



Schizotypy and creativity in visual artists

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'Every work of art is an uncommitted crime' Adorno (1951). Cited in Julius (2002).

Given the putative relationship between creativity and schizotypy/psychoticism, the current study set out to investigate differences in scores on a range of personality and creativity measures between visual artists and non-artists. Results found that the visual artists group scored higher on measures of positive-schizotypy, disorganized-schizotypy, asocial-schizotypy, neuroticism, openness and divergent thinking (uniqueness) than did the non-artist group and lower on agreeableness. These findings lend support to other studies reporting higher schizotypy scores in artistic and creative cohorts, although provide some of the first evidence of higher unusual experiences and impulsive nonconformity scores on the Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE) in visual artists. The relationship between creativity and schizotypy is discussed in terms of unusual ideas and a propensity to endorse socially undesirable responses.

An area of interest to psychologists when trying to understand the psychopathology of everyday life is the relationship between 'madness' and creativity. There are many anecdotal stories of the creative person and their relationship with 'madness'; for example, Rothenberg (1990) named a number of creative individuals who have experienced psychosis (e.g. artists such as Hieronymus Bosch, scientists such as Michael Faraday, composers such as Robert Schumann, writers such as Sylvia Plath and philosophers such as Friedrich Nietzsche). Numerous psychobiographic studies have been conducted to investigate this relationship. For example, Post (1994) carried out an investigation into the psychopathologies of outstandingly creative individuals

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(scientists, scholars, statesmen, visual artists, musical composers and writers) and found that of the visual artists, 39.6% demonstrated DSM-111-R (American Psychiatric Association, 1987) Cluster C traits; (avoidant, obsessive-compulsive and affective) 27.1% Cluster B traits (antisocial, borderline, histrionic and narcissistic personalities); and 8.3% Cluster A traits (paranoid, schizoid and schizotypal disorders). Similar findings were observed by Jamison (1989) who found that 38% of British writers and artists suffered from an affective disorder, while Andreason (1987), in a study comparing 30 creative writers with 30 controls, found that mental illness (particularly affective disorder) was increased in the writers. Likewise, Wills (2003) provided evidence of psychopathology (in particular, mood disorders and alcohol-related disorders) in eminent jazz musicians.

Claridge, Pryor and Watkins (1990) investigated the lives of 10 authors, spanning the middle ages to the present-day, who had suffered from some kind of psychosis, including Margery Kempe, Thomas Hoccleve, Christopher Smart, William Cowper, John Clare, John Ruskin, Arthur Benson, Virginia Woolf, Antonia White and Sylvia Plath and found that the most common diagnosis was schizophrenia, followed by schizoaffective disorder (a merging of the functional psychoses: schizophrenia and manic depression). Thus, Claridge (1998) suggested that it is the *schizo* element that is most closely related to creativity, rather than the *affective* element. Interestingly, in a more recent study, Ghadirian, Gregoire and Kosmidis (2001), using a clinical population of 20 patients with either a diagnosis of manic depressive illness or diagnoses of 'other psychopathologies', found that there were no differences in creative abilities between bipolar patients and patients with other disorders. Despite these findings, it should be noted that there is a wide literature describing the relationship between manic depression and creativity (e.g. Nettle, 2001; Sass, 1992) in which it has often been suggested that hypomania is important for creative output for three reasons: (1) it facilitates the speed and range of imagination; (2) it provides the energy to push through on an activity; and (3) the depression element provides a more pessimistic assessment of what can be achieved – thus assessment is more accurate (Nettle, 2001).

