1

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Who art thou? Personality predictors of artistic preferences in a large UK sample: The importance of openness

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The present study examined individual differences in artistic preferences in a sample of 91,692 participants (60% women and 40% men), aged 13–90 years. Participants completed a big five personality inventory and provided preference ratings for 24 different paintings corresponding to cubism, renaissance, impressionism, and Japanese art, which loaded on to a latent factor of overall art preferences. As expected, the personality trait openness to experience was the strongest and only consistent personality correlate of artistic preferences, affecting both overall and specific preferences, as well as visits to galleries, and artistic (rather than scientific) self-perception. Overall preferences were also positively influenced by age and visits to art galleries, and to a lesser degree, by artistic self-perception and conscientiousness (negatively). As for specific styles, after overall preferences were accounted for, more agreeable, more conscientious and less open individuals reported higher preference levels for impressionist, younger and more extraverted participants showed higher levels of preference for cubism (as did males), and younger participants, as well as males, reported higher levels of preferences for renaissance. Limitations and recommendations for future research are discussed.

Why do we like some forms of art[1] and not others? Are our individual art preferences formed just from miscellaneous aesthetic experiences? The enduring presence of art in human history suggests that its connection to humanity is deeper than merely an arbitrary medley of random aesthetic inclinations. Moreover, understanding the psychological determinants of art preferences is likely to offer a number of benefits to society. For instance, knowing what types of art resonate with different personality traits can be useful to promote art in the community, inspire individual learners, and appeal to individual consumers. Likewise, knowledge of generic art preferences (what most

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[1] In the context of the current manuscript 'art' is used predominantly to refer to visual art, i.e. paintings.

dislike or like) can be used to create common environments that appeal to all individuals rather than providing pleasure to some and causing dislike in all others. Finally, from a more theoretical standpoint, any connection between psychological dispositions (such as personality traits) and artistic preferences is likely to enrich our understanding of the psychological consequences of individual differences, that is, what makes one person different from another.

In light of the above questions it is unsurprising that for the better part of the last century researchers investigated the connection between personality and visual art preferences (Carroll & Enrich, 1932; Child, 1962, 1965; Eysenck, 1940; Juhasz & Paxson, 1978; Robertoux, Carlier, & Chaguiboff, 1971; Rosenbluh, Owen, & Pohler, 1972; Tobacyck, Myers, & Bailey, 1979; Wilson, Ausman, & Matthews, 1973). Some of this work has focused on personality correlates of aesthetic preferences for basic visual features using varying-sided polygons (Looft & Baranowski, 1971; Rawlings, Twomey, Burns, & Morris, 1998a; Eysenck, 1972) or line drawings of varying complexity (Dellas & Gaier, 1970; Zuckerman, Bone, Neary, Magelsdorff, & Brustman, 1972).

More recent work on this subject has focused on personality and preferences among specific painting styles (Feist & Brady, 2004; Furnham & Avison, 1997; Furnham & Bunyan, 1998; Furnham & Walker, 2001a,b; Tobacyck, Myers, & Bailey, 1981; Zuckerman, Ulrich, & McLaughlin, 1993). Indeed, art preferences have been found to be related to a variety of personality traits such as *extraversion* (Chamorro-Premuzic & Furnham, 2004a; b), *neuroticism* (Furnham and walker, 2001b), *schizotopy* (Rawlings, 2000), *behavioural approach versus inhibition* (Rawlings & Bastian, 2002), *conservatism* (Furnham and Walker, 2001a; Wilson, Ausman, & Matthews, 1973), Q1 *conformity* (Feist *et al.*, 2004), *intelligence* (Chamorro-Premuzic & Furnham, 2004a; b), *scientific attitude* (McManus, 2006; McManus & Furnham, 2006), as well as other individual characteristics such as *sex* (Furnham and Walker, 2001a; Rawlings, 2003), *age* and *education* (McManus and Furnham, 2006).

The five factor or 'big five' model of personality

With the widespread adoption of the five factor or 'big five' personality framework, it has been easier to compare the findings from different investigations into individual difference determinants of artistic preferences. According to the big five, non-clinical individual differences can be classified on the basis of five main personality factors Q1 (Chamorro-Premuzic, 2007; Chamorro-Premuzic & Furnham, 2005; Matthews, Deary & Whiteman, 2003), namely extraversion, conscientiousness, neuroticism, agreeableness and openness to experience. Extraversion measures quantity and intensity of interpersonal interaction, activity level, external stimulation and capacity for joy. Conscientiousness measures degree of organisation, persistence, dependability and goal-directed behaviour. Neuroticism measures emotional instability and predisposition to experience psychological distress and have maladaptive coping responses. Finally, openness measures intellectual curiosity, creative interests, and preference for new experiences and toleration of the unfamiliar. It is therefore unsurprising that openness has been suggested to be the most salient big five correlate of art.

