Inventory for Appraising Adult Creativity

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An adult creativity survey, the Preference Inventory (PI), was based upon the assumptions that creatively productive persons, more than the average, mentally examine and play with ideas. Such people also are very curious, strong in needs to create, and are highly original. Scores on the PI were significantly correlated with scores on the Sounds and Images test, ratings of art and writing samples, and an objectively scored Statement of Past Creative Activities (SPCA). The SPCA was considered the most reasonable validating criterion. A regression analysis showed that different patterns of PI subscales were the best predictors of different criterion measures.

The question which initiated the present research was, "What are the capabilities which might help in creative productivity and how might we assess them?" One suggestion was the ability and motivation to look into oneself and to mentally examine and play with ideas and images. New products are built upon other products or ideas, but differ in having some new twist or some new application. These twists or applications are first "seen" in the mind of the creator. It seems therefore, that an internal imaging or imaginative ability, which we will call internal sensation seeking, should be a precondition for creativity. This conceptualization is supported by the work of Arietti (1976), Dreistadt (1974), Getzels and Csikszentmihalyi (1976), Maddi (1965), Taft (1971), Wallach and Kogan (1965), and others.

A second factor is related to the acquisition of knowledge. A new product always has one or more precursors upon which it is built. An interest in and the acquisition of knowledge may be characterized as curiosity. Curiosity is not just motivation, but rather an intrinsic attitude or predisposition to seek out new knowledge of various types. Curiosity in this view has been proposed by Arasteh (1968), Berlyne (1954), Freud (1947), Getzels and Csikszentmihalyi (1976), Givens (1962), and Vanzelst and Kerr (1954).

A third factor which seems to be related to creativity is the need to produce. Many of us have "flashes" of intuition which, if pursued, could lead to valuable ideas or products. But for various reasons, these ideas are

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not developed. For creative productivity, there must be a desire to produce for the intrinsic satisfaction of doing something unique and different. This drive to actually produce may differentiate the dreamer from the productive creator. This approach has been noted by Adkins et al. (1943), Golan (1962), Guilford (1969), Maddi (1965), Munsterberg and Mussen (1953), and others.

A fourth factor, one closely allied with conventional creativity research, is originality. Originality is generally recognized as a necessary but not sufficient condition for the production of valuable creative ideas or products.

The purpose of the present research was to evaluate the reliability and validity of the Preference Inventory and its subscales as a measure of adult creative potential. The inventory is based mainly upon the above traits of internal sensation seeking, curiosity, the need to produce, and originality. The validating criteria were (1) scores on the Sounds and Images test (Torrance, Khatena, & Cunningham, 1973), (2) the Statement of Past Creative Activities (Bull & Davis, 1980), (3) ratings of the creativeness of samples of creative writing and (4) ratings of the creativeness of samples of creative artwork.

**METHOD**

**Subjects**

The subjects were 104 students in an undergraduate 5-week, one-credit creativity course taught by the second author. Since data were collected on four separate occasions, complete data sets were available for 67 subjects (46 female, 21 male).

**Instruments and Measures**

**Preference Inventory.** The Preference Inventory (PI) is comprised of 53 5-point rating scale items. The items were taken from three inventories devised and evaluated by the first author in his Ph.D. dissertation research (Bull, Note 1). Those inventories measured (a) internal sensation seeking, a form of motivation to fantasize and mentally create, (b) curiosity, and (c) a need for creative production, a measure of the urge or drive to be creatively productive. Other items in the PI measure aspects of originality and were taken from the How Do You Think test (Davis, 1975; Davis & Subkoviak, 1975). Items were selected from these four inventories based upon factor analysis and regression analysis data (Bull, Note 1). Subscales representing the seven factors, selected from the four scales, along with sample items, appear in Table 1.

**Sounds and Images.** The Sounds and Images (SI) test (Torrance et al., 1973) is a set of four recorded abstract sounds which are played three times. After each sound, subjects are asked to describe the mental associations elicited by the sounds. The 12 responses are scored for originality, producing a total originality score.

**Statement of Past Creative Activities.** The Statement of Past Creative Activities (SPCA), based upon an instrument devised by Taft and Gilchrist (1970), asks the subject to:

List any creative activities in which you are or have been engaged in the past 2–3 years. These may include artistic, literary, technical, or scientific activities (for example,
TABLE 1

ITEM GROUPS AND SAMPLE ITEMS: PREFERENCE INVENTORY

I. Desire for Creative Production (Need for Creative Production Scale)
1. I have often thought of new ideas for products, stories, paintings, etc., and I have actually produced many of them.
11. When I visualize an art project I can’t wait to complete it.
40. I can think of many ideas for new things but that is as far as it usually goes.”

