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Personality and Judgements of Abstract, Pop Art, and Representational Paintings

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Abstract

This study was concerned with the question of which personality variables are most predictive of judgements of particular types of painting. One hundred and twenty-one participants rated 24 slides of abstract, pop art, and representational paintings. They then completed two questionnaires which measured sensation seeking (SS) and the 'Big Five' personality dimensions. Thrill and Adventure Seeking was positively correlated with a liking of representational art while Disinhibition was associated with positive ratings of abstract art and pop art. Neuroticism was positively correlated with positive ratings of abstract and pop art, while conscientiousness was linked to liking of representational art. Openness to Experience was linked to positive ratings of all three art types. Agreeableness was negatively linked to liking of pop art. It was also found that art education and frequency of visits to art galleries were linked to positive ratings of abstract paintings. Regressional analyses showed about a fifth of the variance could be accounted for by personality and demographic variables. Personality variables were most strongly linked to positive judgements of representational art and least related to ratings of pop art. Overall the sensation seeking variables accounted for more of the variance than the big five dimensions. Copyright © 2001 John Wiley & Sons, Ltd.

INTRODUTION

Could a person's choice of fine art be a useful unobtrusive measure of personality? Which personality traits are most clearly related to art ratings and why? Does personality account for more of the variance in art rating than art education or interest in art measured by visits to galleries and museums? Aesthetic preference and rating studies have investigated many different types of preference, such as for music, photography, sculpture, and paintings (Rawlings and Ciancarelli, 1997; Rawlings, Twomey, Burns and Morris, 1998; Zuckerman, Ulrich and McLaughlin, 1993). Nearly 40 years ago Valentine (1962) published a lengthy book entitled *The Experimental Psychology of Beauty*, though there is an extensive literature pre-dating this book. The current study examines personality, demographic, and

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art experience correlates of positive ratings of paintings, namely those of abstract, pop art, and representational styles.

Burt (1933) carried out one of the first studies of aesthetic preference when he asked his subjects to rank a series of picture postcards in order of preference. A group of experts had previously evaluated the postcards; the correlations between the ratings were factor analysed, and this indicated that there was a general factor of aesthetic judgement which applied to all the subjects and secondly, bipolar factors for different types of artistic preference which seemed to concern individual differences in personality. Eysenck (1940) went on to extract two factors from the intercorrelation between preferences. He referred to these as the 'T' factor – a general factor of 'good taste' – and the 'K' factor – a bipolar factor which separated positive ratings of modern, colourful, and impressionistic art from positive ratings of traditional, representational art. It was indicated that the 'K' factor might be linked to other types of personality variable, such as extraversion, conservatism, age, colour preference/form preference, and positive ratings of bright or subdued colours.

The first extensive study to examine the relationships between cognitive/preference variables and aesthetic judgements was carried out by Child (1965). His male subjects assessed 120 pairs of pictures, which had been chosen so that each pair were matched for type and subject matter but were different in terms of aesthetic value. He found that several variables were positively correlated with aesthetic judgement: tolerance of complexity; intuition rather than sensation; perception rather than judgement; anxiety; verbal aptitude; and visual preferences for subdued colours, abstract designs, and Baroque over Classical art.

In the last 25 years, the most extensively investigated area has been positive ratings of abstract and modern art compared with traditional, representational art. Liking of abstract art has been associated with personality characteristics which include conservatism (negative) (Wilson, Ausman and Matthews, 1973; Wilson and Patterson, 1969); field dependence (negative) (Tobacyck, Bailey and Myers, 1979; Tobacyck, Myers and Bailey, 1981); aesthetic value as opposed to religious value (positive) (Knapp and Wulff, 1963); and sensation seeking (positive) (Tobacyck *et al.*, 1981; Furnham and Bunyan, 1988). Other studies have related personality and the pictorial and emotional content of paintings – such as tension in paintings (Zuckerman, Ulrich and McLaughlin, 1993), and aggressive content (Tobacyck *et al.*, 1981).

Few studies have however looked at the aesthetic preference and rating and the 'big five' personality dimensions. Furnham and Avison (1997) examined the association between positive ratings of surreal art and personality variables such as tolerance of ambiguity, sensation seeking and the 'big five' measures of personality (Costa and McCrae, 1985, 1989, 1992). They found that sensation seekers were more likely to prefer surreal art over traditional, representational art. Agreeableness and Openness correlated with positive ratings of representational art whilst extraversion correlated with positive rating of surreal art.

The current study follows the methodology of the Furnham and Avison (1997) study, but, instead of surreal art, abstract art and pop art were compared with representational pictures in terms of the links with specific traits. Some research has looked at ratings of abstract art (Knapp and Wulff, 1963), but it seems that no work has been done on positive ratings of pop art. Pop art was a movement that emerged at the end of the 1950s as a reaction against the seriousness of abstract impressionism. Pop artists used the imagery of comic strips, soup cans, Coca Cola bottles, and other common images to express abstract formal relationships. Artists such as Roy Lichtenstein and Andy Warhol attempted to fuse elements of popular and high culture and to erase the boundaries between the two. It is an

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art form that appears to have powerful and memorable images and can attract both considerable praise and derision and is therefore possibly more closely linked to personality traits. Pop art can be both purely abstract or representational. In some senses it represents an intermediate position between the two though it does have a quite distinctive and recognizable style.

