The Degree of Relatedness of Four Creative Personality Factors with Ideational Fluency of Intermediate Grade Children.

Scott G. Isaksen

First Reader
Parnes

Second Reader
Noller

To learn more about the International Center for Studies in Creativity and its educational programs, research, and resources, go to http://creativity.buffalostate.edu/.

Recommended Citation
THE DEGREE OF RELATEDNESS OF FOUR CREATIVE PERSONALITY FACTORS WITH IDEATIONAL FLUENCY OF INTERMEDIATE GRADE CHILDREN

SCOTT G. ISAKSEN
THE DEGREE OF RELATEDNESS OF FOUR CREATIVE PERSONALITY FACTORS WITH IDEATIONAL FLUENCY OF INTERMEDIATE GRADE CHILDREN

A Thesis
Presented to the Faculty of the Interdisciplinary Center for Creative Studies State University College at Buffalo Buffalo, New York

In Partial Fulfillment of the Requirements for the Degree of Master of Science

by
Scott G. Isaksen
June 1977
THE DEGREE OF RELATEDNESS OF FOUR CREATIVE PERSONALITY
FACTORS WITH IDEATIONAL FLUENCY OF
INTERMEDIATE GRADE CHILDREN

A Thesis
by
Scott G. Isaksen

Approved by

Sidney J. Searce
Chairman of Thesis Committee

Committee Members

May 4, 1977
Date

Sidney J. Searce
Department Chairman

May 4, 1977
Date

Theodore J. Taylor
Dean of Graduate Studies

5/17/77
Date
THE DEGREE OF RELATEDNESS OF FOUR CREATIVE PERSONALITY FACTORS WITH IDEATIONAL FLUENCY OF INTERMEDIATE GRADE CHILDREN

Directed by: Sidney J. Parnes

Interdisciplinary Center for Creative Studies

The study was concerned with the relationship between creative personality traits as measured by Williams' "How Do I Really Feel About Myself?" Inventory (1972) and ideational fluency as measured by item five of the Alternate Uses Test from the Wallach and Kogan (1965) ideational productivity battery. The second objective of the study was to ascertain the relationships between each of the four sub-scales of Williams' Inventory (curiosity, complexity, imagination, and risk-taking) and ideational fluency. Additional objectives of the study were to determine the test-retest reliability of the Williams' Inventory as well as the feasibility of using the inventory with intermediate grade children.

The sample consisted of 81 intermediate grade children. The main comparison group was comprised of 51 subjects who were used to determine the relationship between the total inventory scores and ideational fluency as well as between each sub-scale and ideational fluency. The remaining 30 students participated in the test-retest reliability study.

For the main comparison group, the experimenter presented the Williams' Inventory orally to the subjects in a group setting. Next, the subjects received the
ideational fluency measure on an individual basis, with a game-like atmosphere, and without time limitation.

The test-retest reliability group was given the inventory orally in a group situation. The test-retest reliability interval was two weeks.

The results indicated a significant relationship between the total score of the Williams' Inventory and the score on the ideational fluency measure ($r=.62$, $p<.001$). There was a significant relationship between each of the four sub-scales and ideational fluency. The sub-scales were curiosity, complexity, imagination, and risk-taking. Their respective correlations with ideational fluency were $r=.57$, $p<.001$; $r=.42$, $p<.01$; $r=.42$, $p<.01$ and $r=.51$, $p<.001$. The test-retest reliability was moderately high ($r=.75$, $p<.001$).

The results indicated that there was a significant relationship between the composite score on the Williams' Inventory and ideational fluency. Each of the inventory's sub-scale scores were significantly correlated with ideational fluency. This, combined with the inventory's reliability and ease of administration suggested its use as an assessment instrument for intermediate grade students.
ACKNOWLEDGMENTS

The writer wishes to extend appreciation to Sidney Parnes and Ruth Noller for their efforts in nurturing his creative potential through the Creative Studies courses offered at the State University College at Buffalo. Interaction and assistance gained through the Creative Problem Solving Institutes and contact with Robert Eberle were especially helpful. Much feedback was provided during initial graduate work by Ang Biondi, Lynn Coleman, Joette Field, and Dee Young. For special guidance and permission to use his materials, the writer thanks Frank Williams. Further helpful guidance, in regard to the use of his test measures, was provided by Michael Wallach. Without the assistance of Andrew Joniak in providing the research background and technical advice, this endeavor would have been a near impossibility. Thanks is also extended to Ron Brown of the S.U.C.B. Computer Center for his assistance in the computation of the correlation coefficients. Finally, for her patience and understanding, the writer thanks his wife, critic, and best friend, Marves.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>APPROVAL PAGE</th>
<th>iii</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iv</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Research Material Related to the Study:</td>
<td></td>
</tr>
<tr>
<td>Creative-Personality</td>
<td>3</td>
</tr>
<tr>
<td>Cognitive-Creative</td>
<td>6</td>
</tr>
<tr>
<td>Specific Statement of Hypotheses</td>
<td>8</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>9</td>
</tr>
<tr>
<td>RESULTS</td>
<td>12</td>
</tr>
<tr>
<td>DISCUSSION AND CONCLUSIONS</td>
<td>14</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>Appendix A: Selected Bibliography</td>
<td>20</td>
</tr>
<tr>
<td>Appendix B: MacKinnon's Research Summary</td>
<td>59</td>
</tr>
<tr>
<td>Appendix C: Torrance's Research Summary</td>
<td>60</td>
</tr>
<tr>
<td>Appendix D: Williams' Inventory</td>
<td>62</td>
</tr>
<tr>
<td>Appendix E: Correlations for Ideational Fluency Instrument</td>
<td>70</td>
</tr>
<tr>
<td>Appendix F: Raw Data for the Main Comparison Group</td>
<td>72</td>
</tr>
<tr>
<td>Appendix G: Raw Data for the Secondary Comparison Group</td>
<td>75</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Pearson Product Moment Correlation Coefficients of the Williams' Inventory with Ideational Fluency for the Main Comparison Group . . . . . . . . . . . . . . . . . . . . 12
INTRODUCTION

The present study is concerned with the affective components of creative functioning. Much research has been conducted to determine the personality correlates of creativity (see appendix A). Studies have correlated self-perception questionnaires with a variety of creativity measures (Halpin, Payne and Ellett, 1973; Curry, 1970; Khatena, 1972; Ference, 1971; Davis and Rim, 1976; and Holmes, 1976). This study was concerned with an inventory which measures specific creative-personality traits (curiosity, complexity, imagination, and risk-taking) and their correlation with "cognitive-creative functioning" as measured by a Wallach and Kogan (1965) test of ideational fluency. The study has determined the relationship of the score on the inventory and each of the sub-scales (mentioned above) with ideational fluency.

Guilford (1976b) suggests that creative-personality traits have a relatively enduring nature. Consequently, the study examined the test-retest reliability of the Williams' Inventory. Since there exist an ever-increasing number of educational programs with affective-creative objectives, the study was concerned with the usability of the inventory as an assessment instrument for objectives relating to curiosity, complexity, imagination and risk-taking.

The term creativity has been rather vague. Wallach and Wing (1969), in studying talented students, made a distinction between creativity and intelligence. They found some forms of cognitive ability to be more independent of conventional intelligence than others. Generally, they
found characteristics that were of two basic types: a person's ability to generate a large number of ideas in response to a given task requirement; and his ability to produce many unique ideas. They found that the sheer output of ideas is a more potent indicator of creative accomplishment than uniqueness of ideas. Their findings suggest that a person's readiness to generate ideational possibilities would act as an index of his overall disposition toward creativity.