Openness

A wide range of studies have consistently found that more open individuals engage in more general art and visual art activities, identify more with art and have greater preference for general visual arts relative to people with lower openness several studies

reported correlations in the range of .2–.4 between openness and various measures of artistic interests and preferences (Chamorro-Premuzic and Furnham, 2004a; b; Feist & Brady, 2004; Furnham & Avison, 1997; 1998; 2001a; b; McCrae, 1987; McCrae & Costa, 1997; Rawlings, 2000; Rawlings, Twomey, Burns, & Morris, 1998b). This is consistent with McCrae and Costa's (1997, p. 825) conceptualization of high openness as a core characteristic of artists: 'As neurotics can be used as examplars of high scores on the dimension of neuroticism, so artists can be considered primer examples of individuals high in openness to experience'. Consequently, a recent study by McManus and Furnham (2006) found that individuals who score high on openness display more positive aesthetic attitudes such as beliefs that art can be appreciated without complete emotional understanding, appreciation of aesthetic quality and aesthetic relativism, and a value for arts in general.

In terms of painting preferences, open individuals, have been shown to prefer art in general (Feist & Brady, 2004), pop art (Furnham and Walker, 2001b), and in particular abstract art (Feist & Brady, 2004; Furnham & Walker, 2001a). Open individuals have higher levels of imagination, need for cognition, and divergent thinking; they also display low authoritarianism, liberal attitudes and non-conventional preferences. These qualities are harmonious with the notions of abstract art being more modern, un-traditional, and depicting subject matter through intrinsic qualities rather than literal **Q1** representational forms. Openness is also associated (typically in the region of .4; Aluja *et al.*, 2003) with higher levels of *sensation seeking*, a trait that has been found to correlate positively with artistic preferences in the range of .2–.4 (Furnham & Avison, 1997; 2001a; b; Rawlings, Twomey, Burns, & Morris, 1998b, 2002; Zuckerman *et al.*, 1972, 1993).

Extraversion, conscientiousness, neuroticism and agreeableness

Other big five traits have also been associated with art preferences and interests, albeit less consistently. Extraversion has been linked both positively and negatively with art judgment ability, depending on the task used (Chamorro-Premuzic & Furnham, 2004a; b). Additionally, extraversion has been associated with appreciation of aesthetic quality and aesthetic relativism (McManus, 2006). Conscientiousness on the other hand has been negatively associated with visual as well as general art activities (McManus, 2006), a preference for representational art and a dislike of pop and abstract art (Furnham & Walker, 2001a). Correlations between Conscientiousness and art judgments have been shown to be both positive and negative (Furnham & Rao, 2002). Neuroticism has been shown to positively correlate with preference for abstract and pop art (Furnham and Walker, 2001b). Agreeableness has been correlated with a lesser preference for pop art (Furnham & Walker, 2001a), a greater preference for representational art (Furnham & Avison, 1997), as well as a lesser tendency to participate in general art activities, despite the fact that agreeable people seem to value aesthetics more (McManus, 2006). While all these other four factors of personality have been associated in some form with art interests, the results were often either not replicated or inconsistent across studies.

Science versus art, sex and age

Another important determinant of individual differences in artistic preferences is vocational interest, particularly whether one sees himself or herself as more of a scientist or an artist. The historic divide between science and art was famously highlighted in the

much referenced and often criticised lecture by Snow (1964) on the *two cultures*, which divided Western society on the basis of two opposite intellectual worlds, namely science and art. In line, Ackerman and Heggestad (1997) conducted an extensive meta-analysis of the correlations among personality traits and vocational interests, obtaining separated clusters or trait complexes for science/math on one hand, and intellectual/cultural on the other. More recently, McManus (2006) found that science students participated significantly less often than other students in all but one out of 17 cultural activities measured. The largest differences were for the activities of drawing and painting, going to museums and art galleries, reading about art, reading poetry, and going to the theatre, opera and ballet. This study also found that while both science and non-science students had similar scores on the personality dimension of openness, the correlation between the trait of openness and cultural arts activity is lower in scientists than in non-scientists.

Finally, a few studies also found significant effects[2] of sex-differences on art preference, including males' preferences over those of females for unpleasant paintings of all types (Rawlings, 2003) as well as pop, representational and Japanese paintings (Furnham & Walker, 2001a). In a recent much larger study, however, sex-differences in general art interests and attitudes were not observed (McManus, 2006).