Ratings of for pop art, abstract art, and traditional, representational art were considered here in relation to personality assessments made using two personality measures. These were the 'Sensation Seeking Scale (SSS) Form VI' (Zuckerman, unpublished manuscript; Zuckerman, 1984), and Costa and McCrae's (1988) NEO Five Factor Inventory – this assesses the 'big five' personality dimensions of neuroticism, extraversion, openness-to-experience, agreeableness, and conscientiousness.

Sensation seeking

The personality construct of sensation seeking has been developed by Zuckerman (1984). It can be defined as the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience. The SSS VI consists of items drawn from previous versions of the SSS, and is in two parts. The first concerns activities that the respondents have already experienced, and the second concerns the activities that the subject intends to do in the future. The items are essentially the same in the two parts, but the responses are different. The scale is divided into two subscales: Thrill and Adventure Seeking (TAS) and Disinhibition (Dis) – this differs from previous versions, which in addition contained Experience Seeking (ES) and Boredom Susceptibility (BS). The items on the TAS scale 'express a desire to engage in sports or other physically risky activities that provide unusual sensations of speed or defiance of gravity, such as parachuting, scuba diving or skiing' (Zuckerman, 1994, p. 31). At first glance it may be strange that a scale that measures preference for physical activity may be related to art preference yet previous studies have shown this to be the case (Rawlings, Vidal and Furnham, 2000). It seems that high TAS scorers seek excitement in any activity they are involved in, even looking at paintings which would probably not be their first choice activity. The items on the Dis scale 'describe seeking sensation through social activities like parties, social drinking, and sex. An attitude item describing the factor is: 'I like to have new and exciting experiences even if they are a little unconventional or illegal'' (Zuckerman, 1994, p. 32).

Associations between sensation seeking and preferences in art and other imagery have been found by several studies (Zuckerman, Bone, Neary, Mangelsdorf, and Brustman, 1972; Zuckerman and Neeb, 1980). Zuckerman, *et al.* (1993) used the SSS V to examine the relationship between personality and preferences for styles and paintings. High general sensation seekers liked expressionist paintings more than low and high experience seekers liked semi-abstract paintings more than lows. High sensation seekers thus seem to prefer complex, asymmetrical designs, which were suggestive of movement, while low sensation seekers prefer simple, symmetrical designs (Zuckerman, Neary and Brustman, 1970). SS was also associated with positive ratings of abstract, futurist, cubist paintings by Boccioni, and abstract impressionistic paintings by Pollock; a positive correlation was also found between SS and positive ratings of representational paintings depicting aggressive scenes (Tobacyck *et al.*, 1981). Furnham and Bunyan (1988) found a negative correlation between total SS scores (as assessed by SSS Form V) and liking for complex representational paintings and a positive correlation between total SS scores and liking for complex

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abstract pictures. The style of the pictures was found to be more strongly related to SS scores than the complexity of the images. Furnham and Avison (1997) found that total SS scores were positively related to positive ratings of ten surreal paintings, and negatively correlated with positive ratings of ten representational paintings. TAS scores were not significantly correlated with positive ratings of either art genre; however, Dis scores were significantly correlated with positive ratings of surreal art, but not necessarily with disliking of representational paintings.

Overall, previous research indicates a positive correlation between positive ratings of abstract art and SS scores. Consequently, it was predicted that such a correlation would be found in this study. However, because TAS had previously been less highly correlated with aesthetic preference, it was predicted that the correlations involving this subscale would be weaker than for the Dis subscale but still significant. Since it was believed that pop art was closer in overall style to abstract and surreal art than to traditional, representational art, it was predicted that SS scores and positive ratings of pop art would be positively correlated. It was also predicted that SS scores would be negatively related to positive ratings of representational art as has been established in various other studies.

The 'Big Five' dimensions of personality

These factors measure the traits of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (McCrae and Costa, 1992; Costa and McCrae, 1985, 1989, 1992) though there remains a lively debate about this factor structure and the naming of the factors. In the current study, the big five were measured by the NEO Five Factor Inventory (NEO-FFI), Form S (Costa and McCrae, 1988).

Few studies have used the NEO Inventory, but other measures of similar traits particularly extraversion but also neuroticism. For example, Knapp and Wulff (1963) carried out a study in art preference in which they suggest a relationship between abstract painting and general neuroticism, although significant data were not obtained. Furnham and Avison (1997) found no relation whatsoever between neuroticism and artistic preference. Consequently, it was felt that there was no basis for making any predictions regarding neuroticism in this current study.

Extraversion concerns the preferred levels of quality and intensity for interpersonal interactions, and activity and stimulation. Burt (1939) found that stable extraverts liked realistic pictures, unstable extraverts tended to prefer romantic art, stable introverts classical art, and unstable introverts preferred impressionistic styles. Eysenck (1941) went on to suggest that the previously mentioned bipolar factor dividing preferences for traditional and modern paintings was correlated with extraversion. Cardinet (1958), however, found that introverts preferred modern, abstract paintings. Robertoux, Carlier and Chaguiboff (1971) failed to find such a relationship. However, Furnham and Avison (1997) did find a correlation between extraversion and positive ratings of surreal paintings. Consequently, it was predicted that extraversion would be positively associated with a positive ratings of abstract and pop art paintings.