For the purposes of the present study, the indicator of cognitive-creative functioning was ideational fluency, defined by Wallach and Kogan (1965) and Wallach and Wing (1969) as being the number of ideas generated in response to a given task requirement.

Focusing on the affective components of creative functioning, Williams (1972, p.66) found four consistent characteristics in evaluating personality traits of highly creative children. The identifiable traits, which Williams defines, are curiosity, complexity, imagination, and risk-taking:

Curiosity: The thirst to be inquisitive and want to know. To toy with an idea and try it on for size. Willingness to question, explore and follow an inclination just to see what might happen.

Complexity: The challenge to appreciate intricate problems or ideas. To seek order out of disorder and delve into gaps that exist between how things are and how they might be.

Imagination: The power to wonder or feel intuitive about something that has never happened to the child. To visualize and build images of things or places never ventured into. The ability to dream in a world of fantasy.

Risk-Taking: The courage to make a guess, be different or take a dare. To be able to function without structure and face failure, mistakes, or criticism.
In developing a Total Creativity Program for Individualizing and Humanizing the Learning Process, Williams constructed an inventory to measure the person's view of himself as being a risk-taking, curious, complex, and imaginative individual. For a more complete explanation of the inventory, please refer to appendix D.

Research Material Related to the Study

Creative-Personality

Hinton (1970) states that there are various general interrelationships between creativity and personality and that a great deal more research is needed to attain a more stable profile of these relationships. Davis, Peterson and Farley (1974, p.33) indicate that recent measures of creative abilities ask for attitudinal, personality, and motivational information. "The resultant assumption is that creative people do possess certain attitudes and personality patterns which predispose them to behave creatively."

Since there exist numerous studies, beyond those mentioned above, which synthesize the research relating personality variables and creativity (Arnheim, 1967; Barron, 1968; MacKinnon, 1962; Roweton, 1973; Smith, 1966; Torrance, 1962; Welsh, 1973; Williams, 1971; and Yamamoto, 1973), this review will examine only the four personality traits mentioned by Williams.

In identifying his four consistent personality traits of curiosity, complexity, imagination and risk-taking, Williams (1972) utilized the studies of MacKinnon (1962), Torrance (1965, 1970), Starkweather (1968), Barron (1969), and Many and Ellis (1968). The studies cited in this writing do not represent an exhaustive review of the characteristics, but they lend further support to Williams'
rationale.

Curiosity. Curiosity has been found to be highly related to individuals who possess a relatively high degree of creative thinking ability. Towell (1972) used teacher and self-judgment instruments to identify curiosity, and Torrance Tests of Creative Thinking to obtain an overall creative thinking score. He found that, compared with low scorers on curiosity, elementary school pupils with high curiosity obtained significantly higher scores on the timed test of creative thinking. Langevin (1970), in studying the relationships among the measurements of curiosity, intelligence, and creativity, found curiosity measures to be reliable predictors of creative performance. Barron (1968), in studying a sample of 162 undergraduates at Rhode Island School of Design, determined the relationships among five personality variables (originality, creativity, achievement motivation, curiosity, and self-confidence). He administered the California Psychological Inventory, the Minnesota Multiphasic Personality Inventory, the Barron-Welsh Art Scale, the Guilford Consequences Test, and two questionnaires constructed by the testing committee. The correlations demonstrated significant relationships between curiosity and creativity. Other studies that support these findings include: Hammond (1968), Rosenshield (1967), Salzer (1967), and Susskind (1969).

Risk-Taking. Studies have indicated that risk-taking is a significant factor in identifying creative potential (Pankove and Kogan, 1968; Strum, 1971). Holland (1961) sampled high school students involved in National Merit Competition. He designed a risk-taking measure which included the tendencies of independence, expressiveness, asocial behavior, conscious originality, and high aspirations for future achievement. Holland reported creative performance occurred more frequently among those students
with a high risk-taking score. Pankove (1967) examined the relationship between creativity and risk-taking in fifth-grade children. She utilized various manipulatory devices to measure risk-taking ability (ring toss, clues, shuffleboard). There was a positive, significant relationship for the boys. There was a positive, but not significant, relationship for the girls. She also found that creativity and intelligence exerted a combined effect on risk-taking, however, creativity had a greater influence. Conversely, Dunn (1974), conducting a similar study using manipulatory devices, found non-significant results for both sexes. The contrary finding may result from the lack of a clear and precise definition for the creativity measurement task. Summerfield (1974), in assessing the relationship of age, creativity and risk-taking to self-actualization, found risk-taking and creativity to be highly related. In addition, both of these factors were related to self-actualization.

Complexity. Preference for complexity has been viewed as a creative personality trait (Eisenman, 1972). Arnheim (1967) writing in Art and Visual Perception: A Psychology of the Creative Eye describes complexity as being essential for artistic differentiation and creative artistic imagination. Barron (1968), in studying the simplicity and complexity relationship to personality, developed the Barron-Welsh Art Scale in conjunction with Welsh. He gave both the scale and the Minnesota Multiphasic Personality Inventory to 80 male graduate students who were artists and non-artists. The results indicated that the person who decided in favor of complexity was, in general, more original, creative, and has a greater tolerance for unusual ideas and formulations. MacKinnon (1962) found that creative architects showed not only an openness to their own feelings and emotions, keen self-awareness, positive self-regard and wide
interests, but, most clearly, a preference for the complex. Smith (1970, p.70), in discussing the social-emotional nature of creativeness states: "The creative person delights in complex situations which demand he discover unifying principles to organize and integrate. He is often challenged by disorder." Smith's statements agree with the findings of Taylor (1961) and Barron (1955).

Imagination. Imagination has been conceptualized in a multitude of diverse ways. For example, Alex Osborn (1963, p.27) states:

...imagination is a field so wide and so hazy that a leading educator has called it an area where psychologists fear to tread. For it takes many forms--some of them wild, some of them futile, some of them somewhat creative, and some of them truly creative.

Generally speaking, imagination is related to originality, creativity, non-conformity, aesthetic sensitivity, independence, expressiveness, and a wide range of other variables (Osborn, 1953; Barron, 1968; Parnes, 1967; Gough, 1962). Because of the wide diversity in the conceptualization of the term imagination, as compared with the more precise and consistent conceptualizations of the other three sub-scales discussed, no attempt will be made to elaborate on the many studies surrounding this term; instead the reader is referred to the above six references and appendices A, B, and C.

Cognitive-Creative

Since Getzels and Jackson (1962), Guilford (1976b), Torrance (1974), and Wallach (1969) conducted extensive literature reviews on the intellectual-cognitive nature of creativity, the remainder of the review will examine only selected research relating to this area.
Wallach and Kogan (1965) and Wallach and Wing (1969) broke away from traditional methods of testing creative performance and attempted to find a better way. In reviewing the forms of cognitive activity and research by Guilford and others, Wallach (1969) found that some of these forms seem to be more independent of intelligence than others. Wallach and Wing (1969, p.13) state:

Various researchers have been concerned with trying to isolate forms of cognitive activity that might be meaningfully described as tapping creative roots in thought processes, as distinct from mere reflections of a person's level of general intelligence.