Our study

A significant limitation of previous studies is the small and non-diverse subject samples employed. Most studies consisted of undergraduate student subjects and the few studies with adults had around 100 or fewer subjects (Furnham & Avison, 1997; Furnham & Walker, 2001a,b). Studies which use student subjects may contain several confounds. First, such studies cannot account for potential differences in course-workload and free-time between students in different programs, which may account for differences in arts activities and exposure to artistic styles. Second, students in art-related disciplines may have more opportunity to hear about available art-related cultural activities and events which would also broaden their exposure and affect preferences. Third, personality traits are likely to be correlated with particular programs of studies, such that the use of student subjects may confound the correlations observed between personality and art preferences and art activity. Fourth, adults should have had more opportunity to find the artistic experiences that interest them. Thus an advantage of using adult subjects is that their preferences are less likely to be influenced by peer group and immediate circumstance (though it is difficult to rule out such confounds entirely).

To this end, the present study set out to examine the personalities and preferences of over 90,000 subjects covering wide ranging demographics. Specifically, we attempted to assess the extent to which preferences for paintings from different artistic movements, as well as overall preferences, could be explained by individual differences in personality. In line with the above reviewed literature, we expected more open individuals to report greater preferences for art in general and also predicted openness to correlate positively with art activity and self-identification as an art-oriented person. The large sample size and wide demographics of the current sample also enabled us to examine the effects of sex, age and education on art interests, and whether personality

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[2] *Throughout this manuscript, the terms 'effects' and 'affected' are used predominantly to refer to* hypothetical *causal pathways; strictly speaking they denote only that one variable predicts another one.*

traits still predict artistic preferences when these variables are taken into account. Most previous studies have not encompassed a wide enough demographic range to address the relationships between age or general education and art preferences, though some studies have shown a correlation between openness and education levels (McManus, 2006). A clear advantage of sampling non-students is the variability in educational attainment; when using students, education has restricted range or a ceiling effect for those still in the education system.

Despite this lack of research into the relationship between artistic education and specific art preferences, the importance of art in formal education has been the subject of recent government and media interest in the UK. Most notably, the UK ministry of education recently proposed that all schools reform their curricula to allow for at least 5 h of 'high culture' per week, including visits to museums and other art activities (Curtis, 2008). This makes an examination of the individual differences underlying artistic interests and preferences especially relevant from an educational point of view.

Method

Participants

In all, 91,692 people completed the survey. Their ages ranged from 13 to 90 ($M = 30.7$, $SD = 13.6$) years; 64.1% were aged over 17 or under 44, with 18% aged 17 or below, and 18% being 44 or above. Of the total sample, 60% were women, and 40% men. With regard to participants' educational background (coded 1–5) 7% had completed primary school, 32.1% had completed up to secondary school, 12.8% had completed technical training, 21.2% had completed undergraduate college degrees, and 33.2% were educated at the postgraduate level (e.g. postgraduate diplomas, professional training, masters or doctoral degrees). Relative to 2001 UK census data (Office for National Statistics, n.d.), our sample was, on average, younger than the population in general (UK: approx. 23% under 18, 36% aged 18–43, 41% aged 44 +), and female respondents were somewhat over represented (UK: 51.4% female). The proportion of participants with university or higher qualifications was over twice that of the general population (UK proportion of 16–74-year-olds with a degree or higher: 19.6%). However, compared with much of the existing research on art preference and judgment, which typically draws participants from the undergraduate student population, our sample was relatively diverse in terms of age and educational background.

Measures

Personality was assessed by the *international personality item pool* (IPIP; Goldberg, 1999). The IPIP comprises 50 items assessing extraversion, agreeableness, conscientiousness, emotional stability (low neuroticism) and openness to experiences (intellect) (Goldberg, 2001). Each item is rated on a 5-point Likert-type scale (ranging from '1 = very inaccurate' to '5 = very accurate'). The α's for the present sample (see Table 1) are in line with previously reported internal consistencies (which tend to average .84). Goldberg (2001) reported substantial correlations (corrected: from .85 to .92) between these factors and their equivalent factors as assessed by the NEO-FFI (Costa & McCrae, 1992), another widely used measure of the big five.