While there is evidence to associate mental illness (both manic depression and schizophrenia) with creativity, it has been suggested that the true relationship is between schizotypal personality (schizotypy) and creativity (e.g. Claridge *et al.*, 1990) – with schizotypy viewed as a continuum between 'normality' and schizophrenia (or psychosis), characterized by increasingly eccentric and strange behaviours, or an 'idiosyncratic style' (Oldham & Morris, 1995). Approaches that have set out to examine the relationship between creativity and schizotypy have tended to be more quantitative in their approach, investigating the relationship between scores on measures of schizotypy with scores on measures of creativity or divergent thinking. For example, Woody and Claridge (1977) found that the Psychoticism scale of the Eysenck Personality Questionnaire (EPQ P; Eysenck & Eysenck, 1975) was related to divergent thinking as measured by *all* scales of the Wallach-Kogan (1965) divergent thinking battery, while Rushton (1990) found that uniqueness scores on the Instances test of the Wallach-Kogan divergent thinking battery correlated with EPQ P scale scores. More recently, Eysenck and Furnham (1993) investigated the relationship between psychoticism (as measured by the revised P scale; Eysenck, Eysenck, & Barrett, 1985) and creativity (as measured by the Barron-Welsh art scale; Welsh, 1975), finding psychoticism to be significantly correlated with the total Barron-Welsh score. A similar finding was observed by Furnham and Yazdanpanahi (1995), who found that high EPQ P scorers (generally) produced more highly creative brainstorming responses, which they state support Eysenck's (1993) theory of a relationship between creativity and psychoticism. Likewise,

Stavridou and Furnham (1996) found that the Psychoticism scale scores positively correlated with all subtest uniqueness scores of the Wallach-Kogan (1965) creativity test (except for instances); however, no significant correlations were revealed between psychoticism and the fluency (totals) scores.

Other investigators have studied the relationship between creativity and schizotypy using scales other than psychoticism. For example, Rust, Golombok and Abram (1989) found a relationship between the cognitive aspects of schizotypal thinking, as measured by the Rust Inventory of Schizotypal Cognitions (RISC; Rust, 1988) and creativity, as measured by the creativity scales of the comprehensive ability battery (Hakstain & Cattell, 1976), while Green and Williams (1999) found that schizotypy, as indexed by the Schizotypal Personality Scales (STA; Claridge & Broks, 1984), was positively correlated with the combined uniqueness scores of the instances and uses subtests of the Wallach and Kogan (1965) divergent thinking battery, but not the combined totals score.

Although there have been a number of findings demonstrating the relationship between schizotypy and creativity, they have not always been consistent. For example, Kline and Cooper (1985) found no relationship between EPQ P scores and creativity as measured by the comprehensive ability battery and Rawlings (1985) failed to find a relationship between psychoticism and creativity (as measured by the pattern meanings and similarities subtests from the Wallach-Kogan divergent thinking battery). McCrae (1987) also failed to demonstrate a relationship between EPQ P and total divergent thinking scores (using Christensen and Guildford's measures of divergent thinking, e.g. Christensen & Guildford, 1958).

Another approach to investigating the relationship between schizotypy and creativity has been to compare scores on personality/psychopathology and creative measures across different cohorts, particularly those for which there has been a hypothesized relationship, such as artists. For example, in a study of 257 professional artists and sculptors in (West) Germany, Götz and Götz (1979a) found that both male and female artists scored higher than non-artists on the EPQ P scale. Interestingly, they also found that male artists scored lower on extraversion and higher on neuroticism than non-artists, while there were no significant differences between the females on these two scales. Eysenck (1993) suggests that neuroticism is related (positively) to creativity in the arts and (negatively) to creativity in the sciences, the reasons for this possibly being the emotional involvement in art and the explicit rejection of emotion in science. In a subsequent study, Götz and Götz (1979b) found successful artists' scores on the Psychoticism scale to be much higher than those of less successful artists. Pearson and Clayden (1982) demonstrated similar results when they found that male graphic design students scored higher than 'normal' in psychoticism and neuroticism on the EPQ, while Ludwig (1992), in a study investigating creative achievement and psychopathology across the professions, found that creative artists displayed 'greater rates of alcoholism, drug abuse, depression, mania, somatic problems, anxiety, psychoses and adjustment disorders and, consequently, undergo most forms of psychiatric therapy more often' (p. 349). More recently, Booker, Fearn and Francis (2002) compared the psychoticism scores of 157 artists with the normative data and found that both male and female artists scored higher on scales of psychoticism and neuroticism. Similarly, Merten and Fischer (1999) investigated the relationship between psychoticism and creativity in 40 'supposedly creative persons' (writers and actors) and contrasted the results with previous findings on a group of 40 healthy controls. Findings showed that the creative sample scored higher on the EPQ P than did the controls.

