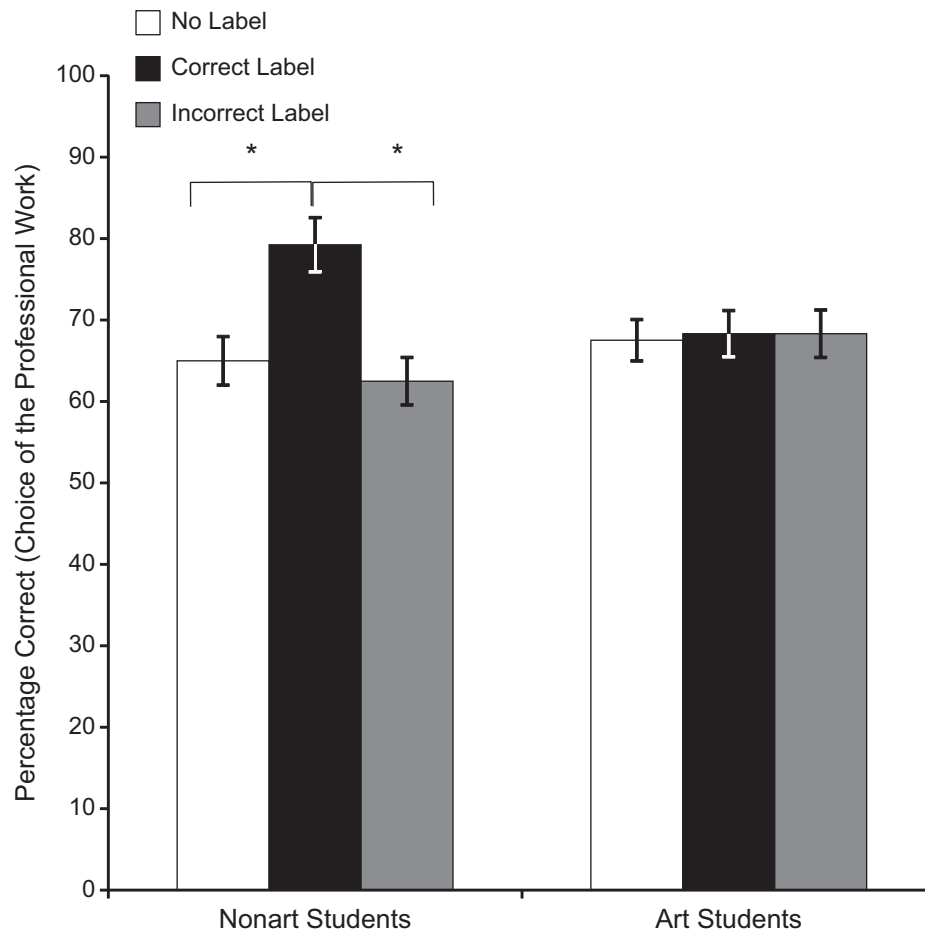


**Fig. 2.** Patterns of preference and judgment for the art students and nonart students. Asterisks indicate significant differences between these groups ( $p < .05$ ). Error bars represent standard errors of the mean.

condition on judgment,  $F(2, 140) = 5.39, MSE = 280.35, p = .006$ , but not on preference,  $F(2, 140) = 1.21, MSE = 245.92, p = .30$ . In addition, labeling condition interacted with group in the case of judgment,  $F(2, 140) = 4.99, MSE = 280.35, p < .008$ . Post hoc paired-samples  $t$  tests revealed that correct labels affected only nonart students, who judged professional works as better more often in the correct-label condition than in the no-label condition,  $t(39) = -4.48, p < .001$ , and in the incorrect-label condition,  $t(39) = -4.76, p < .001$  (see Fig. 3).

### Justifications

To justify their preferences, art students provided more mentalistic responses (for choices of professional and nonprofessional artworks combined) than did nonart students,  $F(1, 34) = 8.71, MSE = 234.65, p < .006$ . In contrast, for judgments, art and nonart students provided similar numbers of mentalistic justifications ( $p = .62$ ). Paired-samples  $t$  tests revealed that nonart students gave more mentalistic justifications for their judgments than for their preferences,  $t(20) = -7.57, p < .001$ , whereas art students provided equal numbers of mentalistic justifications for their answers to the two questions,  $t(14) = -1.79, p = .09$ . It is most notable that paired-samples  $t$  tests revealed that both groups gave more mentalistic justifications when they chose the professional works than when they chose the nonprofessional works. This pattern held for preferences—art students:



**Fig. 3.** Art students' and nonart students' percentages of judgment choices favoring the professional work in the three labeling conditions. Asterisks indicate significant differences between conditions ( $p < .05$ ). Error bars represent standard errors of the mean.

$t(14) = -4.98, p < .001$ ; nonart students:  $t(20) = -2.29, p < .03$ —and for judgments—art students:  $t(14) = -3.92, p < .002$ ; nonart students:  $t(20) = -3.85, p < .001$  (see Fig. 4).