Like the other NEO-PI-R factors, Openness includes six sub-scales or facets. 'Aesthetics', presumed to measure an individual's sensitivity to, and interest in, art and beauty, is arguably the strongest of the Openness facets in factor analytic studies of the NEO-PI-R (e.g. Costa and McCrae, 1992; Zuckerman *et al.*, 1993), and has been found to correlate strongly with 'artistic' interests in Holland's (1985) vocational interest model (DeFruyt and Mervielde, 1997). Openness is associated with liking for polygons, self-rated as

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both 'complex' and 'meaningful' (Rawlings *et al.*, 1998), and with liking for 'sophisticated' forms of music such as jazz and classical music and dislike of 'soft popular' music styles (Dollinger, 1993; Rawlings and Ciancarelli, 1997; Rawlings *et al.*, 1998).

Openness to experience involves the active seeking and appreciation of varied experiences for their own sake. Individuals who score highly on this factor are more curious, imaginative, and open-minded to new and unconventional constructs. Openness is similar to the SS subscale of Experience Seeking (McCrae, 1987). It was predicted that openness would be positively correlated with positive ratings of abstract and pop art paintings.

Agreeableness concerns interpersonal interactions; individuals who are more agreeable are more likely to be good-natured, helpful, forgiving, and altruistic; on the other end of the scale, less agreeable people are cynical, irritable, rude, uncooperative, and vengeful. Furnham and Avison (1997) found that agreeableness was significantly positively correlated with positive ratings of representational pictures. It was therefore predicted that agreeableness would be related positively to liking of representational pictures. No prediction was made about a relationship between agreeableness and positive ratings of abstract or pop art paintings.

Conscientiousness involves the degree or organization, control, motivation, etc in goal-directed behaviour. No significant correlation involving conscientiousness was found by Furnham and Avison (1997), and no predictions about it were made in the current study.

As well as personality variables it is inevitable that art (especially painting) education and interest may play an important factor in aesthetic preference. Indeed this may account for much more of the variance than personality traits.

A number of questions were asked about the participants' age, sex, level of art education, and the frequency of visits to art galleries. It was predicted that the latter two variables would be positively associated with references to abstract art and negatively correlated with positive ratings of representational art. However it was predicted that personality variables would account for at least five per cent of the variance once the demographic and art education variables were accounted for.

METHOD

Participants

A total of 121 participants took part in the study. 45 were male and 76 were female. Age ranged from 16 to 58, and the mean was 19.60 years (SD = 5.93). They all participated voluntarily and were not paid.

Materials

Twenty-four slides of paintings were used as stimulus materials. These were divided into three groups: eight slides were representational, realistic images; eight were of the pop art genre; and eight were abstract – these generally had geometric lines and patterns – they did not directly respond to visual reality, and were generally ambiguous. The division of the paintings into these groups was independently and correctly classified by four semi-expert judges knowledgeable about art. Whilst all four judges could correctly classify all paintings it is possible that with these sorts of stimulus there is the possibility of confounds with painting type and theoretically unrelated variables such as use of colour, emotional tone etc. The issue of comparability of stimuli across categories is problematic for all

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studies of this kind using 'real' paintings. The paintings were each randomly assigned a letter from A to X, and they were presented in this fixed order across all sessions. The paintings used and the order of presentation are listed in the Appendix. The slides were presented using a slide projector onto a standard white background.

Each subject was given a booklet comprising the following sections.

(1) *A general information section*. This contained questions about the subjects' sex, age, occupation, and home location. There was then three questions relating to the subjects' experience of art. Firstly, they were asked how much they had studied fine art. Possible responses were: not at all; at GCSE (O-level) (10th Grade); at A-level (12th Grade); foundation or degree level. The next question asked how much they had studied history of art. Possible responses were: not at all; at GCSE (O-level); at A-level; degree level. Finally, the subjects were asked how often they visited art galleries. Possible responses were: never, 1–2 times a year; once a month; once a fortnight; once a week.

(2) *Rating scales for the paintings*. For each of the 24 paintings A to T, an 11 point Likert-type scale was provided for the subjects to indicate their personal preferences. The values ranged from 0 ('dislike extremely') to 10 ('like extremely').

(3) *Sensation Seeking Scale Form VI (Zuckerman, 1984; Zukerman, unpublished manuscript)*. The questionnaire used was slightly modified from that described by Zuckerman, in that only the Intentions section was used; there is normally an Experience section as well. It should be noted that correlations between experience and intention, as measured by the SSS, are high ($r = 0.70$–0.88 for Disinhibition; $r = 0.44$–0.58 for Thrill and Adventure Seeking; Zuckerman, 1994, p. 39). The questionnaire consists of 64 items, all of which describe activities and interests. The response format was a three-point scale; the choices were (A) I have no desire to do this, (B) I have thought of doing this, but probably will not do it; and (C) I have thought of doing this and will do it if I have the chance. The choices are weighted from 1 to 3 in scoring the items. The items are divided into two subscales of the sensation-seeking construct: I-TAS and I-Dis. The former refers to Thrill and Adventure Seeking (22 items), and the latter to Disinhibition (42 items). I-TAS can therefore range from 22 to 66, and I-Dis from 42 to 126. Zuckerman (1994, p. 39) reports a retest reliability over 7 weeks of 0.87 for the I-Dis, and 0.84 for the I-TAS scale. Internal (alpha) reliabilities for the scales range from 0.83 to 0.94. Although Zuckerman (1994) refers to a total SSS score, this was not used because of the omission of the Experience (E-TAS and E-Dis) parts of the SSS.