Wallach and Kogan (1965) used a sample of fifth-grade children and administered measures which originated from Guilford. The measures were modified so that time constraint, testing atmosphere, and implication for evaluation were nearly eliminated. Their findings were significant and identical for children of both sexes. Number of ideas generated and number of unique ideas were consistent across various tasks, in their relationship with each other, and in their independence from various indices of intelligence. A study by Christensen, Guilford and Wilson (1957) supports the finding that the number of ideas heavily influenced the number of unique ideas. The results of other researchers have also been supportive (Ward, 1968; Bereiter, 1961; Clark, Veldman and Thorpe, 1965; Orpet and Meyers, 1966; McGuire, Hindsman, King and Jennings, 1961; and Garwood, 1964).

In a later study, Wallach and Wing (1969) examined the creativity-intelligence distinction using the measures of the number of ideas and the number of unique ideas as indicators of creative performance across a wide variety of content areas (leadership, art, social service, literature, dance, dramatic arts, music and science). They found that
their measures of overall ideational ability were unrelated to intelligence and that the number of ideas, rather than the uniqueness of ideas, was a more potent indicator of creative abilities in the various content areas. Further support of these findings comes from personal communication with Dr. A. Simberg (1976), who contributed to the development of the A/C Test of Creative Ability for General Motors Corporation:

Harris and Simberg, in considering the A/C Creative Ability Test, found such a high correlation between ideational fluency and other more qualitative factors that they now have modified the measure's evaluation to include simply the number of ideas.

Specific Statement of Hypotheses

The specific hypotheses for the study were as follows: there will be a relationship between the total scores on the Wallach and Kogan (1965) ideational fluency measure and the total scores on the Williams' Inventory; there will be a relationship between each of the sub-scales (curiosity, complexity, imagination, and risk-taking) of the Williams' Inventory and the Wallach and Kogan (1965) ideational fluency scores. Also, a test-retest reliability study was completed on the Williams' Inventory. Lastly, the research was concerned with how appropriate and usable the Williams' Inventory would be with intermediate grade children.
METHODOLOGY

Subjects. Eighty-one intermediate grade children were selected from a team of 150 fourth- and fifth-graders. Fifty-one of these children, the main comparison group, comprised two intact classes. For the test-retest reliability study, an additional 30 students were selected from the remaining 99 fourth- and fifth-graders. The test-retest reliability group was selected on the basis of time availability during a non-instructional time. All subjects were volunteers. For the main comparison group, there were 11 fourth- and 18 fifth-grade boys. There were eight fourth- and 14 fifth-grade girls. The test-retest reliability group consisted of six fourth- and seven fifth-grade boys, and eight fourth- and nine fifth-grade girls.

Instruments. The instrument used to assess the personality traits was Williams' "How Do I Really Feel About Myself?" Inventory (see appendix D). A validation study was conducted by Williams (1971) utilizing the Torrance Tests of Creative Thinking. High and low scoring groups on creative thinking differed significantly on the affective inventory. Williams (1971, p.31) found:

...high performers on the four cognitive factors of fluent, flexible, original, and elaborative thinking also scored high on the four affective factors of curiosity, complexity, imagination, and risk-taking; and visa versa for the low scoring group.

However, no reliability information was available on Williams' instrument and no studies have examined the relationship of the four sub-scales to other creativity variables (Williams, 1976).
The cognitive-creative test instrument was item five from the Alternate Uses Test, scored for the number of ideas alone (ideational fluency). It was taken from the Wallach and Kogan (1965) battery for Ideational Productivity. With respect to quantity scores, the Spearman-Brown Split Half reliability coefficient for the Alternate Uses instrument is .93. The Item-Sum correlation for item five is .86. The validity of the Ideational Productivity measure has been demonstrated in Wallach and Kogan (1965) and Wallach and Wing (1969).

Procedure. For the main comparison group, the 51 children were used to determine the relationship of the total inventory score and the sub-scale scores with ideational fluency. The Williams' Inventory was read to the total group during a 31 minute session. The Williams' (1972) scoring procedure was followed.

One day later, the experimenter initiated individual testing of the 51 subjects using item five of the Alternate Uses Test. It was communicated to the individual, informally, as suggested by Wallach and Kogan (1965, pp.30-31):

Now, in this game, I am going to name an object--any kind of object, like a light bulb or the floor--and it will be your job to tell me lots of different ways that the object could be used. Any object can be used in a lot of different ways. For example, think about string. What are some ways you can think of that you might use string? (Let the child try.) Yes, those are fine. I was thinking that you could use string to attach a fish hook, to jump rope, to sew with, to hang clothes on, and to pull shades. (Vary suggestions so as not to duplicate any the child has provided.) There are lots of other ways, too, and yours are good examples. I can see that you already understand how we play the game. So, let's begin now. And remember, think of all the different ways you could use the object I name. Here we go.

Tell me all the different ways you could use a shoe (item five).
The general procedure of Wallach and Kogan (1965) was followed for the individual "testing" situation:

The child is given as much time as he wishes for each item. That is, the experimenter exerts no pressure for speed on an item; rather, he encourages the child to continue working on a given question as long as he seems at all motivated to do so. Only if the child indicates with some finality that he is finished with the given question, does the experimenter conclude. The experimenter will later record the number of responses given by the child, not counting duplicate items.

In order to assess the reliability of the inventory, it was administered in a one-half hour session to the secondary comparison group of 30 students. Two weeks later, the inventory was administered again to the same group. In both testing situations the instructions and questions were read. The test-retest reliability of the Williams' Inventory was computed.
RESULTS

Regarding the main group comparisons, the results indicated a significant relationship between a subject's total score on the Williams' Inventory and his score on the ideational fluency measure. Also, each of the Williams' Inventory sub-scales (curiosity, complexity, imagination, and risk-taking) was significantly related to ideational fluency (see table 1).

TABLE 1

PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS OF THE WILLIAMS' INVENTORY WITH IDEATIONAL FLUENCY FOR THE MAIN COMPARISON GROUP

<table>
<thead>
<tr>
<th>Inventory</th>
<th>r with Ideational Fluency</th>
<th>t Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>.62</td>
<td>5.33**</td>
</tr>
<tr>
<td>Curiosity</td>
<td>.57</td>
<td>4.85**</td>
</tr>
<tr>
<td>Complexity</td>
<td>.42</td>
<td>3.26*</td>
</tr>
<tr>
<td>Imagination</td>
<td>.42</td>
<td>3.22*</td>
</tr>
<tr>
<td>Risk-taking</td>
<td>.51</td>
<td>4.10**</td>
</tr>
</tbody>
</table>

Note: N=51, df=49 for all comparisons.

*P < .01
**P < .001
The data for the secondary group showed the test-retest reliability of the Williams' Inventory to be high (.75, \( p < .001 \)).

It was noted that the Williams' Inventory was easily administered orally to this intermediate grade sample.
DISCUSSION AND CONCLUSIONS

The results supported the first hypothesis. Indeed, the personality traits of curiosity, complexity, imagination and risk-taking were related to ideational fluency. The composite score for these characteristics was directly related to ideational fluency. Given the coefficient of .62, it would be reasonable to expect groups who score high on the inventory total to score high on ideational fluency. With the variables under consideration, evidence has been provided that the affective and cognitive traits of creative functioning are related.

The results show that each of the sub-scale traits is significantly related to ideational fluency. All correlations were positive and significant, but of moderate value.

