

PSYCHOLOGICAL ANDROGYNY AND CREATIVITY: DYNAMICS OF GENDER-ROLE AND PERSONALITY TRAIT

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We investigated the involvement of gender-role and personality traits in a cluster of tests to ascertain individuals' creative ability. Participants were 200 students at Karlstad University. Five gender-role types, based upon masculinity/femininity scales were derived, namely the androgynic, stereotypic, retrotypic, midmost, and undifferentiated types. Results indicated that the androgynic group scored higher than the other groups on creativity, creative attitude (trend), dispositional optimism and graffiti/scrawling – with the exception of the stereotypic group which scored non-significantly higher on optimism. Nor was the androgynic group significantly different from the retrotypic group with respect to creativity – although this group scored significantly higher than did the stereotypic group. Small, or negligible, gender differences were found on the masculinity/femininity scales.

Keywords: gender-role, personality traits, creative ability, stereotypes.

A vast array of studies have been aimed at the definition and description of the putative differences between male and female creativity (for a comprehensive review, see Abra & Valentine-French, 1991). As recurrently maintained almost as historical fact, there are – and have been – more distinguished men than women within the widespread enterprises of art, literature, music, science, and

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technical development (Eccles, 1985). Modern research seems, however, to indicate that explanations for gender differences in these areas of endeavor ought to be sought primarily in gender role imprinting, which is underlined by the observation that between-gender differences decrease concurrently with the emancipation of women (Becker & Hedges, 1984; Feingold, 1988; Rosenthal & Rubin, 1982).

An area with considerably less research pertains to the combination of 'male' and 'female' in the mental processes of individual creativity. McKinnon (1962) reported that creative men and women exhibit attitudes and interests more readily considered typical for the opposite sex. In the western culture, sensitivity is considered a feminine virtue – whereas independence is masculine (Ekvall, 1991). Torrance (1963) has found that creative boys possess more feminine characteristics than their peers, and that creative girls are perceived as more masculine than other girls. In an investigation of female scientists (Helson, 1967) a prestigious group of successful female mathematicians was compared with another group of female mathematicians adjudged as having more average ability. The creative group received significantly higher judgments for the following characteristics: individualism, originality, concentration, artistry, complexity, courage, emotion, fascination, self-orientation. This gives an assortment of typically female and male gender characteristics, thus allowing Ekvall (1991), after a review of a couple of studies, to postulate that creative persons cross the boundaries of commonly-accepted gender roles thereby acquiring greater freedom and more divergent experiential material with which to work. This observation may be associated markedly with research relating to the androgynous person 'who does not rely on gender as a cognitive organizing principle' (Bem, 1984, p. 189).

The concept *psychological androgyny* has been applied to describe individuals with both stereotypic masculine and feminine behavioral traits (Bem, 1977) and, for several years, research has been focused upon the psychological benefits of an androgynous personality (Murphy, 1994). Studies associating androgyny with high self-esteem (Mullis & McKinley, 1989; Spence & Helmreich, 1981), achievement motivation (Spence & Helmreich, 1978), more mature self-descriptions (Block, 1973), more satisfaction with life (Ramanaiah, Detwiler, & Byravan, 1995), marital satisfaction (Zammichieli, Gilroy, & Sherman, 1988), subjective feelings of well-being (Lubinski, Tellegen & Butcher, 1981), more adaptive or flexible behavior (Bem, 1974; Vonk & Ashmore, 1993), and parental effectiveness (Baumrind, 1982).