Interestingly, Carlsson, Wendt and Risberg (2000) found that highly creative individuals scored higher in trait anxiety than a low creative group and that the high creatives demonstrated a higher level of blood flow. They concluded that their results agreed with the view that creative people may generally be more anxious than non-creatives and experience higher levels of arousal on physiological measures. Given the relationship between anxiety and schizotypy (e.g. Braunstein-Bercovitz, 2000), this finding lends further indirect support to the suggestion that schizotypy is related to creativity.

In a recent study, O'Reilly, Dunbar and Bentall (2001), employing the Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE; Mason, Claridge, & Jackson, 1995), a multidimensional measure of schizotypy with scales of positive-schizotypy (reflecting the positive symptomatology of schizophrenia), asocial-schizotypy (reflecting antisocial, impulsive and toughminded behaviour), disorganized-schizotypy (reflecting a difficulty with attention and social anxiety) and negative-schizotypy (reflecting the negative symptomatology of schizophrenia), found that creative arts students scored higher than humanities students on the positive-schizotypy scale of Unusual experiences. Interestingly, there was no significant difference between scores on the Impulsive nonconformity scale, which measures asocial-schizotypy. Given the high loading of impulsive nonconformity on to the Eysencks' Psychoticism scale, this finding is not consistent with the others described above. However, O'Reilly *et al.* (2001) did find that the creative artists scored higher than the humanities group on all measures of the Torrance Tests of Creative Thinking (Torrance, 1974).

Overall, these findings appear to suggest that there is indeed some kind of relationship between 'artistic status' (creativity) and 'madness' (schizotypy) and are consistent with Sass's (1992, p. 16) observation that:

in many crucial respects, schizophrenia bears a remarkable resemblance to much of the most sophisticated art, literature and thought of the twentieth century, the epoch of 'modernism'.

Except for O'Reilly *et al.*'s (2001) finding, it is interesting to note that there is a consistently high Psychoticism (or asocial-schizotypy) score within the creative persons groups, which is consistent with Post's (1994) findings of high Cluster B traits in the visual artists and writers, reflecting some of the traits more closely aligned with Eysenck's psychoticism. However, this poses a problem as Claridge (1993) has suggested that psychoticism (regarded more as a measure of impulsiveness and asocial-schizotypy) does not generally load on to the factor now recognized to be the component most related to psychosis-proneness - that of positive-schizotypy (the facet of schizotypy reflecting the positive symptomatology of schizophrenia; see, for example, Bentall, Claridge, & Slade, 1989). Thus, it is clear that any research into the relationship between schizotypy and creativity needs to take account of the multidimensional nature of schizotypy.

With the recent development of the O-LIFE, a tool is now readily available for such an approach and although O'Reilly *et al.* (2001) employed the O-LIFE, their study looked at artists in a broader sense (i.e. visual and performing), rather than at just visual artists, for whom higher levels of schizotypy may be observed (Brod, 1997). It is also important to reinvestigate the O'Reilly *et al.* finding given that they did not identify any differences between artists and non-artists in terms of asocial-schizotypy scores. Thus, the aim of the present study was to compare the differences in schizotypy scores between visual artists and non-artists, along with scores of creativity,

general personality and intelligence, with the underlying hypotheses that the visual artists would score higher than the non-artists in positive-schizotypy, asocial schizotypy, creativity, neuroticism and openness to experience.