Regarding reliability, Guilford (1976b) has often defined an individual’s personality as a unique, relatively enduring, pattern of traits; whereas, Treffinger and Poggio (1976) do not expect stability in emotional or irrational measures of creativity. The results indicate stability for these traits over the two week period and are supportive of the former position.

Given the reliability of the inventory and the appropriate methodological modifications (oral presentation of instructions and questions) the instrument might be used as an assessment device with intermediate grade students, in programs having creativity objectives.
REFERENCES


Simberg, A. General Motors Corp. 8-206 General Motors Building, Detroit, Michigan. Letter, December, 23, 1976.


Welsh, George S. "Perspectives in the Study of Creativity" Journal of Creative Behavior. Volume 7, Number 4, pp.231-246.


Yamamoto, Kaoru  "Mental Health, Creative Thinking and Values" In Strom and Torrance (Eds.) Education for Affective Achievement. Rand McNally and Co. 1973, pp. 172-175.

APPENDIX A

*SELECTED BIBLIOGRAPHY


ABPAHAM, CAROL The relationships of authoritarianism to independence and creativity among college students. Dissertation Abstracts International (1971/1972) 32:6023B.


ADLER, ALFRED Character and talent. Harpers (1927) 155:64-72.


*This is a listing of studies relevant to creative personality. The author has conducted a search through a variety of materials including: indexes available from the Journal of Creative Behavior, lists of studies furnished by the Creative Education Foundation, The Index of Scientific Writings on Creativity by Albert Rothenberg and Bette Greenburg (Archon Books, 1976), and an ERIC key word search.
ALLUMBAUGH, JAMES  The relationship of structured and nonstructured stimuli for art production to selected personality factors. Dissertation Abstracts (1968) 29:1665A.

AMDUR, M.J. Loneliness and creativity: a study of isolation and loneliness among a group of graduate students in art, drama and medicine. Yale University, 1964. (Dissertation)

ANDERSON, FRANCES ELISABETH Aesthetic sensitivity, previous art experiences, and production of outstanding works of art. Indiana University, 1968. Order No. 69-6723, 122 p.


ATIVATER, BETTIE CHAMBERLAIN Relationships of parent and teacher ratings of specific learning, motivation, creativity, and leadership behaviors to readiness scores of first grade early entrance selectees. Florida State University, 1974. Dissertation Abstracts 35:6001A.


BAKER, M.A. The relationship of creativity to several selected personality variables. Dissertation Abstracts International (1971) 31:4324B.

BUT, SUDESH Creativity and personality correlates. Dissertation Abstracts International (1973) 33:3366A.


BISH, G.G. A study of the relationships of intelligence, achievement, creativity, anxiety, and confidence among intermediate grade pupils in a suburban area elementary school. George Washington University, 1964. (Dissertation)


BROOK, ROBERT CHARLES Self concept changes as a function of participation in sensitivity training as measured by the Tennessee Self Concept Scale. Michigan State University, 1968. Dissertation Abstracts 29:1700A.


CACHA, F.B. Study of the relation of creative thinking to

CALVERT, H.F. An exploration of some of the relationships between sense of humor and creativity in children. Dissertation Abstracts (1968) 29:1494B.


CARDINET, JEAN Esthetic preference and personality. University of Chicago, 1952. (Dissertation)

CARLUCCIO, L.W. The life style value structure of counseling professionals as compared to creative artists. The University of Connecticut, 1971. Dissertation Abstracts 32:6119A.


CIEBOTER, F.J. Motivation and the desire to be creative, as examined by means of Q-technique. University of Florida, 1963. (Dissertation)

COHEN, I.H. Adaptive regression, dogmatism and creativity.


CRISWELL, ELEANOR CAMP Some effects of optokinetic training on openness of the perceptual field. The University of Florida, 1968. Dissertation Abstracts 29:4842B.


CRUTCHFIELD, R.S. Conformity and creative thinking. In Gruber, H.E.; Terrell, Glenn; and Wertheimer, Michael (eds.) Contemporary Approaches to Creative Thinking. New York: Atherton Press, 1962, p.120-140.


CURRY, R.S. Analysis of selected personality and social characteristics of students revealing changes in creativity. Dissertation Abstracts International (1970) 31:2734A.


DAMM, VERNON JOHN The relation of ego strength to creativity and intelligence in high school students. University of Oregon, 1967. (Es Scale of the MMPI and Biographical Information Inventory not microfilmed at request of author. This is available for consultation at University of Oregon Library.) Dissertation Abstracts 28:3016A.


DEL GRECO, FRANCESCO (Invention and personality) Manicomio (1902) 18:381-422. (Ita.)


DENES, T. (The structure of the tragic soul.) Magyar Psychological Szemle (1934) 8:137-153. (Hum.)


DISCIPIO, W.J. Verbal fluency, originality and vocational choice as measures of personality and arts-science specialization. University of London, 1968. (Dissertation)


DREVDAL, J.E. and CATTELL, R.B. Personality and creativity in


EISENMAN, RUSSELL and CHERRY, NO Creativity, authoritarianism,


EISNER, E.W. Think with me about creativity: values and career choices. Instructor (Jan. 1963) 72:3-17.

ELIE, MARIE-THERESE A comparative study of middle school and junior high school students in terms of socio-emotional problems, self-concept of ability to learn, creative thinking ability, and physical fitness and health. Michigan State University, 1970. Order Number 71-11, 826, 170p.

ELKIND, SUE NATHANSON  The relationship to orientation
toward achievement to convergent and divergent problem
Number 69-14,876, 141p.

ELLIJ, A. Homosexuality and creativity. Journal of Clinical

ELSOM, B.F. Creative ability and perceived parent-child
31:59A.

ELZENBERG, H. (The creative personality of the artist.)
Proceedings of the 10th International Congress of Philosophy,
1948/1949, 520-522 (Fre.).

EMBREE, JAMES EDWARD The relationship of life experience
patterns and personality factors indicating innovative
potential. Utah State University, 1969. Order Number 70-
2434, 134p.

EWING, STEPHEN Selected effects of creativity and risk-
taking on business game behavior: an experimental investi-
Abstracts 34:1418A.

FARR, ROBERTA SIEGEL Personality variables and problem
solving performance: an investigation of the relationships
between field dependence-independence, sex-role identifica-
tion, problem difficulty and problem solving performance.

FELD, STANLEY Creative potential, IQ, and the Heil-Sheviakov
personality profiles: an investigation of the relationship
between high creative potential in children, and both IQ and
personality. (Page 179, "Hidden Shapes" not microfilmed at
request of author. Available for consultation at New York
University Libraries.) New York University, 1967. Disser-
tation Abstracts 28:4906-4907A.

FERENCE, SISTER CAMILLE Prediction of creativity by means
of interest measures. The Ohio State University, 1971.
Dissertation Abstracts 32:3685A.

FEIRSTEIN, ALAN Personality correlates of tolerance for
unrealistic experiences. Journal of Consulting Psychology

FELDHUSEN, J.F. and DENNY, TERRY Teachers' and childrens'
perceptions of creativity in high and low anxious children.

FLAX, N.I. The stability of relationships between creativity and personality variables (Research Study No. 1). Dissertation Abstracts (1967) 27:2857-2858B.


FLEMING, A.W. The relationships of creativity, attitudes toward physical education, and physical education activity skill of physical education students and their students' teachers. The University of Wisconsin, 1972. Dissertation Abstracts 32:5590A.


