GENDER, GENDER ROLE, AND CREATIVITY

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Undergraduate students (136) were assessed with 3 measures of creative ability and a gender role measure to explore relationships between gender, gender role, and creativity. Male participants’ performance on the creativity measures generally was better than that of females, with significant differences in 2 specific creativity tasks. Androgynous individuals’ creative productions were judged to be superior to those of participants representing other gender role categories. Further analysis revealed the highest levels of creativity in men who strongly identified with feminine gender role characteristics, with androgynous women recording the next highest scores. Undifferentiated men and women, and highly feminine women achieved low creativity scores. Both men and women who reported strongly masculine gender role characteristics surpassed the performance of undifferentiated participants.

Keywords: gender role, creativity, gender, androgyny, Torrance Test of Creative Thinking.

Despite four decades of scholarly interest in gender and creativity, no clear picture has emerged regarding the relationship between these two important and complex phenomena. Empirical studies of gender differences in creative ability have yielded decidedly inconsistent findings, except for a consensus regarding the disproportionately greater male presence among widely recognized figures who are distinguished by their eminent creative accomplishments. Direct comparisons of the performance of men and women on a wide array of creativity measures have resulted in every conceivable outcome. In many studies, no discernible gender differences have been found (Kaufman, Baer, & Gentile, 2004). In
other studies, women have surpassed men in creative ability (Reuter et al., 2005; Wolfradt & Pretz, 2001), whereas in other comparisons, men outperform women (Cox, 2002; Dollinger, Dollinger, & Centeno, 2005). Similarly, in studies of creative men and women’s personalities, some researchers have found similarities (Chavez-Eakle, Lara, & Cruz-Fuentes, 2006; Szobiova, 2006), while others have found personality differences (Labouvie-Vief, 1994). As there are more questions than answers about how men and women differ and resemble one another in their creative pursuits, Baer (1999) called for studies designed to explain the many inconsistencies that characterize this body of literature.

Ai (1999) has suggested that these pervasive inconsistencies might be explained, at least in part, by differences in gender role identification across participants. The issue of gender role has attracted far less attention than gender itself in empirical creativity studies. However, this small but growing body of research has yielded consistent evidence of superior creative potential among androgynous individuals.

In an early gender role study, Carter (1985) found cognitive flexibility scores to be significantly higher in androgynous individuals in comparison to individuals whose gender roles were described as feminine or undifferentiated. One result of interest is Carter’s finding that participants whose sex roles were classified as high in masculinity, exhibited significantly higher cognitive flexibility than did low-masculinity participants, and high-masculinity participants’ cognitive flexibility scores were equivalent to those of androgynous individuals. Carter found notable gender differences, with men significantly outperforming women in cognitive flexibility tasks.

More recently, Norlander, Erixon, and Archer (2000) used multiple measures of creativity to compare creative attitudes and creative performance in young adults. They were sorted into one of five Bem Sex Role Inventory (BSRI; Bem, 1981) gender role classifications: androgynous, characterized by high masculinity and high femininity; stereotypic, involving placing high values on traditional roles for one’s gender; undifferentiated, marked by low masculinity and low femininity; retrotypic, consisting of characteristics that are the opposite of one’s traditional gender role; and midmost, individuals whose self-appraisals regarding gender were in the middle range for both masculinity and femininity. Androgynous individuals obtained higher creativity scores than did stereotypic, midmost, and undifferentiated participants. Furthermore, no differences were found between the creativity levels of androgynous participants and retrotypic participants. Stereotypic participants obtained the lowest scores on all creativity measures. The authors suggest that nontraditional gender role self-attributions are associated with cognitive flexibility that facilitates creative self-expression. In addition to analyzing the impact of gender role in creativity the authors also examined gender effects. They found that female participants reported more
creative attitudes than males did, as measured in a self-report questionnaire tapping characteristics such as attitudes toward change, risk taking, and stability. No gender differences emerged in creative ability.

Using a sample of Turkish university students, Karakitapoglu-Aygun (2004) found men’s self-descriptions to contain significantly higher levels of self-perceived openness and creativity than did the self-descriptions of women. Additionally, openness and creativity were significantly correlated with high levels of interest in relational priorities (such as maintaining harmony with others) in men, but not in women, suggesting that creative men may possess at least some characteristics that are typical of traditionally feminine gender roles.

In a recent comparison of the creative styles of androgynous and nonandrogynous individuals, Keller, Lavish, and Brown (2007) found that androgynous individuals utilized a wider array of strategies in the process of facilitating creative activity in contrast to masculine, feminine, and undifferentiated individuals. The greater variability in techniques employed to express creativity among these androgynous participants supports the notion that androgyny might be characterized by high levels of cognitive flexibility, which would, in turn, be expected to enhance creative potential.

We aimed in this study to determine whether the benefits of androgyny apply equally to men and women in their creative efforts and specifically we explored whether the facilitative effects of androgyny operate similarly across genders.