The concepts *masculine* and *feminine*, which are often employed as subscales in tests of androgyny, have been questioned on several standpoints, e.g., masculinity/femininity present a reinforced association between gender and behavior that renders redundant any particular theory regarding androgyny (Lott, 1981; Vonk & Ashmore, 1993), the concepts strengthen gender stereotypes (Betz, 1993), and concepts other than masculinity/femininity ought more validly to describe that which the two subscales seek to capture (Spence & Helmreich, 1981). These latter authors

suggest that the concept of *instrumentality* should be employed instead of *masculinity* to describe characteristics such as self-esteem and competence – and that *expressiveness* should be used instead of *femininity* to describe characteristics such as *sensitivity* and *orientation towards interpersonal relationships*. One criticism of the most common androgyny tests is that stereotypic men (i.e., those scoring high on masculinity and low on femininity) are not analyzed in conjunction with stereotypic women (i.e., those scoring high on femininity and low on masculinity). In the opposite manner, should men and women with anti-stereotypic or ‘retrotypic’ properties (i.e., opposite to stereotypic) be analyzed in their own right? Gender-role types may well have as their basis a complex and multifaceted self with a range of identities associated with different social settings (Vonk & Ashmore, 1993). It should, therefore, be reasonable to analyze stereotypic and retrotypic independently independent of gender. For example, is it reasonable to assume that a stereotypic role dimension limits possibilities for crossing over gender role boundaries with reduced creativity as a consequence?

On the basis of the background described, five hypotheses are presented:

- (a) Androgynic individuals will tend to be more creative
- (b) Stereotypic individuals will tend to be less creative
- (c) Androgynic individuals will tend to show higher dispositional optimism than the other gender-role types, i.e., stereotypic and retrotypic
- (d) Androgynic individuals will tend to produce more graffiti (i.e., graffiti/scrawling) than the other gender-role types
- (e) Small, or no, gender differences will be obtained on the masculinity and femininity scales

METHOD

PARTICIPANTS

A total of 200 people participated in the study, 98 men and 102 women. They were all recruited at the University campus, Karlstad University, Sweden, and were all students at the university. The average age of the participants was 26.13 years ($SD = 5.46$, age range = 19 to 58) and 65 were married or engaged in a common-law relationship, whereas 26 described themselves as separated, and 108 as single. The sample was divided (see ‘Instruments’ below) into five groups: an ‘Undifferentiated’ group (63 participants, i.e., 31.5%), a Retrotypic group (45 participants, i.e., 22.5%), a Midmost group (24 participants, i.e., 12%), a Stereotypic group (47 participants, i.e., 23.5%) and an Androgynic group (21 participants, i.e., 10.5%). With regard to age, there was no (two-way ANOVA) significant interaction between group and gender, nor any significant gender difference ($ps > 0.2$) - however there was a significant group difference [$F(4, 190) = 2.84$, $p = 0.026$] whereby post hoc testing (LSD, 5% level) indicated

that the participants were older in the Midmost group ($M = 28.33$, $SD = 9.43$) and in the Stereotypic group ($M = 27.60$, $SD = 5.06$) compared with the Undifferentiated group ($M = 25.14$, $SD = 4.23$) and the Retrotypic group ($M = 24.98$, $SD = 4.23$), whereas the Androgynic group was in between ($M = 25.76$, $SD = 4.84$). There were no significant between-group differences (Kruskal-Wallis testing) with regard to civil status, course-interruptions, leisure activities, whether one recalls one's dreams or not, living conditions, upbringing, number of siblings, ranking in sibling-order or work-occupation experience ($ps > 0.1$).

With regard to the masculinity and femininity scales (two-way ANOVA) no significant interaction effects between group and gender ($ps > 0.2$) were obtained, nor were there any gender differences with regard to the masculinity scale ($p = 0.476$). However, there was a gender difference for the femininity scale ($p = 0.031$) wherein female subjects obtained higher scores ($M = 65.28$, $SD = 9.10$) compared with male subjects ($M = 60.63$, $SD = 8.90$). As expected, there were significant differences on both scales regarding group ($ps < 0.001$). It was shown that the androgynic and stereotypic groups obtained the highest scores on the masculinity scale, whereas the androgynic and retrotypic groups obtained the highest scores on the femininity scale.

DESIGN

The independent variables of the study were group (the five sex-role types) and gender. The dependent variables were dispositional optimism, creative attitude, creativity, graffiti/scrawling, destructiveness, aggression, and sexually-charged.