FREEMAN, JEANNE ANN A study of cognitive, affective, and creative semantic features of student and teacher discourse. The University of Texas at Austin, 1975. Dissertation Abstracts 36:2733A.


FUSSWERK-FURSAY, JOSEPH (The structure of the personality of the artist and his work.) In Volmar, Robert; Wiart, Claude; and Weisman, M.N. (eds.) Art and Psychopathology; Proceedings of the fifth congress of the International Society of Art and Psychopathology. Amsterdam: Excerpta Medica Foundation, 1969, p.264-269 (Pre.). (International Congress Series No. 196)


GORDON, H.J. Analysis of creativity and personality
characteristics of university distinction students in relationship to a university honors program. Dissertation Abstracts International (1973) 33:567A.


GRUBER, ELLEN J. The effects of a course in basic science processes on attitudes and creative behavior of teachers.
Georgia State University-School of Education, 1974. Dissertation Abstracts 35:2768A.


HATFIELD, ROBERT C. A study of the relationship of selected components of creativity, cognitive style, and self-concept identified in a random sample of twelfth grade students in one high school with their learning of selected information


HENDERSON, DONALD RAY A study to determine the personality characteristics of innovative educational administrators and educational administrators in Illinois and Indiana. Indiana University, 1968. Dissertation Abstracts 29:3375A.


HOFFA, H.E. The relationship of art experience to some attributes of conformity. Pennsylvania State University, 1959. (Dissertation)


HUGHES, D.A. Creativity, personality, and psychotherapy. Dissertation Abstracts International (1973) 33:917A.


ITAGAKI, T. (The personality of an artist and the social structure.) Bigaku (1959) 10(37):1-12. (Jap.)

IVERS, K.J. An investigation of Holland's (S) social and (A) artistic personality types with music and art education majors, and applied music and art majors. Dissertation Abstracts International (1971) 32:1854-1855A.


JOESTEN, ESTHER (Eidetic disposition and artistic creation.) Archiv fur die Cesamte Psychologie (1929) 71:493-539. (Ger.)


JOESTING, JOAN and JOESTING, ROBERT Torrance's Creative Motivation Inventory and its relationship to several personality


JUDA, ADELE (The occurrence of like and similar aptitudes in the families of very gifted artists and possible correlations with other personality outstanding talents.) Allgemeine Zeitschrift fur Psychiatrie (1940) 116:1-20. (Ger.)


KARSTEN, MARY O'KEEFFE The relationship of tested creative abilities and selected factors of academic achievement, intelligence, sex, socio-economic status, and pupil attitudes. Dissertation Abstracts (1968) 28:2557-2558A.


KETTEMA N, A. An investigation into the relationships between creativity tests and certain social attitudes. University of London, 1968. (Master's Thesis)


KOMARIK, E. (Creativity and orthogonal factors of personality.) Sbornik Praci Filosoficke Fakulty Brnenske University, 1972. 20(17):115-124. (Cze.)


KUPPER, P.C. (A psychoanalytic biography of the productive personality.) Psyche (Stuttgart), (1969) 20:104-127. (Ger.)


KVASCEV, RADIVOJ (Relationship between the conformist and non-conformist personality and creativity.) Psihologija (1969)/(1970) 3(1):45-61. (Yug.)


LAIRD, R.W. Determining the creative and openness levels of the graduates in elementary education from the Church College of Hawaii. Utah State University, 1971. Dissertation Abstracts 32:3842A.


LAWLOR, G.F. The relationship of creativity to academic and personality variables in college students. Boston College, 1963. (Dissertation)


LEITH, G. The relationships between intelligence, personality and creativity under two conditions of stress. British Journal of Educational Psychology (1972) 42:240-247.


MCGRUDER, ROBERT C. A study of the relationship between creativity and leader behavior of high school principals. Syracuse University, 1972. Dissertation Abstracts 34:97A.


MARINO, C.J. Conformity and creativity in school children, as influenced by religious affiliation and type of school attended. University of Edinburgh, 1968. (Dissertation)


MEYER, T.A. (The personality of artists indicated in works of art and their aesthetic talent.) Zeitschrift fur Asthetik (1914) 9:47-65. (Ger.)


MITCHELL, HELEN DAINES A reinforcement program to enhance creativity. Utah State University, 1970. Order Number 71-19, 125, 73p.

MOLL, ALBERT (Famous Homosexuals.) Weisbaden: Bergmann, 1910, 80p. (Grenzfragen des Nerven und Seelelenbens, 75)


MOSIER, J.A. A study of parent occupational expectations for gifted and average children compared with child's occupational goals and creativity. Dissertation Abstracts International (1972) 32:4297A.


MUDRY, J.E. Attitude changes and final rating scores of elementary student teachers assigned to supervising teachers with comparable or conflicting creative personalities. Mississippi State University, 1971. Dissertation Abstracts 32:3844A.


MULLER--ECHARD, HANS (Individual differences in emotional life and their effects on religious, artistic and philosophical life.) Zeitschrift fur Anglewandte Psychologie (1914) 9:1-12. (Ger.)

Press, 1943, 139-162.


MYDEN, W.D. Interpretation and evaluation of certain personality characteristics involved in creative production. Perceptual and Motor Skills (1959) 9:139-158.


PAULL, HERMANN (Temperament and talent.) Archiv fur Rassen- und Gesellschafts-Biologie (1929) 22:21-36. (Ger.)

PAULSEN, RICHARD A. A comparison of potentially high, average, and low creative students on selected institutional and personal dimensions. Michigan State University, 1972. Dissertation Abstracts 33:5559A.

PEPIN, YVON The effects of intelligence, creativity, and communicator expertise on conformity. Dissertation Abstracts International (1973) 33:902B.


POPE, A.L. An exploratory study of certain aspects of the personal-social relations of the highly creative student as compared to the academically-intelligent student. Dissertation Abstracts (1967) 28:1629A.

PORTER, R.B. Comparative investigation of the personality of sixth-grade children (gifted) and a norm group of children. Journal of Educational Research (1964) 58:132-34.


RAY, GLENN A. A study of the relationships between teacher educational attitude and sanction of student creative behavior and student creative potential and preference for creative behavior. University of Massachusetts, 1974. Dissertation Abstracts 35:2548A.

RAY, P.B. A descriptive study of certain characteristics of high creative freshman arts college students as compared with high academic potential students. Dissertation Abstracts (1963) 24:1924.

RAYCHAUDHURI, MANAS Creativity and personality. University of Calcutta, 1962. (Dissertation)


RAYCHAUDHURI, MANAS Personality correlates to creativity. Samiksa (1965) 19:107-134.


RIPPLE, R.E; GLOCK, M.D. and MILLMAN, JASON Learner characteristics and instructional mode; the relationship of anxiety, compulsivity, creativity, and exhibitionism to success in learning from programmed and conventional instruction. Ithaca, N.Y. Cornell, 1966, 1v.

RIVLIN, L.G. Creativity and the self attitudes and sociability of high school students. Journal of Educational Psychology (1959) 50:147-152.


ROOKEY, THOMAS J. The impact of an intervention program for teachers on creative attitude and creative ability of elementary pupils. Lehigh University, 1972. Dissertation Abstracts 33:2774A.
ROSEMANN, R. (Art and individuality.) Medizinische Klinik (1921) 17:1337-1380, 1408-1410. (Ger.)


ROSENBLATT, ENRIQUE (Creative activity, rivalry and jealousy.) Revista de Psicanalisis (1962) 19:35-37. (Spa.)