6   *Tomas Chamorro-Premuzic et al.*

Table 1. Inter-correlations among target measures

	M	(SD)	2	3	4	5	6	7	8	9	10	11
1 Gender			.08	−.20	.07	.12	−.02	−.07	−.03	.00	.15	.05
2 Age	30.71	(13.63)		.09	−.02	.10	.18	−.01	.18	.12	.06	−.10
3 A	39.32	(5.12)	.80		.16	.06	.12	.30	.12	.07	−.01	.03
4 O	39.41	(4.88)	.78			−.01	.01	.20	.01	.17	.18	.21
5 N	28.69	(6.72)	.86				.14	.19	.02	.02	.01	.00
6 C	33.13	(5.79)	.80					−.00	.08	−.00	−.07	−.07
7 E	31.12	(7.12)	.88						.03	.02	.02	.09
8 IMPRESS	4.61	(.81)	.72							.41	.27	.07
9 JAPAN	4.20	(.92)	.70								.40	.32
10 RENAIS	3.52	(1.24)	.72									.34
11 CUBISM	4.11	(1.13)	.77									

Note. N = 91,692. All coefficients (columns 2–11) are Bivariate correlations (Pearson's r) and are significant at p < .01 if > ±.00. Gender coded 1 = female, 2 = male, A = agreeableness, O = openness to experience, N = neuroticism, C = conscientiousness, E = extraversion; preference ratings for art styles: IMPRESS = impressionism, JAPAN = Japanese art and RENAIS = renaissance art.

Artistic preferences were assessed using a purpose-built on-line test that included 24 paintings, shown individually, consecutively, and in randomised order, together with a 7-point Likert-type rating scale ranging from '1 = dislike very much' to '7 = like very much'. Paintings were chosen from six different artistic movements, namely abstract (Theo van Doesburg, Rudolf Bauer; Europe, 20th century), cubism (Pablo Picasso, Juan Gris, Jacoba van Heemskerck; Europe, 20th century), Northern renaissance (Jan Brueghel the elder, Pieter Brueghel the elder, Matthias Grunewald, Hieronymus Bosch; Europe, 16th century), Japanese ukiyo-e woodblock prints (Toyohara Chikanobu, Utagawa Kunisada, Katsushika Hokusai, Toyota Hokkei; 17th to mid 19th centuries), impressionism (Berthe Morisot, Paul Gauguin, John Singer Sargent, Albert Dubois-Pillet; Europe, 19th century), and secular islamic art (unknown artists, 13th to 17th centuries). To minimise the effect of variation in the subject depicted across movements, for each of the six movements we selected one painting depicting an animal, one depicting a person, one landscape and one still life. (Clearly it was not possible – by definition – to do this for abstract art). Principal component analysis was applied to the ratings of the 24 paintings and identified a clear 4-factor solution (total variance explained = 44%) corresponding to four of the six movements described above (items for abstract and secular islamic art did not load on to clear factors and these scales were not computed due to low reliabilities). The eigenvalues were cubism = 3.2 (13% of variance explained), impressionism = 2.6 (11% of variance explained), Japanese = 2.4 (10% of variance explained), and renaissance = 2.3 (10% of variance explained). The internal consistencies for the four factors are shown in Table 1. Average item scores were computed for each of these movements.

Procedure

Participants completed the survey on-line, through a BBC website (http://www.bbc.co.uk/science/humanbody/mind/surveys/art/) that was advertised during a television broadcast of a programme on art (first shown in May 2005 on BBC Two). The website, which is still active but collected data for 12 months, invited participants to provide their responses to a personality inventory as well as ratings to various paintings. In the instructions, participants were told that 'the art [you] like says something about the kind of person you are. Take part in an experiment and find out more about [yourself] and art'. First, participants completed a section on demographics including educational level. Then, they completed a section on artistic preferences, which presented them with 24 paintings in random order, with sizes of approximately 250 × 200 pixels (for all stimuli it was possible to enlarge to approximately 500 × 400 pixels) and asked them to rate each painting at a time. After this, they completed the personality inventory. After completing the survey, participants were thanked for taking part in this study and given feedback[3] on their personality profiles and artistic preferences. Only data from participants who completed the entire study was saved to a database hosted on the BBC's servers, which was then transferred on to SPSS. Ethical clearance for this study was obtained by the first and second author from their departments.

Analyses

Missing values (<5% per variable, as suggested by Tabachnik & Fidell, 2005) were replaced with the series mean at the item level – prior to computing the

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[3] Feedback is available at the web-site given above or from the first author on request.

factor scores – in order to use the overall sample for the analyses. Prior to analysis, variables (factor scores) were standardised across the whole sample to a mean of zero and unit variance. We used standardised variables in our analysis because personality and art preference composite scores lie on different scales, as suggested by Loehlin (2004).

Results

Descriptive statistics and inter-correlations for all measures are presented in Table 1. As noted, all coefficients $> .00$ are significant at $p < .01$ (due to the large sample size). Thus discussion of results will focus on correlation coefficients $> .10$. As shown, preference for impressionist paintings correlated positively with age and agreeableness; preference for Japanese art correlated positively with age and openness, which also correlated positively with preferences for renaissance and cubism (the highest correlation between any art preferences and individual difference factor, at $r = .21$). Cubism was also negatively correlated with age. In addition, all preferences were positively intercorrelated except for impressionism and cubism which correlated only at $r = .07$.