INSTRUMENTS

(a) BSRI - Bem Sex Role Inventory The test inventory (Bem, 1981) is constructed from 60 words that each represent one particular trait. Twenty of these words are considered to signify masculine traits, 20 other words to signify feminine traits and the remaining 20 to signify 'filler' items. Each of the participants was instructed to mark crosses upon 100mm lines indicating the anchor-points *does not fit at all* and *fits completely*. Results from the masculine trait words were combined to a masculine index and those from the feminine trait words to a feminine index. Any participant who obtained high scores for both masculinity and femininity was defined as 'androgynic' whereas low scores on both measures gave the definition 'undifferentiated' (Bem, 1977). Two more gender-role groups had been included in the original version: feminine (high on femininity, low on masculinity) and masculine (high on masculinity, low on femininity). These categories were not applied here since it was considered important, against a background of individuals' different identity experiences (Vonk & Ashmore, 1993), to examine instead women and men with strong stereotypical self-appraisal as one group, and those with 'reversed' stereotypical self-appraisal as another group.

Therefore, in the present study the masculinity and femininity scores were divided into three equal parts, i.e., low score, intermediate score, and high score. Participants who received low scores on both the masculinity and femininity scales were defined as *undifferentiated*, those obtaining intermediate scores were defined as *midmost*, and those obtaining high scores on both scales were defined as *androgynic*. Further, participants obtaining relatively low values on the index which, from a traditional point-of-view, ought to correspond with their gender were termed *retrotypic* (i.e., a man with more feminine traits than masculine; a woman with more masculine traits than feminine, low-high, low-intermediate, intermediate-high). Similarly, participants obtaining relatively high values on the traditional index were termed *stereotypic* (i.e., a man with more masculine traits than feminine, a woman with more feminine traits than masculine, high-low, intermediate-low, high-intermediate). These profiles may be achieved through the expediency of representing the masculinity and femininity scales as a 'cross-figure' (see Figure 1).

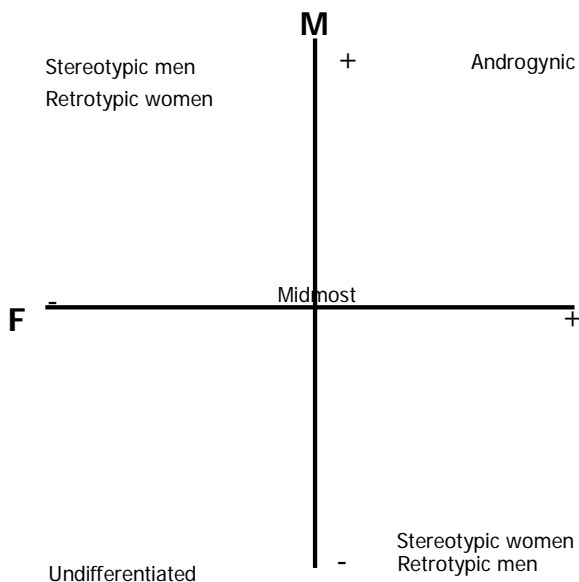


Figure 1: Masculinity scale (M) and femininity scale (F) presented as two 'crossed-over' axes with the five gender-role types superimposed.

(b) FS - Change and Stability The test (Holmquist 1986) measures creative attitude with respect to change and stability. The test consists of 20 items such as: 'Risk-taking is necessary for success' and each participant was asked to respond on a 4-point scale, ranging from *agree* to *disagree*. There was no time limit for the FS test.

(c) **AET – ‘Adam and Eve’ test** A test (Nordmarker, Norlander, & Archer, 2000; Norlander, Nordmarker, & Archer, 1998) consisting of color illustrations depicting ‘Adam and Eve’ in the Garden of Paradise. Participants were provided with an illustration of ‘Paradise’ accompanied by instructions to perform whatever operations they wanted on the picture, having been provided with two different types of thick felt pens. The assignment was to be performed over seven minutes. The results were examined and judged by two panels from different viewpoints. Panel A consisted of two high school teachers who were assigned the task of judging the extent of graffiti/scrawling (on a scale of 0-10). Panel B consisted of an image-therapist and a psychologist-cum-image artist assigned the task of assessing the degree of destruction, aggression and sexuality (on a scale of 0-10) in the graffiti/scrawling shown by each participant. Consensual definitions (Amabile, 1983) of graffiti/scrawling, destruction, aggression, and sexuality were used.