ROSINA, P.L. (Instinctual and motivational aspects of the creative process.) Contributi dell'Instituto di Psicologia (1965) No. 27:197-244. (Ita.)


RUCKER, MARGARET HOWARD The relationship of perceived locus of control and ascendancy to reactions to a manipulative and a participative problem-solving situation. Purdue University, 1969. (Dissertation) Order Number 70-3968, 128p.


SACHS, HANNS (art and personality.) Imago (1929) 15:1-14. (Ger.): Almanach, 1930, 61-76. (Ger.)


SANFORD, NEVITT Creativity and conformity. In conference of the creative person. Berkeley: University of California, Institute of Personality Assessment and Research, 1961, VII-1-10.

SAPP, MARY ELLEN BOURNE The effects of participation in an affective education program on selected aspects of creativity. The Ohio State University, 1975. Dissertation Abstracts 36:3392A.


SCHACHTEL, E.G. Projection and its relation to character attitudes and creativity in the kinesthetic responses; contributions to an understanding of Rorschach test, IV. Psychiatry (1950) 13:69-100.


SCHALK-HOPFEN, LILI (The personality of the artist.)
Osterreichische Rundschau (1912) 33:288-294. (Ger.)

SCHEERER, MARTIN; ROTHMAN, EVA and GOLDSTEIN, KURT A case
of "idiot savant": an experimental study of personality
organization. Psychological Monographs (1945) 58(whole
number 269) 63p.

SCHULMAN, DAVID Openness of perception as a condition

SCHUMACHER, W. (Didactic capacity and composition ability.)
Zeitschrift fur Angewandte Psychologie (1930) 37:1-55. (Ger.)

SCIORTINO, R.R. Personality and creative abilities.

SEIFERT, C.G. The development of aesthetic awareness and
creativity in fifth-graders utilizing a design procedure.
Dissertation Abstracts (1966) 27:422A.

SEMPOWSKI, JOHN T. The relationship of stress and creativity
to cognitive performance. The University of Rochester,

SHARFMAN, BENJAMIN N. Creative thinking and religious
training in relation to moral judgment. New York University,


SIEGELMAN, MARVIN Parent behavior correlates of personality
traits related to creativity in sons and daughters. Journal

SIMMS, J.T. An investigation of the differences between
creative high socio-economic college freshmen and creative
low socio-economic college freshmen on measures of vocational
interests and certain motivational factors. Dissertation

SISK, D.A. The relationship between self-concept and creative
thinking of elementary school children: an experimental

SMITH, D.L. An exploratory study of a means for assessing
both creativity and conformity of first-graders. Dissertation
Abstracts (1967) 28:158-159A.

SMITH, R.H. A study of pre-adolescent boys demonstrating
varying levels of creativity with regard to their social adjustment, peer acceptance and academically related behavior. Dissertation Abstracts (1965) 25:4553.


SOLIMAN, A.M. A study of the relationships between creativity, social class, social mobility, and vocational goals of high school seniors. Dissertation Abstracts (1968) 28:3518-3519A.


STUBBINGS, JOHN ROBERT JR. A comparison of the Torrance Tests of Creative Thinking and Guilford's Measures of Creative Ability on sex, cognitive, and personality variables. (Appendices A,B, and C not microfilmed at request of authors. Available for consultation at University of Virginia Library.) University of Virginia, 1967. Dissertation Abstracts 28:4496A.


TORRANCE, E.P. and DAW, D.C.  Aspirations and dreams of three groups of creatively gifted high school seniors and a comparable unselected group. Gifted Child Quarterly (1965) 9:177-182.


TRENTIANO, LANDA L.  Anxiety levels, distinction/distraction conditions, and intrusion types in a creativity testing situation. Indiana University, 1972. Dissertation Abstracts 34:1141A.


UTITZ, EMIL (The personality of the artist.) Zeitschrift für Asthetik (1925) 19:130-153. (Ger.)


VOSSEN, J.M.H. (About expressiveness.) Gawein (1962) 11:81-144. (Dut.)


WASHBURN, M.F; HATT, ELSIE; and HOLT, E.B. Affective sensitiveness in poets and in scientific students. American Journal of Psychology (1923) 34:106.


WILKINSON, MELVIN LEROY An information processing systems model of variety, tension, and components of creativity. Brigham Young University, 1974. Dissertation Abstracts 35:1767A.


WINTERSTEIN, ALFRED (On the subject of artistic creation and the employment/enjoyment of sex.) Zentralblatt fur Psychoanalyse (1911) 2:291. (Ger.)


WONDERLY, D.M. Personality characteristics of intelligent-creative children. Western Reserve University, 1963. (Dissertation)


ZILAHI-BEKE, AGNES (Relationships between the artistic growth of an individual of his personality development.) Internationale Zeitschrift fur Individual Psychologie (1931)9:51-60. (Ger.)

APPENDIX B

MacKinnon, in summarizing research, lists the following traits of creative people:

1. Creative people do not represent stereotypes.
2. Creative people are well above average in intelligence.
3. Creative people possess verbal intelligence, spatial intelligence, or sometimes both.
4. Creative persons have unusual capacity to record and retain and have readily available the experience of their life history.
5. They are discerning and observant in a different fashion; they are alert, capable of concentrating readily and shifting if appropriate; they are fluent in scanning thoughts and producing those that serve to solve the problems they undertake; they have a wide range of information at their command.
6. Intelligence alone will not tend to produce creativity. Creativity is the relevant absence of repression and suppression as mechanisms for the control of impulse and imagery. Repression operates against creativity, regardless of how intelligent a person may be.
7. The creative person, given to expression rather than suppression or repression, thus has fuller access to his own experience, both conscious and unconscious.
8. Openness to experience is one of the most striking characteristics of a highly creative person.
9. A highly creative person has a closer identification of feminine traits or characteristics in himself than non-creative. He is more open to feelings and emotions.
10. Everyone perceives and judges, but the creative person tends to prefer perceiving to judging. "Where a judging person emphasizes the control and regulation of experience, the perceptive creative person is inclined to be more interested and curious, more open and receptive, seeking to experience life to the full."
11. Artists, in general, show a preference for feeling, scientists and engineers a preference for thinking. The architects are somewhere between the two groups.
12. A highly creative person is relatively less interested in small detail, more concerned with meaning and implication. He is relatively uninterested in policing his own impulses and images or those of others.
13. A creative person is genuinely independent.
14. He has preference for complexity and his delight is in the challenging and the unfinished.

APPENDIX C

Torrance also made a summary of the studies which tried to identify the personality traits of a highly creative person. He lists the following traits:

1. strong affection
2. altruistic
3. always baffled by something
4. attracted to the mysterious
5. attempts difficult jobs (sometimes too difficult)
6. bashful outwardly
7. constructive in criticism
8. courageous
9. deep and conscientious convictions
10. defies conventions of courtesy
11. defies conventions of health
12. desires to excel
13. determination
14. differentiated value-hierarchy
15. discontented
16. dominant (not in power sense)
17. a fault-finder
18. doesn't fear being thought "different"
19. feels whole parade is out of step
20. likes solitude
21. industrious
22. introversive
23. keeps unusual hours
24. lacks business ability
25. makes mistakes
26. never bored
27. not hostile or negativistic
28. oddities of habit
29. persistent
30. receptive of ideas of others
31. regresses occasionally
32. reserved
33. resolute
34. self-starter
35. sense of destiny
36. shuns power
37. sincere
38. not interested in small details
39. speculative
40. spirited in disagreement
41. tenacious
42. thorough
43. somewhat uncultured, primitive
44. unsophisticated, naive
45. unwilling to attempt anything on mere say so
46. visionary
47. versatile
48. willing to take risks

APPENDIX D

ADMINISTERING AND SCORING THE "HOW DO YOU REALLY FEEL ABOUT YOURSELF?" INVENTORY

ADMINISTERING

You may want to duplicate the exercise shown on pages 12, 12a and 12b. After reading the instructions at the top with the class, ask them to make their most appropriate selection for each sentence. Collect the exercise when the class finishes and score. This is not a timed exercise but should be completed by an upper grade class in one period. For lower grade classes, you may wish to read the sentences aloud with the children. Give only half of the exercise at one time. Collect and score the same way.