Method

Participants

Participants were 107 undergraduate and postgraduate students from Goldsmiths College, University of London, who volunteered to take part in the studies (75 female, 32 male) with a mean age of 24.2 years ($SD = 5.71$). Of these students, 53 were recruited from the Department of Visual Arts (female = 38; male = 15). The visual arts department has a world-wide reputation as a centre of excellence - in the 1990s, five former students went on to win the Turner Prize ('widely recognised to be one of the most important and prestigious awards for the visual arts in Europe' [Tate Britain, London: <http://www.tate.org.uk/britain/turnerprize/2005/>]). The remaining 54 participants (female = 37; male = 17), all non-artists, comprised students from a range of disciplines including education, politics, psychology, sociology, mathematics and anthropology. All participants were required to provide evidence (i.e. their university identification card) of their course of study to ensure correct categorization into visual-artist and non-artist groups. All participants completed a consent form and were paid £10 for their participation in the study.

Psychometric measures

- (1) The O-LIFE (Mason *et al.*, 1995), a multidimensional measure of schizotypal personality with sound psychometric properties (see Burch, Steel, & Hemsley, 1998; Mason *et al.*, 1995), made up of scales of positive-schizotypy (unusual experiences), disorganized-schizotypy/social anxiety (cognitive disorganization), asocial-schizotypy (impulsive nonconformity) and negative-schizotypy (introvertive anhedonia).
- (2) The NEO-FFI (Costa & McCrae, 1992), a well established measure of the Big Five factors of personality, comprising scales of neuroticism (N), extraversion (E), openness (O), agreeableness (A) and conscientiousness (C). Neuroticism is characterized by anxiety, worrying, guilt and sadness; extraversion by high levels of sociability and activity, an outgoing nature and assertiveness; openness by an openness to new and novel ideas, originality, imagination and an intellectual curiosity; conscientiousness by ambition, achievement striving, energy and perseverance; while agreeableness is characterized by altruism, a concern to help others, trust and cooperation. The NEO-FFI was included so as to consider the differences between cohorts on N, O, A and C. Low A, low C and high N has been classified as a compound variable measuring Eysenck's psychoticism (e.g. Hough & Ones, 2001). The NEO-FFI has been shown to be a reliable and valid short-form measure of the Big Five, comprising 60 items (see Costa & McCrae, 1992)
- (3) The Creative personality scale (CPS; Gough, 1979), a measure of 'creative personality', developed from the adjective checklist (Gough & Helibrun, 1965) and cross-validated on a sample in excess of over 1,700.
- (4) Wechsler abbreviated scale of intelligence (full scale IQ two subtest (FSIQ - 2); vocabulary and matrix reasoning; WASI; Wechsler, 1999), a brief and reliable measure of intelligence, providing an estimated IQ score against the WAIS - 111 (Wechsler, 1997).

- (5) Instances and Uses tests of divergent thinking from Wallach and Kogan's (1965) divergent thinking battery (see Table 1 for test items).

Table 1. Wallach and Kogan (1965) instances and uses test items

Instances test (Wallach & Kogan, 1965, pp. 29–30)
Name all the round things you can think of
Name all the things you can think of that will make a noise
Name all the square things you can think of
Name all the things you can think of that move on wheels
Uses test (Wallach & Kogan, 1965, p. 31)
Tell me all the different ways in which you could use a newspaper
Tell me all the different ways you could use a knife
Tell me all the different ways you could use a car tyre – either the tube or the outer part
Tell me all the different ways you could use a cork
Tell me all the different ways you could use a shoe
Tell me all the different ways you could use a button – the kind that is used on clothing
Tell me all the different ways you could use a key – the kind that is used in doors
Tell me all the different ways you could use a chair

Procedure

On agreeing to take part in the study, participants were given the personality questionnaires, WASI and divergent thinking tests to complete. Administration and scoring were carried out by a 'test-trained' psychologist in accordance with the appropriate administration instructions. On the divergent thinking tests, participants were allowed as much time as they needed to generate as many verbal responses as they could. For each test, the number of unique responses (relative to all responses within the current sample) and total number of responses were noted. For subsequent analysis, the combined uniqueness and combined totals were used, consistent with other studies (e.g. Green & Williams, 1999). Order of presentation between all components was counterbalanced.