(d) **Elaboration.** The creativity test (Modeus, Ståhlbröst, Wester, & Ögren, 1987) consists of nine squares containing incomplete pictures. The task of each participant was to complete the nine pictures within 15 minutes. The judges from Panel A then assessed each square on a scale of 0-5 with regard to the amount of detail in each of the responses (elaboration).

(e) **LOT – Life Orientation Test.** The test (Scheier & Carver, 1985) consists of eight items, plus four filler items. The task of each participant is to take up a standpoint to the extent of whether or not s/he is in agreement with each of the items described, on a scale of 0-4, where 0 indicates *strongly disagree* and 4 indicates *strongly agree*. The test measures dispositional optimism as defined in terms of generalized outcome expectancies.

PROCEDURE

The 200 participants were recruited via public announcements and notices, and through information regarding the present study given during lectures held at Karlstad University. At recruitment it was explained to the participants that the study involved different aspects of gender-related questions, that the procedure would take 45 minutes for the questionnaire and tests to be completed, and that they would be invited to partake in coffee and refreshments afterwards. Beforehand, participants were informed that a work of art (painting) would be raffled out amongst the participants.

Participants were asked to enter a room (reserved previously) in groups of 10-15 persons on each occasion, and were there distributed in such a manner as to make impossible any contact between individuals. After this, each participant was asked to start completing the questionnaire with background data and then, in random order, was presented with the two time-limited picture tests (AET and elaboration). On completion of the tests, they were asked, again in random ord-

er, to complete the time-unlimited tests (LOT, FS, and BSRI). Once all the data were gathered in, all the subjects were invited to a debriefing meeting.

RESULTS

INTERJUDGE RELIABILITIES

Panel A. The correlation statistics (Pearson's *r*) showed a significant correlation between the judges' scoring on graffiti/scrawling ($r = 0.89, p < 0.001$) and the elaboration test ($r = 0.87, p = 0.001$). The scores produced by the two raters were averaged for the graffiti/scrawling and for the elaboration test.

Panel B. The correlation statistics (Pearson's *r*) showed a significant correlation between the judges' scoring on destruction ($r = 0.78, p < 0.001$), aggression ($r = 0.78, p < 0.001$), and sexuality ($r = 0.37, p = 0.001$). The scores produced by the two raters were averaged for destruction, aggression, and sexuality.

DEPENDENT VARIABLES

Pillais' MANOVA (5 x 2 factorial design) was applied with group and gender as the independent variables and creative attitude (FS), creativity (elaboration), dispositional optimism (LOT), graffiti/scrawling (AET), destructivity (AET), aggression (AET), and sexuality (AET) as the dependent variables. The analysis did not indicate any group x gender interaction effect ($p = 0.43, power = 0.89$), verified by the univariate *F* test ($ps > 0.09$). There was, however, a significant group difference ($p = 0.001, power = 0.97$) and a significant difference in respect to gender ($p = 0.049, power = 0.79$). The results of the univariate *F* test for group and gender are presented below. A MANCOVA controlling for the differences between groups in regard to age yielded no other significant indications. For means and standard deviations, see Table 1.

TABLE 1
 MEANS (*M*) AND STANDARD DEVIATIONS (*SD*) WITH REGARD TO GROUP (UNDIFFERENTIATED = UNDIFF, RETROTYPIC = RETRO, MIDMOST = MIDMO, STEREOTYPIC = STEREO, ANDROGYNIC = ANDRO) AND GENDER (MEN = MEN, WOMEN = WOM.) FOR CREATIVE ATTITUDE (FS), CREATIVITY (ELABOR), DISPOSITIONAL OPTIMISM (LOT), GRAFFITI/SCRAWLING (GRAFFITI), DESTRUCTIVITY (DESTRU), AGGRESSION (AGGRES), AND SEXUALITY (SEXUAL)