SCORING

The following key indicates the most proper answer to each item on the inventory as well as the factor which the item measures. This exercise is constructed to measure the person's view of himself as being a risk-taker (items marked RT), curious (items marked CU), complex (marked CO), and imaginative (marked IM). Of the 50 items, 12 contribute to curiosity, 12 to imagination, 13 to risk-taking, and 13 to complexity. Those items that the pupil selects according to the key below should receive a weighting of two points each. Hence, if all answers agree with the key, 100 raw score points are possible. Answers in the two columns other than the "cannot really decide" column should receive a weighting of 1. If a pupil decides on answers which do not agree with the key, his or her score could be a possible 50 raw score points. For those sentences which the pupil cannot decide on and for which he places an X in the "cannot really decide" column, one point for each should be subtracted from the total score. These items are weighted -1, which penalizes the person who is undecided. Indecision indicates low self-concept. Naturally, the higher raw score indicates the person who feels good about himself or herself. It has been well established that the more creative person knows himself better and has a very positive attitude about himself as being curious, complex, imaginative, and a risk-taker. You may want to obtain scores for each of the factors which the
exercise measures (risk-taking, curiosity, etc.) as well as the total score. In this way you may better learn the child's strengths (high factor scores) and weaknesses (low factor scores). These four feeling behavior scores and a total score should then be entered on each individual child's Creative Potential Profile (Page 15).

Note: The source for all items in Appendix D is Williams' A Total Creativity Program for Individualizing and Humanizing the Learning Process and are utilized with the author's permission.
<table>
<thead>
<tr>
<th>Sentence Number</th>
<th>Factor Which the Sentence Measures</th>
<th>Mostly True</th>
<th>Partly True</th>
<th>Mostly Untrue</th>
<th>Cannot Decide</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>RT</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>CO</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>RT</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>CO</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>CO</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>CU</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>CU</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>IM</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>IM</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>IM</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>CO</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>CO</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>IM</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>RT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>RT</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>IM</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>CO</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>RT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>CO</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>RT</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sentence Number</td>
<td>Factor Which the Sentence Measures</td>
<td>Mostly True</td>
<td>Partly True</td>
<td>Mostly Untrue</td>
<td>Cannot Decide</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>30</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>RT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>RT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>RT</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>36</td>
<td>RT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>IM</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>40</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>CO</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>42</td>
<td>CO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>RT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>RT</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>IM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>CO</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>49</td>
<td>CU</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>CO</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
"HOW DO YOU REALLY FEEL ABOUT YOURSELF?" INVENTORY

SAMPLE INSTRUCTIONS AND QUESTIONS

INSTRUCTIONS

This is an exercise which will help you find out how you feel about yourself. You will find some sentences that definitely fit you better than others. These should be marked with an X in the "mostly true about me" column. Other sentences will not fit you at all and should be marked with an X in the "mostly untrue (false) about me" column. Still other sentences may explain you a little, but some parts of them do not seem to fit you. These should be marked with an X in the "partly true or untrue about me" column. Those sentences that you cannot decide about should be marked in the "cannot really decide" column. Try to first decide if the sentence fits, partly fits, or does not fit you at all before marking the "undecided" column. Mark every sentence, and do not think a long time about the sentence. There are no right or wrong answers. Mark the first feeling you have as you read each sentence. This is not a timed exercise, but work as quickly as you can. Remember, try to answer each sentence by the way you really feel about yourself. Place an X in the column you feel is most nearly like you.

QUESTIONS

1. In my class at school I try to make guesses about things even if I don't know the right answer.

2. I am inquisitive about things. For example, like looking through a microscope just to see what I might find.

3. I ask my mother, father, or best friend many kinds of questions when I do not know something.

4. I like a set schedule for doing things at home or at school.

5. Before I am willing to take a chance at playing a new game I want to be sure I will win.

6. It is easy for me to forget things I know, and dream about things I don't know.

7. I believe that if at first I don't succeed, I should keep on trying until I do.
8. I never suggest playing a game at a party that no one else has thought of.

9. I like known ways of doing things rather than trying out new ways.

10. It is good to know that very few things should be accepted as certain or completely true.

11. I am usually interested in doing different things rather than the same thing most of the time.

12. I prefer making new friends rather than keeping the same old friends.

13. I like to daydream about things that have never happened to me.

14. Some day I'd like to be a very socially popular person rather than a person talented in art, music or writing.

15. Some of my ideas are so exciting that I forget other things.

16. I would rather imagine being an astronaut than a business or professional person.

17. I get jumpy when things are uncertain and I don't know what's going to happen next.

18. I really like things that are different.

19. When my opinion differs from that of my parents, I usually wonder what there opinion is and why.

20. I enjoy watching a story on TV about history or some event in the past rather than watching a science fiction film about things than can never really happen.

21. It does not bother me to join a group of my classmates and to express my ideas.

22. I tend to keep quiet when things do not go well, when I fail, or when I make a mistake.

23. When I grow up I would like to create something never made or thought of before.

24. I like friends who are practical and conventional instead of friends who are "way out".
25. I do not like most rules or regulations.

26. I like to try and solve a problem for which I know there will not be a clear-cut answer.

27. I would like to experiment with ways to help control pollution.

28. Once I have solved a problem, I like to stick to that solution instead of trying other ones.

29. I prefer not to recite or talk in front of my class.

30. When reading a book or watching a movie, I like to imagine being one of the characters in the story.

31. I would enjoy writing about living 200 years ago.

32. I dislike it when my friends cannot make a decision.

33. I like to explore old trunks and boxes just to see what might be in them.

34. I would like to have my parents and teachers continue their old habits and ways of doing things instead of changing them.

35. I trust the way I feel about things.

36. It is exciting to make a guess and see if it might be true.

37. It is fun to try puzzles and games that cause me to wonder.

38. I am interested in mechanical things and wonder what they look like inside and how they run.

39. I would rather have a friend who never uses any imagination than one who gets silly ideas.

40. I like to think about new ideas even if they are never useful.

41. I like to have a place for everything and have everything in its place.

42. I think it would be exciting to try to solve some of the world's problems.

43. I like to try out new ideas just to see where they will take me.
44. When playing a game, I am usually more interested in enjoying it than winning it.