(4) *NEO Five-Factor Inventory (FFI) Form S (Costa and McCrae, 1989)*. The NEO FFI measures the 'big five' factors of personality: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. This scale is a widely used measure with acceptable reliability and concurrent and construct validity. It contains 60 self-descriptive statements – 12 for each factor. Responses are made on a five-point Likert type scale, ranging from 'strongly agree' to 'strongly disagree'. Item responses are scored from zero to four according to the direction in which the item is phrased. The scores for the 12 corresponding items are added to give the total for each of the five factors, which all have a maximum of 48.

Procedure

The participants took part in the experiment in several group sessions. They were instructed to make their responses in the answer booklet privately and without conferring.

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In this way, the possible influence of the group setting on subjects' responses was minimized. Emphasis was placed on the anonymity and confidentiality of the responses. The 24 slides were presented in a randomized but fixed order. Each was presented for approximately 30 seconds; while a slide was on display, all other sources of light in the room were turned off. After the exposure time, the lights were turned back on so the subjects could respond in the answer booklet. After the presentation of all of the slides, the subject were asked to complete the two personality questionnaires in the answer booklet. The slides were shown before the administration of the questionnaires as it was felt that the painting evaluations would be less likely to influence the personality scores than vice versa.

RESULTS

Factor analysis

Factor analysis with varimax rotation was carried out for the ratings of the 24 paintings. Both exploratory and confirmatory analyses were performed. In consideration of the three *a priori* categories, a three-factor confirmatory solution was attempted. This accounted for 53.0% of the variance. The loadings of the paintings onto each factor are shown in Table 1. Following the advice of Everett (1983) to check factor comparability the entire sample was split into two samples and a varimax rotated factor analysis done on both. Both revealed a

Table 1. Factor loadings of the painting preference ratings for three-factor varimax solution

		1	2	3
A	Albers	**0.81**	0.03	0.07
A	Rothko: Black/Maroon	**0.78**	0.02	−0.10
P	Warhol: Self Portrait	**0.75**	0.02	0.24
A	Rothko: Untitled	**0.75**	0.04	0.07
A	Newman: Adam	**0.68**	0.09	0.17
A	Kelly: Broadway	**0.67**	0.03	0.18
A	Moholy-Nagy	**0.64**	−0.17	0.29
A	Mondrian	**0.64**	−0.013	0.25
P	Donaldson: Take Five	**0.53**	0.12	0.49
A	Davis: Firecracker	**0.40**	0.02	0.37
R	Van Dyck: Charles	−0.18	**0.83**	0.04
R	Hogarth: Marriage	0.02	**0.80**	0.21
R	David: Deposition	0.03	**0.79**	0.00
R	Reni: Lot	0.00	**0.78**	0.26
R	Van Ruisdaal: Landscape	−0.24	**0.70**	−0.18
R	Daubigny: St Paul's	0.01	**0.67**	0.03
R	Turner: Temeraire	0.21	**0.66**	−0.33
R	Constable: Weymouth	0.01	**0.63**	−0.11
P	Hockney: Parents	0.18	0.03	**0.70**
P	Hamilton: Interior2	0.44	−0.10	**0.64**
P	Blake: Toyshop	0.29	−0.01	**0.64**
P	Caulfield: Pottery	0.27	−0.19	**0.58**
P	Tilson: Taste	0.00	−0.13	**0.55**
P	Lichtenstein: Interior	−0.107	−0.11	**0.52**
	Eigenvalue	6.38	4.35	2.19
	Variance	26.6%	18.38%	9.1%

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clear three factor structure. In the first analysis the factors accounted for 51.5 per cent of the variance whereas in the second it was 57.6 per cent of the variance. The factor scores were highly comparable and the coefficient of congruence was over $r = 0.95$ for two solutions. This is a good indicator of the stability of this factor solution albeit that it was based on a very modest *N* of 121.

Factor 1 had ten paintings loading onto it with magnitudes greater than 0.30, and accounted for 26.43 per cent of the variance in preference. These included all of the abstract paintings, and two of the pop art paintings. Of these, two loaded more highly onto factor 3. It seems that factor 1 represented paintings with abstract or non-traditional style.

Factor 2 comprised a total of eight paintings with loadings greater than 0.30, and accounted for 16.12 per cent of variance. These were all representational pictures. It appears that factor 2 represents paintings with a traditional, representational style.

Factor 3 had six paintings loaded onto it, and accounted for 9.14 per cent of the variance. All were pop art paintings.

Thus apart from the fact that two pop art paintings loaded onto the abstract art factor the empirical factor analytic classification of the 24 paintings was very similar to the *a priori* classification.

Correlational analysis

Table 2 shows the means and standard deviations for the painting ratings. The most popular painting, picture K (Patrick Caulfield: Pottery), scored 5.75 (SD = 2.57). The least popular, picture W (Gerard David: The deposition) scored 3.06 (SD = 2.35). It can be seen that although the pictures varied in their popularity, the difference between the most and least popular pictures was less than three points; the means do not vary greatly. All of the paintings were rated as 0 at least once, and they all had at least one score of 9 or 10. Positive and negative affect have been demonstrated to be somewhat unrelated. If 5 is the mid-point it seems that as many 14 of the 24 slides were rated on the dislike side of the continuum. It may be useful in future research to have separate unipolar scales for capturing positive and negative responses.