Q1   Next, a structural equation model (SEM) was tested using AMOS 5.0 (Arbuckle & Wothke, 1999). The choice of ordering – determining what variables are endogenous,
Q1 mediators, and exogenous – is rarely straightforward in SEM studies (Davis, 1985; Kenny, 1979; Pearl, 2000), and a model was tested primarily to provide a general picture of the relationship among the target variables. The 15 variables included in the model were divided into three subgroups, whereby personality traits, gender and age were exogenous or covariates, educational level, artistic interests and 'artistic person' (whether people considered themselves an artistic rather than a scientific individual) were mediators, and the latent factor of general artistic preferences, on which the four movements/styles loaded, was endogenous (this is in line with McManus & Furnham's, 2006 SEM). The model's goodness of fit was assessed via the χ^2 statistic, the goodness of fit index (GFI) and its adjusted version (AGFI), as well as the root mean square residual (RMSEA) and the parsimony goodness-of-fit index (PGFI), and Akaike's information criterion (AIC) (Akaike, 1973; Loehlin, 2004; Kelloway, 1998; Maruyama, 1998).

In the hypothesised model, saturated paths from the covariates to the mediators, and from the mediators to the latent factor of general artistic preferences were added. Thus no direct paths from either the covariates or the mediators to either general or specific artistic preferences were added. The model, with 21 parameters between the covariates and the mediators, and 3 parameters between the mediators and the latent factor of art preferences, did not fit the data well: GFI $= .90$, AGFI $= .84$, PGFI $= .54$, RMSEA $= .10$ (.10–.10), AIC $= 65438.1$. The model was modified accordingly, removing one parameter at a time, starting with the lowest t-value, and adding new paths in accordance to the modification indices (these included inter-correlations among the covariates and among the mediators, and correlated errors of two specific art preference factors). The modified model fitted the data well: GFI $= .99$, AGFI $= .98$, PGFI $= .49$, RMSEA $= .03$ (.03–.04), though the $\chi^2 = 6372.1$ (52 df, $p < .01$) was significant (which, in large samples, tends to occur even in well-fitting models[4]; Joreskog & Sorbom, 1993).

Q1 _____

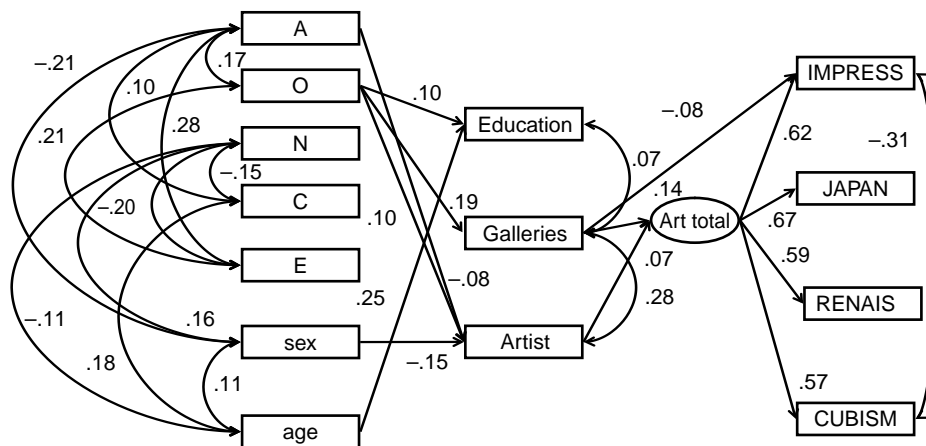[4] Non-significant χ^2 values are indicative of good model fit.

Figure 1. Modified model for predictors of art preferences. *Note.* All paths are standardised parameter estimates significant at p < .01. Direct paths from individual differences to Art preferences (total or specific) are shown in Figure 2. Sex coded 0 = female, 1 = male. A = Agreeableness, O = Openness, C = Conscientiousness, E = Extraversion, IMPRESS = Impressionism, RENAIS = Renaissance, JAPAN = Japanese.