II. Visualization Before Creation (Internal Sensation Seeking Scale)
7. I like to work on things which require me to create mental images.
14. I like to visualize new things before I try to make them.
33. I find it exciting to think about how I will make something and how it will look.

III. Curiosity About Things (Curiosity Scale)
10. I like to look at old things and try to figure out what they were used for.
34. When I see something new I try to figure out how it was made and why it was made that way.
51. I try to find out how different things work and why they work.

IV. Multidimensional Originality (How Do You Think Test)
9. I am very artistic.
12. I am often inventive or ingenious.
21. I am quite original and imaginative.

V. Mental Visualization (Internal Sensation Seeking Scale)
4. When I am shown an object I can usually visualize where it might be used and the things which would be around it.
29. I like to create ideas and think about them.
42. I like to think of ways to embellish tales which have been told me.

VI. Desire for Fantasy/Daydreaming (Internal Sensation Seeking Scale)
8. I often enjoy daydreaming about future projects, activities, or problems.
22. I get some of my best ideas by daydreaming rather than relying on books, well-established authorities, or other people.
49. I like to create fantasies in my mind.

VII. Curiosity About Art (Curiosity Scale)
16. When I study a painting or sculpture I am interested in determining what cues the artist used to communicate his/her mood.
45. I am interested in learning about art of various types, i.e., painting, sculpture, etc.
50. I like to discuss art (painting, sculpture, etc.) with other knowledgeable people.

* Low score indicates creativity.

Sensitization to the types of activities which might be considered creative was provided through the use of a transparency which listed 40 types of creative activities in seven categories: artistic, literary, performing arts, inventions, design, crafts, and managerial/
teaching. Earlier research (Bull & Davis, 1980) showed the SPCA to be a very good measure of creativeness, useful either as a test of creative ability or as a criterion of creativeness.

**Ratings of art and writing samples.** As part of course requirements, each student produced (a) an art or handicraft project (Art Prod) and (b) a sample of creative writing, poetry or a short story (Lit Prod). The projects were rated by the first author on a 7-point "creativeness" scale, using pluses (+) and minuses (−) to increase accuracy. The projects generally were not difficult to rate. Some showed very little creative ability, whereas others demonstrated considerable creative experience and talent. Interrater reliabilities were not computed for this study; however, in other studies (Bartlett & Davis, 1974; Davis & Bull, 1978) interrater reliabilities have ranged from .67 to .89 for similar groups of subjects.

**Data Collection and Design**

The Preference Inventory was administered on the first day of class to avoid contamination by course content, especially that dealing with characteristics of creative persons. Sounds and Images was administered as part of the exposure to creativity tests in the third week of class. Statement of Creative Activities information was collected during the fourth week of the course. The creative art and writing projects were turned in 1 week after the end of the course.

Pearson r's were used to evaluate the relationships between scores on the total PI and PI subscales and scores on the SI, SPCA, and the project ratings (Art Prod and Lit Prod). Regression analyses using the subscales of the PI to predict the creativity criteria also were performed.

**RESULTS AND DISCUSSION**

Hoyt internal consistency reliabilities were computed for the Preference Inventory and its seven subscales (Table 2). The reliability of the scale and most of the subscales is in an acceptable range.

Pearson r's were computed between scores on the total PI and on the seven subscales, on one hand, and scores on the Sounds and Images, Statement of Past Creative Activities, Art Prod, and Lit Prod, on the other (Table 3). It can be seen that total PI scores, along with most scores on the subscales, were significantly related to scores on the creativity

<table>
<thead>
<tr>
<th>Measure</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference Inventory</td>
<td>.91</td>
</tr>
<tr>
<td><strong>Subscales</strong></td>
<td></td>
</tr>
<tr>
<td>Desire for Creative Production</td>
<td>.72</td>
</tr>
<tr>
<td>Visualization Before Creation</td>
<td>.83</td>
</tr>
<tr>
<td>Curiosity About Things</td>
<td>.63</td>
</tr>
<tr>
<td>Multidimensional Originality</td>
<td>.87</td>
</tr>
<tr>
<td>Mental Visualization</td>
<td>.79</td>
</tr>
<tr>
<td>Desire for Fantasy/Daydreaming</td>
<td>.71</td>
</tr>
<tr>
<td>Curiosity About Art</td>
<td>.62</td>
</tr>
</tbody>
</table>
criteria. The magnitude of some correlations is frankly quite dramatic (e.g., .636, .647, .612), considering the complexity of the trait under investigation (creativity) and customary problems of reliability and validity in both creativity tests and creativity criteria.

Some evidence for construct validity also is provided by the relatively high correlations between scores on the PI and scores on the SPCA. That is, students who endorse the creativity traits measured by the Preference Inventory also report higher-than-average actual creative productivity, thus supporting the notion that the PI is a valid measure of the construct of creativity.