Alpha-reliability coefficients were calculated for the four categories of paintings, in order to assess the validity of this *a priori* classification: abstract, alpha = 0.86; pop art, alpha = 0.80; representational, alpha = 0.70. This indicates that people who liked a painting in one category (i.e. abstract art) tended to like other examples within that category.

To discover if there was a relationship between personality variables and positive ratings of the different painting types, the ratings of each subject for each picture type were added to give three totals. This produced three new variables for each subject: SUMABS, SUMPOP, SUMREP. These values were correlated using Pearson's *r* with the personality scores. The results are shown in Table 3.

I-TAS scores were significantly correlated with SUMREP ($r = 0.21$, $p < 0.05$), SUMABS ($r = 0.26$, $p < 0.01$) and SUMPOP ($r = 0.25$, $p < 0.01$), indicating that individuals who seek sensation through physical activities show positive ratings of representational, abstract, and pop art paintings. I-Dis scores, however, were significantly correlated with SUMABS ($r = 0.35$, $p < 0.01$) and with SUMPOP ($r = 0.29$, $p < 0.01$), indicating that more disinhibited subjects preferred the abstract and pop art pictures.

Neuroticism was found to be correlated with SUMABS ($r = 0.25$, $p < 0.05$) and with SUMPOP ($r = 0.22$, $p < 0.05$) . This suggests that more neurotic individuals are more

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Table 2. Means and SDs of ratings of paintings

Category	Artist and painting	Letter	Mean	SD
Abstract	Barnett Newman: Adam	A	3.96	2.29
	Gene Davis: Quiet Firecracker	C	5.03	2.60
	Ellsworth Kelly: Broadway	L	3.22	2.69
	Mark Rothko: Black on maroon	O	3.78	2.56
	Mark Rothko: Untitled	P	4.26	2.59
	Laszio Moholy-Nagy: K VII	R	5.09	2.77
	Josef Albers: Study for homage to the square: departing in yellow	V	4.26	2.63
	Piet Mondrian: Composition with red, yellow and blue	X	5.65	2.81
Pop art	Roy Lichtenstein: Interior with waterlilies	B	4.90	2.34
	Joe Tilson: Transparency, the five senses. Taste	E	5.13	2.65
	Patrick Caulfield: Pottery	K	5.75	2.57
	Anthony Donaldson: Take five	M	3.63	2.57
	Richard Hamilton: Interior II	Q	4.60	2.57
	David Hockney: My parents	S	5.34	2.96
	Peter Blake: The toy shop	T	4.86	2.50
	Andy Warhol: Self-portrait	U	5.33	2.67
Represent-ational	Charles-Francois Daubigny: St Paul's from the Surrey side	D	5.02	2.61
	Guido Reni: Lot and his daughters leaving Sodom	F	4.63	2.69
	John Constable: Weymouth Bay	G	4.50	2.48
	Anthony van Dyck: Charles I on horseback	H	3.50	2.30
	Joseph MW Turner: The fighting temeraire	I	5.21	2.63
	Jacob van Ruisdaal: A landscape with a ruined castle and a church	J	5.57	2.24
	Gerard David: The deposition	N	3.06	2.35
	William Hogarth: Mariage a-la-mode: the lady's death	W	3.17	2.47

likely to like abstract art and pop art. There was a negative correlation between neuroticism and SUMREP, but this correlation is not significant ($r = -0.14$, $p = 0.15$).

There was a significant correlation between openness to experience and SUMABS ($r = 0.30$, $p < 0.01$), SUMPOP ($r = 0.27$, $p < 0.01$) and SUMREP ($r = 0.26, p < 0.01$). This indicated that individuals who are more open to new experience are more likely to

Table 3. Correlations between personality variables and painting preference totals

Personality variables	Painting categories		
	Abstract	Pop art	Representational
I-TAS	0.26**	0.25**	0.21*
I-Dis	0.35**	0.29**	0.01
Neuroticism	0.25*	0.28*	−0.14
Extraversion	0.04	0.05	−0.16
Openness	0.30**	0.27**	0.26**
Conscientiousness	−0.03	−0.10	0.23*
Agreeableness	−0.14	−0.21*	0.12

*$p < 0.05$; **$p < 0.01$.

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Table 4. Relationships between general questions and picture rating scores.

Demographic variables	Painting categories		
	Abstract	Pop art	Representational
Age	−0.11	−0.09	0.26**
Sex	0.21*	0.10	−0.16
Occupation	−0.12	−0.02	0.11
Home location	−0.09	0.01	−0.24**
Art level studied	0.22*	0.16	−0.11
History of art level studied	0.19*	0.07	0.13
Frequency of visits to art galleries	0.29**	0.19*	0.14

*$p < 0.05$; **$p < 0.01$.

like all three types of art. Extraversion was not found to be related to positive ratings of any particular category of art.

Agreeableness had a moderate non-significant negative correlation with SUMABS ($r = -0.14$, $p = 0.15$). It was not significantly correlated with SUMREP. There was, however, a significant negative correlation between agreeableness and SUMPOP ($r = -0.21$, $p < 0.05$). This indicates that less agreeable people are more likely to prefer pop art.