The modified model is graphically depicted in Figure 1 (which does not show paths from the covariates to art preferences) and Figure 2 (which does not show the mediators or inter-correlations among the covariates). Note that the depiction of the model is split in two figures. for the sake of clarity (both figures represent different sections of the same model).
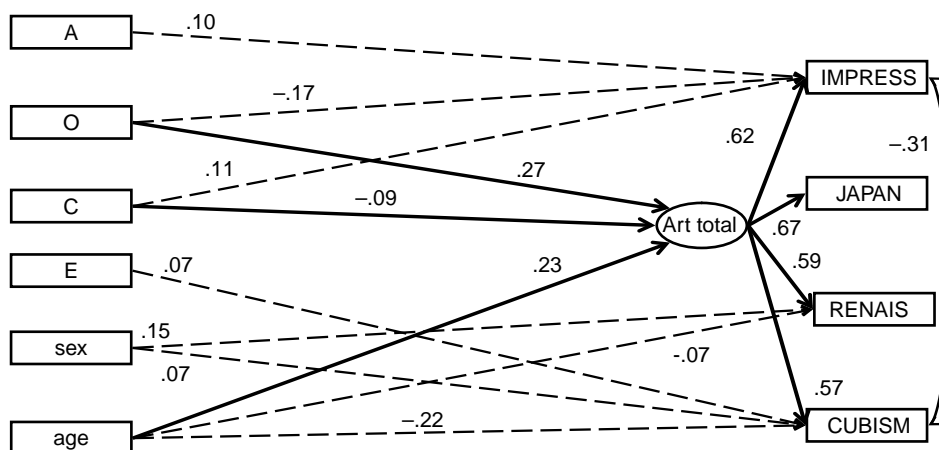

Figure 2. Modified model for predictors of art preferences (whilst controlling for education, visits to galleries, and artistic self-perception). *Note.* All paths are standardised parameter estimates significant at p < 01 whilst controlling for mediators (education level, visits to galleries and self-perception as an artist. Sex coded 0 = female, 1 = male. Dashed lines are paths added after modification indicators and represent significant effects of the exogenous variables on individual art styles whilst controlling for overall preferences. Correlations among exogenous variables and their effects on mediators are shown in Figure 1. A = Agreeableness, O = Openness, C = Conscientiousness, E = Extraversion, IMPRESS = Impressionism, RENAIS = Renaissance, JAPAN = Japanese.

As shown in Figure 1, there were positive effects of age and openness on education, and openness on visits to galleries. On the other hand, participants were more likely to define themselves as artists (as opposed to scientists) if they were female, less agreeable, and more open. Visits to galleries and defining oneself as more of an artist than a scientist positively affected general preferences, and visits to galleries also affected (negatively) preferences for impressionism after controlling for overall preferences. Finally, Figure 2 shows the effects of individual differences (personality, sex and age) on general art preferences as well as specific preferences when general preferences are controlled (dashed paths). As shown, the strongest effect on general art preferences was by openness, followed by age (both open and older individuals tended to report higher levels of overall preferences); there was also a more modest, negative effect on general art preferences by conscientiousness. In regards to specific art preferences (whilst controlling for general preferences), agreeableness and conscientiousness both positively affected preferences for impressionism, which was negatively affected by openness. Liking of renaissance paintings was affected by sex (being male rather than female) and age (being younger), whereas preferences for cubism were influenced by age (negatively), and to a lesser extent extraversion (positively) and sex (liked more by males). In combination, the relevant covariates and mediators accounted for 17% of the variance in general art preferences.

A series of alternative models were then tested in order to assess the significance of direct paths from both covariates and mediators to general and specific art preferences (in line with Hampson, Goldberg, Vogt, & Dubanoski, 2007). In all, 10 different models were tested, and fit indices for each model are presented in Table 2. Chi square tests of significance were conducted to establish pairwise comparisons of fit. As shown, the best fit was found for the model 1, depicted in Figures 1 and 2 (which includes direct paths from both individual differences and mediators to both general and specific art preferences), with slightly worse fit for models that did not include paths from mediators to specific (model 2) or general (model 3) preferences, or both (model 4).

Discussion

The present study examined the relationship between art preferences and individual differences (the big five personality traits, sex and age), self-identification as artist or scientist, frequency of visits to art galleries, and educational level. Overall results showed that, in line with predictions, openness to experience was the strongest and only consistent personality predictor of artistic preferences, and that age (positively) and to a lesser extent conscientiousness (negatively) also affected overall artistic preferences, which were also positively influenced by age. Although the current study only examined a limited selection of artistic movements, the results clearly indicated that artistic preferences can be examined both at the specific or general level.