Results

Means and standard deviations of O-LIFE, NEO, Creative personality scale, WASI and divergent thinking scores for (a) non-artists and visual artists and (b) female and male participants are shown in Table 2, along with Cohen's *d*, a computation of effect size. Recent research has argued for the computation of such effect size values in addition to simple between-subject tests, as the latter can be detrimentally affected by differences in sample sizes (e.g. Ones & Anderson, 2002). The *d* value expresses the difference between the groups in standard deviation units thus, as Burch and Anderson (2004) suggest, it negates any artefacts caused by sample size differences (in this case, 75 female and 32 male participants). The largest difference between the visual artists and non-artists occurs on unusual experience scores. It can also be seen that visual artists score higher than non-artists on cognitive disorganization, impulsive nonconformity, neuroticism, openness and divergent thinking (uniqueness), while non-artists score higher on agreeableness. In terms of gender differences, it can be seen that men scored higher than women on impulsive nonconformity, WASI and divergent thinking (uniqueness and totals) scores.

Table 2. Means and standard deviations of personality, divergent thinking (DT) and WASI scores, and tests of between-subjects effects and Cohen's *d*: (a) by course (non-artists and artists) and (b) by gender (female and male)

	Non-artists (<i>N</i> = 54)		Visual artists (<i>N</i> = 53)		<i>F</i>	<i>p</i>	Cohen's <i>d</i>
	mean	<i>SD</i>	mean	<i>SD</i>			
(a) By course							
Unusual experiences	10.58	7.65	14.78	6.81	8.85	.004	– .58
Cognitive disorganization	10.60	5.36	13.23	5.66	6.01	.016	– .48
Introvertive anhedonia	5.56	4.11	5.47	3.93	0.01	.912	.02
Impulsive nonconformity	8.90	4.16	10.76	4.24	5.57	.020	– .44
Creative personality scale	4.20	3.98	4.59	3.28	0.29	.590	– .11
Neuroticism	21.32	7.63	25.44	9.03	6.46	.013	– .50
Extraversion	29.46	6.64	28.57	6.81	0.48	.492	.13
Openness	33.37	6.38	36.21	5.48	6.01	.016	– .48
Agreeableness	31.57	6.63	29.07	5.45	4.55	.035	.41
Conscientiousness	30.31	7.92	29.07	7.71	0.68	.413	.16
WASI	112.85	10.65	112.17	11.69	0.10	.749	.06
DT (uniqueness)	13.44	9.84	17.89	10.91	5.31	.023	– .43
DT (totals)	108.09	54.64	119.69	53.45	0.96	.329	– .22
(b) By gender							
	Female (<i>N</i> = 75)		Male (<i>N</i> = 32)				
Unusual experiences	12.68	7.39	12.59	7.91	0.00	.964	.01
Cognitive disorganization	11.89	5.71	11.94	5.58	0.02	.898	.00
Introvertive anhedonia	5.43	3.51	5.72	5.04	0.11	.739	– .07
Impulsive nonconformity	9.16	4.30	11.34	3.89	6.84	.010	– .53
Creative personality scale	4.23	3.80	4.78	3.23	0.55	.462	– .17
Neuroticism	23.96	8.81	21.94	7.92	1.11	.294	.24
Extraversion	28.39	7.12	30.50	5.46	2.15	.145	– .34
Openness	35.08	6.34	34.06	5.51	0.52	.472	.17
Agreeableness	30.89	5.84	29.02	6.81	2.36	.128	.30
Conscientiousness	30.21	7.77	28.49	7.86	1.15	.285	.23
WASI	110.89	10.48	116.31	11.84	5.40	.022	– .49
DT (uniqueness)	13.74	9.79	20.13	11.14	9.69	.002	– .64
DT (totals)	101.83	46.65	139.03	63.04	11.85	.001	– .68

Significant relationships highlighted in bold.

a (by course) $d = (\text{mean for the non-artists} - \text{mean for the visual artists})/SD_{\text{pooled}}$. Positive *d* values indicate non-artists score higher, negative *d* values that visual artists score higher.

b (by gender) $d = (\text{mean for the females} - \text{mean for the males})/SD_{\text{pooled}}$. Positive *d* values indicate females score higher, negative *d* values that males score higher.