	Undiff	Undiff	Retro	Retro	Midmo	Midmo	Stereo	Stereo	Andro	Andro
	Men	Wom.	Men	Wom.	Men	Wom.	Men	Wom.	Men	Wom.
FS										
<i>M</i>	50.52	55.06	50.83	53.52	53.11	52.73	53.85	55.54	54.57	59.71
<i>SD</i>	5.82	4.39	9.69	4.98	4.51	6.05	6.88	11.77	8.32	9.12
Elabor										
<i>M</i>	21.88	21.76	23.46	24.24	21.44	21.30	19.25	22.15	24.36	27.21
<i>SD</i>	5.66	6.82	5.38	6.36	5.07	6.34	7.37	6.84	6.98	8.59

Table 1 continued

	Undiff	Undiff	Retro	Retro	Midmo	Midmo	Stereo	Stereo	Andro	Andro
	Men	Wom.	Men	Wom.	Men	Wom.	Men	Wom.	Men	Wom.
LOT										
<i>M</i>	20.69	21.32	23.08	21.52	20.33	22.33	24.18	25.23	24.64	22.86
<i>SD</i>	5.50	4.44	3.65	4.50	2.50	3.96	3.59	4.82	3.05	3.53
Graffiti										
<i>M</i>	4.21	3.90	4.83	4.29	3.39	4.80	4.24	4.35	4.61	7.57
<i>SD</i>	2.49	2.45	2.45	2.94	2.58	2.98	2.23	2.62	1.62	3.21
Destru										
<i>M</i>	4.10	3.72	4.63	4.00	3.22	4.40	3.81	3.96	3.64	5.29
<i>SD</i>	2.73	2.51	2.59	3.12	2.61	2.70	2.49	2.53	1.31	2.84
Aggres										
<i>M</i>	3.19	3.24	4.00	3.12	3.00	3.40	2.88	3.31	3.43	3.21
<i>SD</i>	2.75	2.74	3.15	3.00	3.08	3.11	2.88	2.84	1.94	3.39
Sexual										
<i>M</i>	2.19	2.28	2.88	2.41	1.22	2.67	2.12	2.19	1.96	4.50
<i>SD</i>	2.08	1.97	3.28	1.76	1.75	2.86	2.16	2.09	1.55	3.14

(a) **Creative attitude (FS).** A univariate F test showed no significant difference between groups ($p = 0.071$), even though a non-significant trend for the androgynic group to show a higher mean ($M = 56.29$) compared to the other groups (mean range = 52.80 to 54.32) was observed. There was, however, a difference with regard to gender [$F(1, 190) = 6.03, p = 0.015, power = 0.69$], whereby the female subjects obtained higher scores ($M = 54.60, SD = 6.60$) compared with the male subjects ($M = 52.53, SD = 7.09$).

(b) **Creativity (Elaboration).** A univariate F test showed no significant difference in regard to gender ($p = 0.247$), but did show a significant effect of group [$F(4, 190) = 2.54, p = 0.041, power = 0.71$]. A post hoc test (LSD, $p < .05$) indicated that the androgynic group obtained higher scores for creativity ($M = 25.31, SD = 7.47$) compared to the stereotypic group ($M = 20.05, SD = 7.27$), the midmost group ($M = 21.35, SD = 5.78$), and the undifferentiated group ($M = 21.82, SD = 6.26$). There was no significant difference between the androgynic group and the retrotypic group ($M = 24.03, SD = 6.06$), although it was found that the latter obtained higher scores on creativity than did the stereotypic group.

(c) **Dispositional optimism (LOT).** A univariate F test showed no significant difference with regard to gender ($p = 0.924$), but a significant effect of group [$F(4, 190) = 5.23, p = 0.001, power = 0.97$]. Post hoc testing (LSD, $p < .05$) indicated that the stereotypic group exhibited higher scores for optimism ($M = 24.47, SD = 3.94$) than did the undifferentiated ($M = 21.03, SD = 4.93$), midmost ($M = 21.58, SD = 3.56$), and retrotypic ($M = 21.93, SD = 4.31$) groups. There was no difference between the stereotypic group and the androgynic group ($M = 24.05, SD = 3.25$), however, the latter obtained higher scores for dispositional optimism than did the undifferentiated group.