Accordingly, we modelled general/overall preferences as a latent variable on which preferences for the four different styles loaded, and examined how it was affected by individual differences and the mediators. More specifically, SEM revealed that even after controlling for the effects of broad interests (i.e. considering oneself an artist rather than a scientist and visiting art galleries), personality traits – notably openness – and age affected general artistic preferences. Moreover, several individual difference variables (including age and gender) affected preferences for specific artistic paintings after taking into account general or overall preferences: more agreeable, more conscientious, and less open individuals (matched on general preferences) showed higher levels of

Table 2. A comparison of fit indices for alternative models for the prediction of art preferences

		χ^2	GFI	AGFI	RMSEA	PGFI	AIC
1	Direct paths from ID and mediators to both general and specific Art preferences	$df = 52$, **6372.79**, $p < .01$[2–10]	**.99**	**.98**	**.036**, low = .035, high = .037	.50	**6478.7**
2	No direct paths from mediators to specific Art preferences	$df = 53$, 6987.23, $p < .01$[3–10]	**.99**	**.98**	.038, low = .037, high = .038	.50	7091.2
3	No direct paths from mediators to general Art preferences	$df = 54$, 8230.77[4–10], $p < .01$	**.99**	**.98**	.041, low = .040, high = .041	.51	8332.7
4	No direct paths from mediators to either general or specific Art preferences	$df = 55$, 8351.95[5–10], $p < .01$	**.99**	**.98**	.041, low = .040, high = .041	.52	8451.9
5	No direct paths from ID to specific Art preferences	$df = 60$, 18675.11, $p < .01$[7,8,10]	.97	.95	.059, low = .058, high = .059	.55	18765.8
6	No direct paths from ID to general Art preferences	$df = 55$, 13560.74, $p < .01$[5,7–10]	.98	.96	.052, low = .051, high = .052	.51	13660.3
7	No direct paths from ID to either general or specific Art preferences	$df = 63$, 23040.17, $p < .01$[10]	.96	.94	.063, low = .061, high = .064	.58	23124.4
8	No direct paths from either ID or mediators to specific Art preferences	$df = 61$, 19341.44, $p < .01$[6,7,10]	.97	.95	.059, low = .058, high = .059	.56	19429.3
9	No direct paths from either ID or mediators to general Art preferences	$df = 57$, 16783.12, $p < .01$[5,7,8,10]	.97	.95	.057, low = .057, high = .058	.53	16879.4
10	No direct paths from either ID or mediators to either specific or general Art preferences	$df = 66$, 26099.17, $p < .01$	.96	.94	.066, low = .65, high = .66	.60	26177.8

Note. Bolded figures show best fitting model according to that criterion. Superscripts next to p values indicate what models had significantly worse fit (test of Chi-square differences). Model 1 is graphically depicted between Figures 1 and 2. Model fitness was assessed by: the Chi-square (Bollen, 1989; tests the hypothesis that an unconstrained model fits the covariance/correlation matrix as well as the given model; ideally values should not be significant); the GFI (Tanaka & Huba, 1985; goodness-of-fit indicator) is a measure of fitness and values close to 1 are acceptable; the PGFI (Mulaik et al., 1989; parsimony goodness-of-fit indicator) is a measure of power and is optimal around .50); the RMSEA (Browne & Cudeck, 1993; root-mean-square error of approximation), values of .08 or below indicate reasonable fit for the model; the AIC (Akaike, 1973; Akaike's information criterion) gives the extension to which the parameter estimates from the original sample will cross-validate in future samples.

preference for impressionist paintings, whilst younger, male and extraverted individuals (again, matched on general preferences) tended to prefer cubism. Finally when matched on general preferences male and younger participants tended to prefer renaissance paintings. Interestingly, when individuals were matched in general preferences those who liked impressionism tended to dislike cubism and vice-versa, and frequency of visits to galleries was negatively linked to preferences for Impressionist paintings.

These results highlight some intuitive associations between individual differences and art preferences. First and foremost, openness is both conceptually and empirically related to artistic preferences, and having an 'artistic profile' in general. This is consistent with a number of previous, smaller-scale, studies, that reported modest to moderate significant correlations between openness and different measures of artistic interests (Chamorro-Premuzic & Furnham, 2004a; b; Feist & Brady, 2004; Furnham & Avison, 1997, 1998, 2001a; b; McCrae, 1987; McCrae & Costa, 1997; Rawlings, 2000; Rawlings, Twomey, Burns, & Morris, 1998b), and a more recent, larger-scale, study showing that more open individuals display more positive aesthetic attitudes and values for arts in general (McManus and Furnham, 2006).

In regards to other personality traits, results are less consistent though some associations did replicate correlations found in past, smaller-scale studies. The negative link between conscientiousness and general preferences is in line with McManus and Furnham (2006) finding that conscientious people are less interested in visual as well as general art activities, and Furnham & Walker (2001a) finding of a negative link between conscientiousness and preference for pop and abstract art (Furnham & Walker, 2001a). Moreover, the present study's results showing higher male preferences for renaissance paintings (after controlling for overall preferences) could be related to previous suggestions that males tend to prefer 'unpleasant' paintings more than women (Rawlings, 2003). Although the current study did not assess the degree of 'pleasure' evoked any of the paintings, renaissance paintings clearly received the lowest average rating (see again Table 1 for means).