Effect sizes of .80 or greater can be considered to be large differences, those around .50, moderate, and those around .20, small (Cohen, 1988).

In order to examine these relationships further and to investigate any possible gender differences, a 2×2 MANOVA was performed on 13 dependent variables: unusual experiences; cognitive disorganization; introvertive anhedonia; impulsive nonconformity; Creative personality scale; neuroticism; extraversion; openness; agreeableness; conscientiousness; IQ; divergent thinking (uniqueness); and divergent thinking (totals).

Independent variables were artistic status (visual artists vs. non-artists) and gender (male vs. female). Descriptive statistics for personality, divergent thinking and WASI scores, for both visual artists and non-artists across gender are shown in Table 3. Multivariate tests revealed a main effect of artistic status, $F(13, 91) = 2.50$; $p = .006$; Wilks' $\lambda = 0.737$ and gender, $F(13, 91) = 1.99$; $p = .030$; Wilks' $\lambda = 0.778$. No significant interaction was revealed, $F(13, 91) = 0.673$; $p = .784$; Wilks' $\lambda = 0.912$. Univariate results are shown in Table 2, confirming that the visual artists scored higher on unusual experiences, cognitive disorganization, impulsive nonconformity, neuroticism, openness, divergent thinking (uniqueness) and lower on agreeableness, than did the non-artists, while male participants scored higher than their female counterparts on impulsive nonconformity, WASI and divergent thinking (uniqueness and totals).

Table 3. Means and standard deviations of personality, divergent thinking (DT) and WASI scores for both visual artists and non-artists across gender

	Artistic status	Female		Male	
		Mean	SD	Mean	SD
Unusual experiences	Visual artists	15.08	7.05	14.00	6.31
	Non-visual artists	10.22	6.99	11.35	9.10
Cognitive disorganization	Visual artists	13.55	5.88	12.40	5.17
	Non-visual artists	10.18	5.05	11.53	6.05
Introvertive anhedonia	Visual artists	5.47	3.53	5.47	4.93
	Non-visual artists	5.38	3.53	5.94	5.27
Impulsive nonconformity	Visual artists	10.45	4.54	11.53	3.38
	Non-visual artists	7.85	3.65	11.18	4.39
Creative personality scale	Visual artists	4.16	3.44	5.67	2.61
	Non-visual artists	4.30	4.19	4.00	3.59
Neuroticism	Visual artists	25.71	9.74	24.74	7.23
	Non-visual artists	22.16	7.46	21.94	7.92
Extraversion	Visual artists	28.03	7.46	29.94	4.74
	Non-visual artists	28.76	6.83	31.00	6.12
Openness	Visual artists	36.24	5.91	36.13	4.38
	Non-visual artists	33.89	6.62	32.24	5.87
Agreeableness	Visual artists	29.45	5.35	28.12	5.76
	Non-visual artists	32.37	6.02	29.82	7.70
Conscientiousness	Visual artists	29.05	8.19	29.10	6.57
	Non-visual artists	31.39	7.23	27.94	9.01
WASI	Visual artists	110.47	11.73	116.47	10.80
	Non-visual artists	111.32	9.16	116.18	13.02
Divergent thinking (uniqueness)	Visual artists	16.63	11.09	21.09	10.12
	Non-visual artists	10.77	7.27	19.27	12.22
Divergent thinking (totals)	Visual artists	111.87	51.72	133.20	60.14
	Non-visual artists	91.51	38.85	144.18	66.90