(d) *Graffiti/scrawling (AET)*. A univariate F test showed no significant difference in regard to gender ($p = 0.085$), but there was a significant effect of group [$F(4, 190) = 2.47, p = 0.046, power = 0.7$]. Post hoc testing (LSD, $p < .05$) indicated that the androgynic group produced more graffiti ($M = 5.60, SD = 2.62$) compared with the undifferentiated group ($M = 4.04, SD = 2.46$). The other groups scored at intermediate levels: the retrotypic group ($M = 4.43, SD = 2.80$), stereotypic group ($M = 4.27, SD = 2.31$) and midmost group ($M = 4.27, SD = 2.87$).

(e) *Destructivity (AET)*. A univariate F test showed no significant differences for either group or gender ($ps > 0.35$).

(f) *Aggression (AET)*. A univariate F test showed no significant differences for either group or gender ($ps > 0.9$).

(g) *Sexuality (AET)*. A univariate F test showed no significant difference between groups ($p = 0.297$), but there was a difference with regard to gender [$F(1, 190) = 4.22, p = 0.041, power = 0.53$], whereby the female participants demonstrated a somewhat higher sexuality ($M = 2.52, SD = 2.19$) in comparison with the male participants ($M = 2.13, SD = 2.19$).

CORRELATIONAL STATISTICS

Correlation coefficients (Pearson's r) were computed between the seven dependent variables and the masculinity and femininity scales (See Table 2).

TABLE 2
CORRELATIONS BETWEEN CREATIVE ATTITUDE (FS), CREATIVITY (ELABOR), DISPOSITIONAL OPTIMISM (LOT), GRAFFITI/SCRAWLING (GRAFFITI), DESTRUCTIVITY (DESTRU), AGGRESSION (AGGRES) AND SEXUALITY (SEXUAL), MASCULINITY SCALE (MASC), FEMININITY SCALE (FEM). SIGNIFICANT CORRELATIONS ARE INDICATED AS FOLLOWS: $p < 0.05$ (*), $p < 0.001$ (**)

	FS	Elabor	LOT	Graffiti	Destru	Aggres	Sexual	Masc	Fem
FS	1.00								
Elabor	0.15*	1.00							
LOT	0.24**	0.08	1.00						
Graffiti	0.13	0.43**	0.06	1.00					
Destru	0.13	0.36**	0.02	0.88**	1.00				
Aggres	0.15*	0.31**	0.05	0.64**	0.78**	1.00			
Sexual	0.15*	0.38**	0.02	0.67**	0.68**	0.53**	1.00		
Masc	0.15*	-0.05	0.40**	0.08	-0.01	0.01	-0.05	1.00	
Fem	0.06	0.26**	0.06	0.12	0.05	0.08	0.14	-0.06	1.00

A factor analysis procedure (principal components extraction) was applied as a further analysis of the correlational statistics, after which the factors were rotated according to the varimax method. The procedure extracted three factors. The rotated factor matrix is presented in Table 3.

TABLE 3

ROTATED FACTOR MATRIX WITH THE VARIABLES CREATIVE ATTITUDE (FS), CREATIVITY (ELABOR), DISPOSITIONAL OPTIMISM (LOT), GRAFFITI/SCRAWLING (GRAFFITI), DESTRUCTIVITY (DESTRU), AGGRESSION (AGGRES) AND SEXUALITY (SEXUAL), MASCULINITY SCALE (MASC), FEMINITY SCALE (FEM). VALUES MARKED WITH * INDICATE LOADINGS $P < 0.5$

	Factor 1	Factor 2	Factor 3
FS	0.12834	0.53377*	0.23906
Elabor	0.42314	0.05932	0.60500*
LOT	-0.01761	0.81152*	0.08509
Graffiti	0.90012*	0.09429	0.10932
Destru	0.95192*	0.02159	0.01933
Aggres	0.83430*	0.05766	0.03450
Sexual	0.78845*	-0.00920	0.19629
Masc	0.00161	0.76863*	-0.25108
Fem	-0.02100	0.02176	0.86130*

DISCUSSION

Five hypotheses were presented above. These will be discussed in turn with regard to the results obtained.