## Discussion

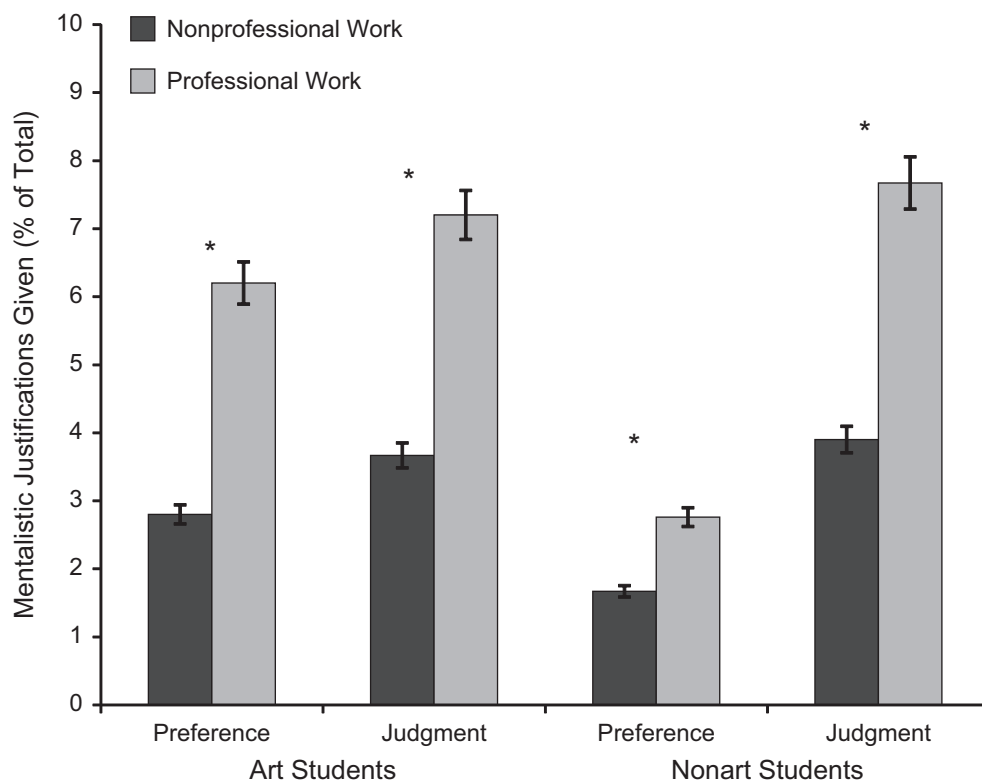
These findings challenge the common claim that abstract expressionist art is indistinguishable from (and no better than) art made by children. Despite the fact that participants did not select the artists' works 100% of the time, even adults untrained in the visual arts were able to distinguish abstract works by professional artists—who have been vetted by the gatekeepers of the field (museum curators and art-history textbook authors)—from strikingly (even shockingly) similar works made by untrained children and nonhuman animals.

Our findings are inconsistent with prior reports that people liked an image more when it was labeled as being from a prestigious gallery than when it was labeled as having been generated by a computer (Kirk et al., 2009) and with reports that people preferred a random design to a Mondrian painting

(Noll, 1966). Our findings are also inconsistent with reports of people misidentifying paintings by children (Chittenden, 2007) or apes (Hussain, 1965) as professional artworks. Perhaps presenting works in the paired manner we used is a more direct way of ascertaining whether people actually distinguish works by artists from those by children and nonhumans.

Our results support our hypothesis that, compared with preferences, judgments of quality should be more responsive to perceived signs of skill: Professional works were selected more often in response to the judgment question than in response to the preference question. The fact that preferences and judgments diverged shows that in the aesthetic domain, people can recognize that a work is good but still not like it and can like a work even if they judge it to be not very good.

Our prediction that individuals experienced in looking at art would be more likely than individuals without an art background to choose the professional works was upheld for preferences but not for judgments. Whereas art students showed a stronger preference than nonart students for the professional works, nonart students were just as able as art students to



**Fig. 4.** Percentage of mentalistic justifications provided by art students and nonart students following their choice of works by professionals versus nonprofessionals in response to the judgment and preference questions. Asterisks indicate significant differences between justifications for choosing the two kinds of work ( $p < .05$ ). Error bars represent standard errors of the mean.

recognize the professional works as better than the nonprofessional works.

The lack of effect of labels was striking. Incorrect labels failed to decrease either group's choice of the professional's work in response to either question (compared with choices in the no-label condition). These results provide compelling evidence for people's capacity to differentiate works by professional artists from those by children and nonhumans. The only effect of labels was that correct ones increased the frequency with which nonart students judged professional works as better than nonprofessional works. Labels had no effect on the preferences or judgments of art students, who may have been confident enough not to be influenced by provenance.

Analysis of the justifications revealed that when participants preferred the professional works and judged them as better, they did so because they saw more intention, planning, and skill in these works than in those by nonprofessionals. In short, they perceived more "mind" behind the artists' images.

Art students offered more mentalistic reasons for their preferences than did nonart students, but there was no difference between the groups in the frequency of mentalistic justifications for judgments. We suggest that when asked to evaluate a work of art, people think about the mind of the artist; when asked to think about what they like (preference), they think primarily about the end product rather than the process of creation.

People untrained in visual art see more than they realize when looking at abstract expressionist paintings. People may say that a child could have made a work by a recognized abstract expressionist, but when forced to choose between a work by a child and one by a master such as Rothko, they are drawn to the Rothko even when the work is falsely attributed to a child or nonhuman. People see the mind behind the art.

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The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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