Discussion

Findings from the present research confirm that the visual artist group score higher than the non-artist group on unusual experiences, which is consistent with the O'Reilly *et al.* (2001) study, suggesting the importance of positive-schizotypy (unusual ideas) in the

generation of creative outputs. However, current findings also revealed a difference between visual artists and non-artists in impulsive nonconformity scores, which is consistent with previous studies employing the Eysenck's Psychoticism scale, suggesting the importance *too* of asocial-schizotypy in the generation of creative outputs, a finding that was not shown in the O'Reilly study. Results also showed visual artists to score higher in cognitive disorganization (a measure of disorganized thoughts and social anxiety), neuroticism, openness and divergent thinking (uniqueness), whilst non-artists scored higher on agreeableness. Overall, it should be noted that IQ scores on the WASI are higher than the mean. This is not too surprising given the nature of the sample (i.e. university students), although no differences were noted between the visual artists and non-artists. Interestingly, differences were observed between the genders. Given the relationship between IQ and creativity, where IQ and creativity are related (at least up to an IQ of 120; e.g. Rushton, 1990) and the relationship between IQ and positive-schizotypy scores, where there have been observed (negative) relationships between the two (e.g. Burch, Hemsley, & Joseph, 2004), there is clearly a complex relationship here which needs to be clarified in future research. Overall, these findings make theoretical and intuitive sense and are consistent with other findings in the literature.

The current results provide one of the first descriptions of O-LIFE scores for a 'purely' visual artist group and provide somewhat different findings to the O'Reilly *et al.* (2001) study, in the observed differences in impulsive nonconformity scores as well as unusual experiences scores, whereby the visual artists are revealed as scoring higher in both positive-schizotypy and asocial-schizotypy. The current study also took account of gender differences, where it was noted that there was a main effect of gender, as well as artistic status, with males being noted to be higher on both divergent thinking uniqueness and totals scores, IQ and impulsive nonconformity scores. Gender differences should be taken account of in future studies.

In replicating O'Reilly *et al.*'s (2001) findings of differences between artists and non-artists on unusual experiences, this suggests that there is a key relationship of positive-schizotypy and creativity. This is consistent with the literature that has demonstrated the same style of cognitive processing in high creative individuals as is observed in high positive-schizotypy scorers, for example, as demonstrated on procedures for latent inhibition (e.g. Carson, Peterson, & Higgins, 2003), suggesting that high positive schizotypes and high creatives demonstrate the same cognitive style of 'over-inclusiveness' - this is something that warrants further investigation.

Although the visual artists scored higher in uniqueness scores, there was no difference between the two groups on Creative personality scale scores. While this may be because the Creative personality scale is a verbally based measure, whereby one might expect a *lack* of differentiation in *visual* artists, it may also be that, as a measure of 'creative personality', there is no difference between the visual artists and the non-artists, with divergent thinking scores being higher in visual artists because of their higher impulsive nonconformity scores (i.e. visual artists are not more creative *per se*, but rather antisocial). Brod (1997) suggested that those high in asocial-schizotypy score higher on divergent thinking tasks, not because they are creative as such, but because they are more prepared to say anything that comes to mind, even if it is shocking or not appropriate. 'The point would be that P is not related to creativity *per se*, but to the nature and performance of its expression' (Brod, 1997, p. 285). Such a view has also been expressed by Gough (1993, p. 137) who suggested that:

if, in fact, the P scale correlates with criteria for creativity, it may be on the basis of a general unconventionality and assertive deviation from bourgeois values rather than on the basis of any disposition toward psychoticism.

Such suggestions are further supported in the current study by the Agreeableness scores, for which the visual artists score lower – ‘disagreeable’ persons have been described by Costa and McCrae (1992, p.15) as ‘egocentric, sceptical of others’ intentions and competitive rather than cooperative’ and agreeableness has been found to relate negatively with a range of antisocial personality types/disorders (e.g. Widiger, Trull, Clarkin, Sanderson, & Costa, 2002; Furnham & Crump, 2005). Given the visual artist’s higher level of Impulsive Nonconformity (asocial-schizotypy), this could explain why there is a difference in divergent thinking scores but not Creative personality scale scores (i.e. visual artists are not more creative as such), but rather have a propensity to respond antisocially and to try to shock. Interestingly, examples of unique responses given by the non-artists on the divergent thinking tasks included:

‘a round-robin’ (for round things);
‘giant’s ear plug’ (for uses of a cork);
‘keep coins in it overnight so they don’t get lost’ (for uses of a shoe);
‘tie on to a stick to create a spear’ (for uses of a knife);
‘to subordinate someone’ (for uses of a chair);
‘a play toy for monkeys’ (for uses of a tyre).