Conscientiousness was associated with SUMREP ($r = 0.23$, $p < 0.05$); this indicates that more conscientious individuals were more likely to prefer the representational pictures. However, this personality variable was not at all associated with ratings for the two other art types, so conscientious individuals are not more likely to dislike abstract or pop art.

Several demographic variables were correlated with the preference ratings for the three different types of paintings. The results are shown in Table 4.

There was a significant correlation between age and SUMREP ($r = 0.26$, $p < 0.01$). It appears that older people are more likely to like representational paintings. Age was not related to positive ratings of the other picture types. Females were more likely to prefer abstract paintings ($r = 0.21$, $p < 0.05$), but sex was not linked to positive ratings of either of the other art types. Occupation, which distinguished between students and non-students only, was not correlated with art preference. Home location, which only distinguished between London and outside London, was negatively correlated with positive ratings of representational paintings ($r = -0.24$, $p < 0.01$). This indicates that people living outside London were less likely to prefer representational paintings.

It was found that the level of art studied was positively correlated with a positive ratings of abstract art ($r = 0.22$, $p < 0.05$), as was the level of history of art studied ($r = 0.19$, $p < 0.05$). This indicates that subjects who had studied art more extensively were more likely to prefer abstract art.

There was also a significant correlation between frequency of visits to art galleries and SUMABS ($r = 0.29$, $p < 0.01$), and SUMPOP ($r = 0.19$, $p < 0.05$). This indicates that those who patronize art galleries more frequently like abstract art and pop art more than others.

Of the three *a priori* categories of painting, the abstract category was correlated with more personality and demographic variables (significant correlations with I-Dis, I-TAS, Neuroticism, Openness, art level studied, history of art level studied, frequency of visits to art galleries, and sex) than the pop art category (significant correlations with I-Dis, I-TAS, Agreeableness, Neuroticism, Openess, and frequency of gallery visits). Representational

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art was significantly correlated with slightly fewer variables (I-TAS, Conscientiousness, Openess, and Age. This indicates that abstract paintings may be more effective at eliciting a preference rating in a particular direction.

Multiple regression

In order to examine which personality and demographic factors best predicted preference various multiple regressions were performed: the step-wise forward-entry method was carried out for each painting type. First the seven personality variables were regressed onto each of the three painting type factor scores. The regression of these onto the *abstract* painting scores was significant ($F(5,101) = 3.68$, $p < 0.01$). Three variables were significant: I-Dis (beta = 0.34, $t = 3.01$, $p < -0.01$); N (beta = 0.22, $t = 2.37$, $p < 0.05$) and O (beta = 0.24, $t = 2.26$, $p < 0.05$). The regression of the seven personality variables onto the *representational* score was significant ($F(5,106) = 4.61$, $p < 0.01$). I-TAS was a significant predictor (beta = 0.22, $t = 2.65$, $p < 0.01$) as was O (beta = 0.19, $t = 1.97$, $p < 0.05$). The regression onto the *pop art* score was not significant.

Next the dependent variable was the summed painting-type score while the independent variable was the seven personality variables (see Table 1) *and* the seven demographic variables (see Table 2). None of the variables predicted positive ratings of *pop art*. The regression onto the *abstract art* score was significant ($F(11,115) = 3.43$, $p < 0.01$). Neuroticism was a significant predictor of positive ratings of abstract art (beta = 0.26, $t = 2.71$). The adjusted r^2 value indicates that neuroticism accounted for 18.8 per cent of the variance in predicting positive ratings of these paintings. The regression onto the representational art score was also significant ($F(11,114) = 4.07$, $p < 0.001$). Several variables were predictors of positive ratings of representational art, namely Extraversion (beta = -0.24, $t = -2.54$), I-TAS (beta = 0.31, $t = 3.16$), art level studied (beta = -0.32, $t = -3.00$), and history of art level studied (beta = 0.27, $t = 2.55$) (adjusted $r^2 = 0.23$).

Because the factor analysis did not confirm the factor structure perfectly the regressions were re-run using actual factor scores (rather than summed scores) as the dependent variable. When all variables were entered into the regression onto the abstract art score it proved significant ($F(12,111) = 3.65$, $p < 0.001$; adj. $r^2 = 0.23$). Two of the beta scores were significant: sex (beta = 0.21, $t = 2.32$, $p < 0.05$) and I-DIS (beta = 0.32, $t = 2.72$, $p < 0.01$). The regressions of all variables onto the representational art factor score was also significant ($F(12,111) = 6.41$, $p < 0.01$, adj. $r^2 = 0.37$). Five of the beta scores were significant: sex (beta = -0.21, $t = 2.52$, $p < 0.01$) age (beta = 0.37, $t = 3.75$, $p < 0.01$), art level studies (beta = -0.35, $t = 3.57$, $p < 0.001$), Extraversion (beta = -0.21, $t = 2.42$, $p < 0.01$), and I-TAS (beta = 0.28, $t = 3.02$, $p < 0.01$). The regression onto pop art was not significant.