**METHOD**

**PARTICIPANTS**

Participants were 136 undergraduate students at a mid-sized regional university (57 males and 79 females, age range from 17 to 31) who received extra credit for their participation in the study.

**MATERIALS**

The materials included a modified version of the Torrance Test of Creative Thinking (TTCT; Torrance, 1998). The TTCT is the most widely used test of divergent thinking, and has been validated across cultures in widespread international studies (Sternberg, 1999). Torrance reports reliability coefficients for the TTCT scales ranging from .89 to .94.

Participants were instructed to: 1) list as many unusual uses as possible for a tin can; 2) list as many unusual uses as possible for a cardboard box; 3) complete a picture construction task using an oval shape centered on a blank sheet of paper. Unusual uses for a tin can and cardboard box were scored on three dimensions: fluency, the number of responses generated; flexibility, the number of distinct categories in which the responses generated; and novel responses, the number of unique responses as determined by two doctoral-level creativity
researchers serving as independent judges. The picture construction task was judged on a scale from 1 (*not at all unusual/surprising*) to 7 (*extremely unusual/surprising*). In cases where judges’ ratings were not consistent, (7%), a third judge’s rating resolved the discrepancy.

In addition, the Personal Attributes Questionnaire (PAQ), a 24-item self-report scale, was used to assess the psychological dimensions of masculine (M) and feminine (F) gender role characteristics (Spence & Helmreich, 1978). Each participant was classified into one of four groups: androgynous (high on both M and F), masculine (high on M and low on F), feminine (low on M and high on F), and undifferentiated (low on both M and F). In a recent psychometric review of the PAQ, Ward, Thorn, Clements, Dixon, and Sanford (2006) reported adequate reliability (alpha coefficients ranging from .67 to .80) for both the M and the F scale of the PAQ. Additionally, Ward et al. reported confirmatory factor analyses of the F and M scales within the PAQ.

**RESULTS**

**GENDER – CREATIVITY ANALYSIS**

We conducted *t* tests on the fluency, flexibility, and novel response scores for the tin can and cardboard box exercises. Analyses revealed that there were no significant differences between men and women in the tin can exercise for fluency (males: $M = 17.04$, $SD = 8.12$; females: $M = 15.57$, $SD = 5.93$, $t(135) = .924$, $p = .36$), flexibility (males: $M = 13.52$, $SD = 5.95$; females: $M = 12.48$, $SD = 5.55$, $t(135) = .764$, $p = .45$), and unusual uses (males: $M = 2.65$, $SD = 3.31$; females: $M = 1.79$, $SD = 1.73$, $t(135) = 1.53$, $p = .13$). Likewise there were no significant gender differences in the cardboard box exercise for fluency (males: $M = 19.83$, $SD = 8.29$; females: $M = 16.10$, $SD = 8.45$ $t(135) = 1.59$, $p = .45$) and flexibility (males: $M = 13.99$, $SD = 5.79$; females: $M = 12.87$, $SD = 5.82$, $t(135) = .893$, $p = .19$). However there was a significant difference on unusual uses (males: $M = 2.30$, $SD = 2.58$; females: $M = 1.07$, $SD = 1.22$, $t(135) = 2.11$, $p = .04$). Levine’s test of homogeneity of variance for flexibility was significant at the .05 level ($F = 9.06$, $p = .004$), therefore a *t* test for unequal variances was conducted. When observing the means across the verbal creativity scores, males outperformed females on all measures, but the results were not statistically significant. On the picture construction task, however, males ($M = 3.76$, $SD = 2.05$) scored significantly higher than females ($M = 2.79$, $SD = 1.67$, $t(135) = 2.26$, $p = .03$).

**GENDER ROLE – CREATIVITY ANALYSIS**

Participants’ creativity scores were subjected to a 2 (gender: male vs. female) x 4 (gender role: androgynous, masculine, feminine and undifferentiated)
analysis of variance. There were no significant main effects or interactions for verbal creativity measures for the tin can and cardboard box exercises. There was, however, a significant main effect for gender role categories on the picture construction task, $F(1, 135) = 3.75, p = .01$. Androgynous individuals had the highest creativity score ($M = 4.06, SD = 1.71$), followed by masculine individuals ($M = 3.23, SD = 1.88$), then feminine individuals ($M = 3.08, SD = 1.84$), and lastly undifferentiated individuals ($M = 1.85, SD = 1.21$). Posttest analyses revealed a significant difference between androgynous and undifferentiated individuals ($M_{\text{diff}} = 2.21, p = .003$). Comparisons between the other categories were not significant post hoc. There was no significant main effect for gender (males: $M = 3.55$; females: $M = 2.91$, $F(1, 135) = 2.08, p = .15$). The interaction between gender and gender roles was marginally significant, $F(3, 135) = 2.27, p = .09$ (see Table 1 for means and standard deviations). Inspection of the means reveals that the mean for feminine males was higher than the mean for androgynous and masculine males. Additionally, masculine females had a higher mean score than feminine females but not androgynous females. When collapsed across gender, androgynous individuals scored higher than all other categories.