‘Tamer’ examples of unique responses given by the visual artists included:

‘minimalist music has a circular structure’ (for round things);
‘transvestites could use it to give themselves nipples’ (for uses of a cork);
‘stand it up in the ground as a memorial to all other shoes’ (for uses of a shoe);
‘snort a line of coke off of it’ (for uses of a knife);
‘have sex on it’ (for uses of a chair);
‘get high on the fumes by burning’ (for uses of a tyre).

It can be seen that the responses given by the visual artists could be described as more ‘taboo’ and/or pretentious in nature. These are consistent with others’ findings, for example, Rawlings (1984) found that high psychoticism individuals tend to make more ‘socially taboo’ responses and Rawlings and Toogood (1997) suggested that psychoticism reflects a tendency to make taboo responses. However, just because a response is taboo, does not mean it is not creative, although not all taboo responses will necessarily be creative (even if they are unique). This is highlighted by the *have sex on it* response for the uses of a chair question. Relative to the other responses obtained in this study, this is a unique response, with it only being given by one person. However, is it really an instance of creativity? Possibly not, but rather a reflection of an underlying tendency (or a preparedness) to make such a response – it is possible that a number of participants at least ‘thought’ this but did not want to express it. Such a view ‘could’ be consistent with the definitions of the unique product which require that it be appropriate to its context (e.g. King & Anderson, 2002), whereby some of the current responses could have not been classified as creative as they were not appropriate – although it may be difficult to ascertain what is appropriate or not!

Anecdotal evidence for this in visual artists may come from Damien Hirst (a former visual art student at Goldsmiths College and Turner Prize winner), whose artistic creations have included incarcerating 12 cows heads in formaldehyde and naming them after the 12 Apostles. That these are original/unique pieces of work would have them classified as creative. However, it seems possible that a key element in the production and subsequent public display of this type of (unique) work lies in an underlying 'preparedness' to express (shocking) ideas. Interestingly, Hirst suggests that his artistic creations are a product of his Catholic upbringing which, according to Kent (2003, in an interview with Hirst; pp. 10-12) 'may create disturbed souls, but also provides a wealth of imagery'.

Therefore, it appears that an issue with divergent thinking (uniqueness) tests is that, firstly, people may have a unique (or creative) idea but are not prepared to express it and secondly, that people may have an idea that is not unique, but are prepared to express it when others' are not (because of its taboo nature) and it is thus classified as unique! Therefore, are divergent thinking (uniqueness) tests measures of creative ideation or rather measures of being prepared to express 'unusual' ideas? This is a complex issue and it is most likely that Rawlings and Toogood's (1997) suggestion that the relationship between psychoticism and divergent thinking probably reflects two independent processes - unusual thinking (i.e. having the unusual idea) and antisocial responses (the preparedness to present the idea) - comes closest to providing us with some understanding of the issues and is reflected in the current study with visual artists scoring higher in both asocial- and positive-schizotypy.

Whatever the dynamic is, the results suggest that both positive- *and* asocial-schizotypy have a role to play in this process. To conclude, it can be seen that there are a number of complex relationships occurring between schizotypy and creativity, made even more complicated by the multidimensional nature of schizotypy, the different approaches to measuring creativity and possible gender differences.

Finally, let us now return to the epigram at the very beginning of this paper, which Julius (2002) suggests can be interpreted in a number of different ways. However, of these interpretations, two seem most relevant to the current discussion. Firstly, where the 'uncommitted crime' may reflect 'a crime committed in one's mind, where every thing is possible and nothing has consequences' (Julius, 2002, p. 222) and may be akin to positive-schizotypy; and secondly, where the 'uncommitted crime' may reflect 'the effect that certain artworks have on their audiences to the effect that crimes have on their victims' (Julius, 2002, p. 227) and may reflect the more asocial elements of creative production.

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