Finally to test the hypothesis that personality variables account for unique variance three more multiple regressions were formed with each of the three total art preference scores as the dependent variable. The seven demographic variables were first entered as a block and then the seven personality factors. When the totalled abstract art factor (SUMABS) was the dependent variable the 'demographic' variables in total accounted for 12% of the variance (adj. $r^2 = 0.115$) but when the personality variables were added this went up to 19 per cent (Adj. $r^2 = 0.189$). When the totalled pop art factor (SUMPOP) was the dependent variable the 'demographic' factors accounted for just 4 per cent of the variance (adj. $r^2 = 0.044$) and the regression missed significance ($F(7, 113) = 1.80$, $p < 0.09$) but

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when the personality variables were added the now significant regression ($F(113, 102) = 2.59$, $p < 0.01$) accounted for 15 per cent of the variance (adj. $r^2 = 0.152$). Finally when the summed representational art factor (SUMREP) was the dependent variable the seven 'demographic' variables accounted for 17 per cent of the variance (adj. $r^2 = 0.17$); however when the personality variables were added the full regression accounted for 26 percent of the variance (adj. $r^2 = 0.260$). Thus on average the personality variable added a further 9 percent of the variance above the demographic factors with all of the full regressions being highly significant.

To test the predictive validity of the two personality models (big five versus sensation seeking) three further regressions were computed. The dependent variables were respectively the factor scores for the ratings of abstract, then representational and then pop art ratings. First the demographic and art variables were added as a block, then the two sensation seeking variables as a block and finally the five 'big five' variables as a block. Just to check, the latter two blocks were reverse ordered, which meant that in total six regressions were run. For abstract paintings the demographic variables accounted for 12 per cent and the sensation seeking added a further 7.8 per cent but the big five less than 3 per cent in addition. The change statistic indicated that the big five did not add anything significantly different (F change(5,99) = 1.71). For representational art the demographic variables accounted for 30 per cent of the variance, the sensation seeking variables an additional 4 per cent (F change(2,107) = 3.95, $p < 0.05$) and the big five an additional 4 per cent (F change(5,99) = 2.34, $p < 0.05$). For pop art the regression was not significant ($F(12,111) = 1.54$).

DISCUSSION

The grouping of the 24 paintings into three groups was supported by both analyses. The three alpha-reliabilities were all satisfactory, and factor analysis of the ratings indicated three distinct factors, which aligned well with *a priori* categories. However what the correlational results on Table 3 do indicate is the substantial similarity between pattern of findings for abstract and pop art.

The original hypothesis that SSS scores would be associated with positive ratings of abstract and pop art was supported. Disinhibition, as measured by I-Dis, was significantly positively correlated with positive ratings of abstract art and pop art. This finding corroborates the results of previous studies (e.g. Furnham and Bunyan, 1988; Tobacyck *et al.*, 1981), which indicate that sensation seekers preferred abstract art. It seems that, although disinhibition is concerned with social activities, it may have relevance to more individual factors such as aesthetic preference, and in particular regarding positive ratings of certain types of imagery.

The significant positive correlation between I-TAS and positive ratings of representational art was a surprising result. The relationship was supported by multiple regression – I-TAS was found to be a significant predictor of positive ratings of representational paintings. However, Furnham and Avison (1997) found no relationships between TAS and positive ratings of representational paintings. The most obvious explanation for this unexpected result is that I-TAS relates to a more general liking for art.

The correlations between I-TAS and positive ratings of abstract and pop art pictures were positive and significant. This suggests that I-TAS might be composed of more than one underlying factor, such as a 'love of the outdoors' and a more general desire for

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unusual activity and risk taking. This leads on to the issue of the suitability of the SSS Form VI in this type of study. It seems that the presence of Experience Seeking and Boredom Susceptibility subscales would be useful; these two scales gave significant results in previous research

Of the big five personality traits, only Extraversion failed to produce predicted significant results. It was originally predicted that Extraversion would be associated with positive ratings of abstract and pop art pictures; this prediction was not supported. However, Extraversion was found to be a significant predictor of positive ratings of representational paintings.

It was predicted that Openness to Experience (O) would be positively correlated with a positive ratings of abstract art and pop art. This prediction was supported; however, there was also a positive correlation between O and liking of representational art. The fact that all three correlations were positive might indicate that O is linked to a greater appreciation of art in general – this possibility is put forward by Furnham and Avison (1997, p. 933). This indicates that in future research it may be particularly useful to study the 'big five' at the facet level. Thus it may be predicted that openness to action would show the same relationship as TAS to aesthetic preferences while openness to values, aesthetics, and fantasy facet scores would be more similar to Experience Seeking patterns of preference.

As Furnham and Avison (1997) found a positive correlation between agreeableness (A) and positive ratings of representational paintings, it was initially predicted that the same result would be found in the current study. This prediction was not supported – the relationship was not significant. However, A was also significantly negatively related to positive ratings of pop art pictures. It is possible that the content of the paintings is the crucial factor; the more modern pictures may have been more negative in tone, which may have appealed more to individuals who scored lower on A.

A positive correlation was found between conscientiousness (C) and the representational art, which probably refers to an underlying conservatism (Wilson et al., 1973). No predictions were made regarding neuroticism (N), but a significant correlation was found between N and positive ratings of abstract art and pop art. Furthermore, neuroticism was found to be the only significant predictor of positive ratings of abstract paintings, accounting for 19 per cent of the variance . There was a moderate non-significant negative relationship between N and ratings of representational pictures. This supports the finding of Knapp and Wulff (1963), who suggested a relationship between neuroticism and positive ratings of abstract art. Their data were not statistically significant, but the current result provides empirical evidence for the relationship. However, these results may be due to differences in emotional tone rather than differences in aesthetic composition. The abstract pictures may have been more negative emotionally, and the representational paintings more positive. However, more research is needed to explain the possible link between neuroticism and positive ratings of abstract art.