Correlations among the four criteria themselves appear in Table 4. The range of the correlations, from .212 to .587, is fairly typical. The four measures may be assessing different components of creativeness, and then with something less than perfect accuracy. Of the four, the SPCA seems to be the most sensible criteria for this and other research. Sounds and Images scores reflect fanciful, visual imagination. The Art Prod and Lit Prod scores reflect creativeness in these areas, no doubt biased by the degree of student interest in these required assignments. These ratings also would not necessarily reflect creativeness in such areas as math, chemistry, philosophy, business, theatre, and so on. The SPCA however, is a self-report index of creative activities in virtually any area, and is objectively scored for both quantity and quality (Bull & Davis, 1980). Research with the SPCA (Bull & Davis, 1980) has indicated that it is indeed a very good criterion of creative productivity, against which creativity tests might be evaluated.

### Table 3
**Correlations Between PI, PI Subscales, and Four Creativity Criteria for 67 Male and Female Subjects**

<table>
<thead>
<tr>
<th>Creativity criteria</th>
<th>Sounds and Images</th>
<th>SPCA</th>
<th>Art Prod</th>
<th>Lit Prod</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PI total</td>
<td>.348**</td>
<td>.636**</td>
<td>.434**</td>
<td>.324*</td>
</tr>
<tr>
<td>2. Desire for Creative Production</td>
<td>.360**</td>
<td>.459**</td>
<td>.342**</td>
<td>.323*</td>
</tr>
<tr>
<td>3. Visualization Before Creation</td>
<td>.337**</td>
<td>.648**</td>
<td>.382**</td>
<td>.226</td>
</tr>
<tr>
<td>4. Curiosity About Things</td>
<td>.392**</td>
<td>.474**</td>
<td>.366**</td>
<td>.138</td>
</tr>
<tr>
<td>5. Multidimensional Originality</td>
<td>.380**</td>
<td>.612**</td>
<td>.440**</td>
<td>.310*</td>
</tr>
<tr>
<td>6. Mental Visualization</td>
<td>.279*</td>
<td>.533**</td>
<td>.310*</td>
<td>.220</td>
</tr>
<tr>
<td>7. Desire for Fantasy/Daydreaming</td>
<td>.052</td>
<td>.333**</td>
<td>.128</td>
<td>.240</td>
</tr>
<tr>
<td>8. Curiosity About Art</td>
<td>.086</td>
<td>.326**</td>
<td>.331**</td>
<td>.249*</td>
</tr>
</tbody>
</table>

*p < .05.

**p < .01.
Regression analyses also were performed to determine which subscales of the PI were most effective as predictors of the four criteria. Predicting Sounds and Images scores, subscales of the PI accounted for 46% of the variance ($p < .05$). The best predictors were Multidimensional Originality and Curiosity About Things (see Table 1). Predicting SPCA, the subscales accounted for 70% of the variance ($p < .05$), with Visualization Before Creation, Mental Visualization, Desire for Fantasy/Day Dreaming, and Multidimensional Originality as the best predictors. With Art Prod ratings as the criterion, 50% of the variance was accounted for ($p < .05$), with Curiosity About Art, Mental Visualization, and Curiosity about Things as the best predictors. Finally, predicting Lit Prod ratings, the subscales of the PI accounted for 39% of the variance ($p < .05$), and the best predictors were Desire for Creative Production and Desire for Fantasy/Day Dreaming. Four subcales (Multidimensional Originality, Curiosity About Things, Mental Visualization, and Desire for Fantasy/Day Dreaming) thus appeared twice each as the best predictors of the criteria. However, it is noteworthy that each criterion produced a different set of best predictors. Conceivably, other indices of creativity probably would identify still other patterns of optimal predictor variables.

**CONCLUSIONS**

It was proposed that creative persons would need to look within themselves and to mentally examine and play with ideas (internal sensation seeking), that they should be high in curiosity in order to develop a data base for creativity, and that they would show a strong desire or need for creative productivity. The present data support these assumptions. Scores on the Preference Inventory, which embodies these traits, were shown to be reliable and valid predictors of scores on another published creativity test, ratings of art and writing samples, and self-reports of past creative activities.
Also, of the four criterion measures, the Statement of Past Creative Activities intuitively should have been the most valid index of general creativeness. This supposition was supported by generally stronger correlations with the PI and with other criterion measures.

Finally, a regression analysis indicated that optimal prediction of each of the four criteria required different patterns of PI subscales. To the extent that this finding is not a random one, the seemingly sensible implication is that different forms of creative activity will require different patterns of creativity traits and abilities.

REFERENCES


REFERENCE NOTE

1. BULL, K. S. The development of scales for internal sensation seeking, curiosity, need for creative production, and privacy, to be used as predictor variables for four indices of creative ability among a population of college students. Unpublished doctoral dissertation, University of Wisconsin, Madison, 1978.