TABLE 1
DESCRIPTIVE STATISTICS FOR PICTURE CONSTRUCTION BY GENDER AND GENDER ROLE CATEGORIES

<table>
<thead>
<tr>
<th>Gender</th>
<th>Category</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>Androgynous</td>
<td>4.00</td>
<td>1.83</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Masculine</td>
<td>3.33</td>
<td>2.66</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td>4.88</td>
<td>1.46</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Undifferentiated</td>
<td>2.00</td>
<td>1.00</td>
<td>7</td>
</tr>
<tr>
<td>Females</td>
<td>Androgynous</td>
<td>4.10</td>
<td>1.73</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Masculine</td>
<td>3.14</td>
<td>1.07</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td>2.61</td>
<td>1.65</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Undifferentiated</td>
<td>1.80</td>
<td>1.32</td>
<td>12</td>
</tr>
</tbody>
</table>

Note. There was a significant main effect for gender role category but not for gender. The interaction was marginally significant.

DISCUSSION

GENDER AND CREATIVITY

Significant differences were found favoring male participants’ performance in picture construction, the nonverbal creativity measure. There were no significant gender differences in participants’ flexibility and fluency scores on the two verbal (alternate uses) creativity tasks except for novelty of thinking in the cardboard box alternate uses task, where males generated significantly more original ideas than females did. Male participants’ verbal creativity (flexibility and fluency and
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...tin can novelty) scores overall were higher than those of females, although the differences were not significant.

A number of observers of gender issues in creativity have offered rationales for social developmental influences that may negatively impact on the development of creativity in women. Piirto (1991), Reis (1999), and Simonton (2000) point to competing priorities stemming from feminine social role demands that are particularly salient during early adulthood, the developmental stage of our participants. These competing priorities may limit the time and energy available to young women to pursue creative self-expression. For example, many young women are expected to invest personal resources to meet social demands such as laying the foundation for establishing a family and initiating child rearing. Furthermore, the skills involved in pursuing these social role obligations may be inconsistent with the attributes that typify highly creative individuals. The highly affiliative interpersonal sensitivity and multitasking behaviors that contribute to successful achievement of conventional social role expectations for young women are incompatible with the single-minded absorption in one’s work and unconventional, independent thinking that characterize highly creative personalities (Kogan, 1974; Piirto, 1991; Reis, 1998). Responsiveness to gender-specific feminine social role demands may have suppressed the creative efforts of some members of this largely middle-class sample of American college women as they face these expectations.

GENDER ROLE AND CREATIVITY

Gender role was not significantly related to divergent thinking as measured by the two alternate uses tasks. Androgynous individuals’ picture construction productions, however, were judged to be superior to those of individuals in other gender role categories, with significant differences between androgynous participants and undifferentiated participants. Additionally, men and women who reported strongly masculine gender role characteristics surpassed the performance of undifferentiated participants.

GENDER, GENDER ROLE, AND CREATIVITY

Inspection of the participants’ picture construction scores reveals relationships between gender, gender role, and creativity that we found curious. The highest overall picture construction scores were obtained by men who identified strongly with feminine gender role characteristics. The highest female performance, and the second highest picture construction creativity scores overall, were obtained by androgynous women. The picture construction scores for androgynous men were close behind those for androgynous women, followed by the scores of highly masculine men and highly masculine women. Undifferentiated men and women, as well as highly feminine women, produced particularly low creativity...
scores on the picture construction task. In sum, androgyny was associated with high levels of creativity in women, while identification with opposite-gender role characteristics was associated with the highest levels of creativity in males. In addition, both men and women who reported highly masculine gender role self-attributions surpassed the performance of undifferentiated participants and feminine females.

Thus, it appears that the way gender role facilitates or inhibits creativity depends on the gender of the individual. Androgyny is more facilitative in women than in men. In addition, both male and female participants who identify with opposite-gender role characteristics display relatively high levels of creativity, consistent with the findings of Norlander et al. (2000). In men, cross-gender identification seems particularly influential in facilitating creativity. Undifferentiated gender role identification was associated with the lowest levels of creativity in both males and females in this sample.

In many respects, our gender role findings are consistent with early observations of seminal creativity researchers. Reflecting on their 1976 study of male and female art students, Getzels and Csikszentmihalyi concluded that the psychology of creative men is a feminine psychology and the psychology of creative women is a masculine psychology. Similarly, in his early creativity assessment validation work, Torrance (1963) remarked that creative boys are perceived as more feminine than other boys and creative girls possess more traditionally masculine characteristics than other girls do.

The relationship between gender role and creativity in our participants was clearly influenced by gender. Useful directions for further research might include investigations of specific societal factors, such as family experiences and educational variables that nurture or hinder the development of creativity in men and women. Additionally, research designed to identify personal characteristics, other than gender role, that may explain gender differences in creativity, for example, self-esteem and self-image – would be most helpful in increasing our knowledge about how creativity is developed and expressed in men and women. Such information could potentially be valuable in the development of learning experiences designed to enhance creativity in women and men.

REFERENCES