It was striking to note, based on Table 3, how similar the results were for abstract and pop art. It has been suggested that art can be crudely categorized into four categories based on the dimensions abstract/representational and simple/complex. Pop art is often more abstract than representational and if both abstract and pop art were of similar levels of complexity it is quite understandable why they should receive similar ratings.

Demographic variables were clearly linked to painting preference. Age was found to be significantly positively correlated with positive ratings of representational art. This might be explained by a link between age and conscientiousness (high C scorers tend to prefer representational painting) or conservatism. It is possible that older subjects were more

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familiar with the representational paintings, so that their positive ratings of them was increased. Retrospectively it seems sensible to obtain participants' ratings of familiarity *and* liking, which have been shown to be related.

Females were found to be more likely to prefer abstract. This may be due to links with other factors, such as art education – females may be more likely to study art to a higher level. Again a partial correlation was performed between sex and preference for abstract painting with art studies at a higher level partialled out but the correlations remained significant ($r = 0.24$, $p < 0.01$).

There was a significant correlation between the level of art studied in education and a positive ratings of abstract art. The same was true of the level of history of art studied. People who visited art galleries more frequently were also significantly more likely to prefer abstract art and pop art. Gordon (1951) found that art experts and non-experts judged the merits of paintings in different ways, and Child (1965) suggested that personality variables become less important as knowledge of art increases. The current results do not necessarily corroborate these views, but it does seem that exposure to different art types influences liking of them. Frequency of visits to art galleries is probably a better indicator of cultural factors than level of art education is, and these two should perhaps be examined separately. However, it is likely that increased exposure in general to abstract paintings increases understanding of the subjects that they represent. Participants who had studied art to a higher level, and visited art galleries more frequently, rated all of the paintings more highly. This indicates a greater general appreciation of paintings. This could be due to a multitude of sociocultural factors, such as social learning, peer influence, and cultural values.

There were several factors within the paintings themselves that may have influenced the results. For example, there was variance in the content, emotional/affective tone, colour patterns, and complexity of the paintings. Some of these factors have been shown to appeal to different personality types (e.g. Zuckerman *et al*., 1970; Tobacyck *et al*., 1981). It seems that the pop art paintings varied most in these characteristics, especially style. For example, Warhol's 'Self-portrait' uses only two colours, and is very simple in design (it loaded onto factor 1 in factor analysis). Hockney's 'My parents', by contrast, is very representational, and uses many bright colours. These differences are typical of the artistic variation within the pop art category. This may account for the fact that few significant correlations involving positive ratings of pop art were found. Future research should attempt to control for as many factors as possible, by more careful selection of paintings.

The results of the second set of regressions suggest that personality variables account for unique variance above the seven 'demographic' factors examined. In fact they added between 7 and 11 per cent of the variance, such that, when combined, as much as a quarter of the variance could be accounted for when positive rating of representational art was the dependent variable. Of course it is possible that personality variables predict art education more strongly than art preference but nevertheless play an important role. Further as previous studies have demonstrated it is possible that personality traits account for reasonable amounts of the variance in art preference only for quite specific, perhaps unorthodox, types of art. However, in this study it was the regression onto the summated or factor score for representational art, rather than pop art that showed personality factors accounted for most of the variance. Further the regressions showed the two SS factors together accounted for more of the variance than the big five personality variables added together.

In conclusion, there are many relationships between personality variables and artistic preference. The 'big five' factors seem to be more important than previous research

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implied, though never more than 4 per cent of the variance. Form VI of the Sensation Seeking Scale was only partly satisfactory, due mainly to its omission of experience seeking and boredom susceptibility scales, but also because of language ambiguity in certain items. Non-personality variables such as exposure to art in education and culture are clearly very important, and deserve inclusion in future studies.

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APPENDIX

Paintings used: artists and titles, in order of presentation.
A. Barnett Newman: 'Adam'.
B. Roy Lichtenstein: 'Interior with waterlilies'.
C. Gene Davis: 'Quiet firecracker'.
D. Charles-Francois Daubigny: 'St Pauls from the Surrey side'.
E. Joe Tilson: 'Transparency, the five senses. Taste'.
F. Guido Reni: 'Lot and his daughters leaving Sodom'.
G. John Constable: 'Weymouth Bay'.
H. Antony van Dyck: 'Charles I on horseback'.
J. Jacob van Ruisdaal: 'A landscape with a ruined castle and a church'.
K. Patrick Caulfield: 'Pottery'.
L. Ellsworth Kelly: 'Broadway'.
M. Anthony Donaldson: 'Take Five'.
N. Gerard David: 'The Deposition'.
O. Mark Rothko: 'Black on maroon'.
P. Mark Rothko: 'Untitled'.
Q. Richard Hamilton: 'Interior II'.
R. Laszio Moholy-Nagy: 'K VII'.
S. David Hockney: 'My parents'.
T. Peter Blake: 'The toy shop'.
U. Andy Warhol: 'Self-portrait'
V. Josef Albers: 'Study for homage to the square departing in yellow'
W. William Hogarth: 'Mariage-á-la-mode: the lady's death'
X. Piet Mondrian: 'Composition with red, yellow, and blue'

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