(a) Androgynic individuals will tend to be more creative. The present results indicate that androgynic individuals have a predisposition towards creativity. The androgynic group obtained higher scores compared with the stereotypic, midmost, and undifferentiated groups, but there was no significant difference compared with the retrotypic group, which achieved the next highest score on creativity. The androgynic group tended also to score highest on creative attitude (FS). These results are consistent with previous evidence of greater androgynic flexibility. The high scoring of the retrotypic group (next best) on creativity had not been predicted. Possibly the contrast between biological gender with a traditional role-assignment, and psychological orientation with an untraditional role-assignment (i.e., a feminine man or a masculine woman) was sufficient to induce conditions facilitatory to the release of creativity. It is arguable whether or not retrotypic men and women possess similar penchants to their androgynic counterparts to cross the boundaries of traditional gender-roles, thereby accumulating experiential material with elevated flexibility and creativity as a consequence.

(b) Stereotypic individuals will tend to be less creative. This hypothesis was confirmed: the stereotypic group obtained the lowest scores with both the androgynic and retrotypic groups showing more creativity.

(c) Androgynic individuals will tend to show greater dispositional optimism as compared with the other gender-role types. Dispositional optimism, measured with LOT, was unexpectedly high for the stereotypic group – although these showed no significant difference from the androgynic group, which showed the next highest degree of optimism. The stereotypic group exhibited greater optimism

than did the undifferentiated, midmost, and retrotypic groups, whereas the androgynic group exceeded only the undifferentiated group. Higher optimism by the androgynic group is not surprising: earlier studies have indicated that androgynic individuals score high also on characteristics such as self-esteem, satisfaction with life, and achievement motivation. Dispositional optimism may well exist as a background variable to these characteristics. The ability to shift perspectives and resources to a broader experiential material may offer important components for an optimistic view of life. It is noteworthy that stereotypic men and women acquired the highest scores on optimism. One explanation may be that the biological gender, with its traditional role-assignment, complies with a psychological orientation with traditional role-assignment (i.e., a masculine man and a feminine woman) to produce a convergent perception of the social environment in a less complex, though more monotonous, perspective wherein limited experiential material appears natural. This cognitive position ought to take expression in both an elevated optimism and reduced creativity; in this state it may well be that this type of individual possesses an 'unthreatened' set of attitudes in contrast to the retrotypic individual.

(d) Androgynic individuals will tend to produce more graffiti than the other gender-role types. The prediction that personality traits such as aggression, independence, and willingness to take risks in combination with those such as being childlike and shy may be associated with increased graffiti/scrawling (in an experimental situation) was confirmed insofar as the androgynic group produced more graffiti than did the undifferentiated group. The correlation analysis indicated that graffiti contained destructive, aggressive, and sexual elements, but no differences between gender-role types were obtained. There was also a correlation between graffiti and creativity-and creativity, as has been shown, did have differences between gender-role types.

(e) Small, or negligible, gender differences will be obtained on the masculinity and femininity scales. This hypothesis was, to some extent, confirmed. In the present sample there were no gender differences on the masculinity scale, but with regard to the femininity scale it was found that female participants scored higher than male participants. The analysis reinforces the suspicion that the masculinity scale measures primarily instrumental characteristics, while femininity scales measure expressive characteristics (e.g. Spence & Helmreich, 1981).

Our results indicate that BSRI, with the modifications performed, may offer a highly applicable test for future investigations of creativity. Further studies are necessary for an eventual classification of the various forms of creativity with regard to the androgynic and retrotypic gender-role types, and to determine to what extent stereotypic individuals are less creative.

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