Interestingly, when matched on general preferences, more open subjects also showed a significant negative preference for impressionist paintings. A previous investigation had shown open subject's preferences were negatively correlated with neutral and natural paintings (Rawlings, Twomey, Burns, & Morris, 1998b), suggesting that the Impressionist paintings may have been preferred less for similar reasons. Indeed, the traits that were positively associated with preference for impressionism after controlling for overall preferences were agreeableness and conscientiousness, which, combined, are reflective of dispositional conformity – just as openness reflects non-conformity (DeYoung, Peterson, & Higgins, 2002).

Naturally, there are limitations to the present study which limit the generalisability of our findings and beg for caution when interpreting the current results. First, our study was correlational and the single-wave nature of our design means that any causational interpretation is purely speculative. However, the relative representativeness of our sample (especially compared to previous studies) lends weight to the current results. Second, our data were exclusively self-report, increasing the risk of spurious correlations caused by shared method variance. Yet it is noteworthy that artistic preferences refer to variability in *attitudinal* domains (aesthetic liking), personality traits assess dispositions, and the background variables (art exhibitions and educational level) refer to behavioural or biographical data, albeit self-report. Third, our study only assessed preferences for four different styles (as sated, two more styles were initially planned but there was no statistical justification for including them in the analyses);

clearly, more styles, schools and even artistic products *other* than paintings ought to be examined to provide a 'clear picture' of the relevance of personality traits as predictors of aesthetic preferences. It would be particularly interesting to examine the extent to which preferences for different artistic products (e.g. films, plays, books, songs, etc) can also be explained in terms of a latent, overall art preference factor, which would probably correlate with openness. In addition, personality sub-facets, notably of openness, should also be investigated in connection to art preferences. Last, but not least, the current study also examined the big five personality traits but the incremental validity of other traits, such as schizotopy (Rawlings, 2000), behavioural approach versus inhibition (Rawlings & Bastian, 2002), conservatism (Furnham & Walker, 2001a; Wilson, Ausman, & Matthews, 1973), conformity (Feist & Brady, 2004), intelligence (Chamorro-Premuzic & Furnham, 2004a; b), and, in particular, sensation-seeking (Furnham and Avison, 1997; 2001a; b; Rawlings, Twomey, Burns, & Morris, 1998b, 2002; Zuckerman *et al.*, 1972, 1993) should also be examined. Given that the current study explained only 17% of the variance in general artistic preferences more predictors are needed to explained a more substantial amount of variance in artistic preferences.

Based on the previous literature, as well as the magnitude of the current associations, there are three salient findings in the present study, namely (a) the fact that preferences for paintings corresponding to quite different periods and styles are clearly intercorrelated, such that differences between people (in overall preferences) are stronger than differences between painting styles; (b) the fact that openness is a consistent correlate of aesthetic attitudes, interests, and preferences and (c) the effect of age on artistic preferences (positive for general preferences, but negative for certain styles after overall preferences are controlled for). These findings indicate that art preferences are only partly style-specific, that personality factors other than openness are weak predictors of artistic preferences, and that age differences in artistic preferences are almost as salient as differences in openness (even after controlling for aesthetic interests, attitudes, and other traits). Taken in combination, these findings suggest that aesthetic inclinations can partly be attributed to psychological dispositions and age, such that knowledge of individuals' age and personality – notably openness – can be used to predict the extent to which they will be interested in and like different examples of visual art. Likewise, knowledge of generic art preferences can be used to infer people's personality, in particular their level of openness, and to a lesser extent conscientiousness. Whilst the precise underlying psychological mechanisms or processes by which dispositions come to affect artistic preferences remain to be understood, it is clear that such processes are primarily related to openness. Thus applied researchers and practitioners wishing to predict individual differences in vocational interests, career choices, and aesthetic preferences, would do well to assess this trait.

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Q1   References Aluja et al. (2003), Arbuckle and Wokthe (1999), Chamorro-Premuzic and Furnham (2005), Chamorro-Premuzic et al. (2004a,b), Costa and McCrae (1992), Curtis (2008), Davis (1985), Goldberg (1999, 2001), Joreskog and Sorbom (1993), Matthews et al. (2003), Kenny (1979) and Pearl (2000) have been cited in text but not provided in the list. Please supply reference details or delete the reference citations from the text.

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Q4   Please provide complete details for reference McCrae and Costa (1997).

Q5   Please update the year of publication in reference Office for National Statistics (n.d.).

Q6   We have inserted a journal title for reference Rawlings and Bastian (2002). Please check and approve.

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