45. I like to think about many adventuresome things to do that no one has ever thought of.

46. When I look at a picture of a person I do not know, I like to imagine what that person might really be like.

47. In school or at home, I often look through many books or magazines just to see what is in them.

48. I believe there is just one right answer to most questions.

49. I like to ask questions about objects or situations that others do not usually think of.

50. I really like having a lot of interesting things to do at home or in school.
APPENDIX E

SPEARMAN-BROWN SPLIT-HALF RELIABILITY COEFFICIENTS
FOR THE TEN CREATIVITY VARIABLES (N=151)

Ideational Productivity Measure                      Coefficient

Instances-uniqueness            .51
Instances-number                 .75
Alternate Uses-uniqueness        .87
Alternate Uses-number            .93
Similarities-uniqueness          .87
Similarities-number              .93
Pattern Meanings-uniqueness      .88
Pattern Meanings-number          .93
Line Meanings-uniqueness         .82
Line Meanings-number             .93


ITEM-SUM CORRELATIONS FOR THE ALTERNATE
USES PROCEDURE (N=151)

<table>
<thead>
<tr>
<th>Item</th>
<th>Correlation for Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.80</td>
</tr>
<tr>
<td>2</td>
<td>.79</td>
</tr>
<tr>
<td>3</td>
<td>.83</td>
</tr>
<tr>
<td>4</td>
<td>.84</td>
</tr>
<tr>
<td>5</td>
<td>.86</td>
</tr>
<tr>
<td>6</td>
<td>.83</td>
</tr>
<tr>
<td>7</td>
<td>.83</td>
</tr>
<tr>
<td>8</td>
<td>.84</td>
</tr>
</tbody>
</table>

Note: This table does not include the correlation for uniqueness.
<table>
<thead>
<tr>
<th>Intelligence Measure</th>
<th>Intercorrelation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WISC-vocabulary</td>
<td>13</td>
</tr>
<tr>
<td>WISC-picture arrangement</td>
<td>09</td>
</tr>
<tr>
<td>WISC-block design</td>
<td>06</td>
</tr>
<tr>
<td>SCAT-verbal</td>
<td>16</td>
</tr>
<tr>
<td>SCAT-quantitative</td>
<td>13</td>
</tr>
<tr>
<td>STEP-mathematics</td>
<td>22</td>
</tr>
<tr>
<td>STEP-science</td>
<td>15</td>
</tr>
<tr>
<td>STEP-social studies</td>
<td>18</td>
</tr>
<tr>
<td>STEP-reading</td>
<td>14</td>
</tr>
<tr>
<td>STEP-writing</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: For 149 df, r's of .16 and .21 are significant at the .05 and .01 levels, respectively. Decimal points are omitted.
### APPENDIX F

#### TABLE 2

**FAW DATA FOR THE MAIN COMPARISON GROUP**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Williams' Inventory</th>
<th>Ideational Fluency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tl</td>
<td>Im</td>
</tr>
<tr>
<td>1</td>
<td>68</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>68</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>73</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>59</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>73</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>62</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>73</td>
<td>15</td>
</tr>
<tr>
<td>9</td>
<td>56</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>58</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>67</td>
<td>19</td>
</tr>
<tr>
<td>12</td>
<td>65</td>
<td>15</td>
</tr>
<tr>
<td>13</td>
<td>67</td>
<td>15</td>
</tr>
<tr>
<td>14</td>
<td>66</td>
<td>16</td>
</tr>
<tr>
<td>15</td>
<td>66</td>
<td>19</td>
</tr>
<tr>
<td>16</td>
<td>71</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>72</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>61</td>
<td>14</td>
</tr>
<tr>
<td>19</td>
<td>61</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>59</td>
<td>14</td>
</tr>
<tr>
<td>21</td>
<td>70</td>
<td>18</td>
</tr>
<tr>
<td>Subjects</td>
<td>Williams' Inventory</td>
<td>Ideational Fluency</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td>Tl</td>
<td>Im</td>
</tr>
<tr>
<td>22</td>
<td>70</td>
<td>17</td>
</tr>
<tr>
<td>23</td>
<td>86</td>
<td>21</td>
</tr>
<tr>
<td>24</td>
<td>68</td>
<td>17</td>
</tr>
<tr>
<td>25</td>
<td>74</td>
<td>17</td>
</tr>
<tr>
<td>26</td>
<td>78</td>
<td>17</td>
</tr>
<tr>
<td>27</td>
<td>81</td>
<td>20</td>
</tr>
<tr>
<td>28</td>
<td>77</td>
<td>20</td>
</tr>
<tr>
<td>29</td>
<td>53</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>60</td>
<td>18</td>
</tr>
<tr>
<td>31</td>
<td>80</td>
<td>21</td>
</tr>
<tr>
<td>32</td>
<td>77</td>
<td>20</td>
</tr>
<tr>
<td>33</td>
<td>77</td>
<td>18</td>
</tr>
<tr>
<td>34</td>
<td>42</td>
<td>9</td>
</tr>
<tr>
<td>35</td>
<td>47</td>
<td>8</td>
</tr>
<tr>
<td>36</td>
<td>59</td>
<td>15</td>
</tr>
<tr>
<td>37</td>
<td>66</td>
<td>15</td>
</tr>
<tr>
<td>38</td>
<td>64</td>
<td>14</td>
</tr>
<tr>
<td>39</td>
<td>71</td>
<td>17</td>
</tr>
<tr>
<td>40</td>
<td>79</td>
<td>20</td>
</tr>
<tr>
<td>41</td>
<td>72</td>
<td>18</td>
</tr>
<tr>
<td>42</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>43</td>
<td>69</td>
<td>21</td>
</tr>
<tr>
<td>44</td>
<td>83</td>
<td>20</td>
</tr>
<tr>
<td>45</td>
<td>72</td>
<td>17</td>
</tr>
<tr>
<td>46</td>
<td>70</td>
<td>16</td>
</tr>
<tr>
<td>47</td>
<td>76</td>
<td>19</td>
</tr>
<tr>
<td>48</td>
<td>71</td>
<td>15</td>
</tr>
</tbody>
</table>
### TABLE 2 Continued

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Williams' Inventory</th>
<th>Ideational Fluency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1  Im  Cu  Co  Rt</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>71  14  17  20  20</td>
<td>10</td>
</tr>
<tr>
<td>50</td>
<td>67  16  17  16  18</td>
<td>13</td>
</tr>
<tr>
<td>51</td>
<td>75  20  18  19  18</td>
<td>19</td>
</tr>
</tbody>
</table>

Note: T1=total score, Im=imagination sub-scale score, Cu=curiosity subscale score, Co=complexity sub-scale score, and Rt=risk-taking sub-scale score.
### APPENDIX G

### TABLE 3

**RAW DATA FOR THE SECONDARY COMPARISON GROUP**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Test Scores</th>
<th>Retest Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>Im</td>
</tr>
<tr>
<td>1</td>
<td>58</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>57</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>72</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>70</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>67</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>76</td>
<td>19</td>
</tr>
<tr>
<td>8</td>
<td>62</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>57</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>58</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>12</td>
<td>58</td>
<td>15</td>
</tr>
<tr>
<td>13</td>
<td>86</td>
<td>21</td>
</tr>
<tr>
<td>14</td>
<td>71</td>
<td>16</td>
</tr>
<tr>
<td>15</td>
<td>64</td>
<td>14</td>
</tr>
<tr>
<td>16</td>
<td>62</td>
<td>10</td>
</tr>
<tr>
<td>17</td>
<td>79</td>
<td>22</td>
</tr>
<tr>
<td>18</td>
<td>65</td>
<td>14</td>
</tr>
</tbody>
</table>
TABLE 3 Continued

<table>
<thead>
<tr>
<th>Subject</th>
<th>Test Scores</th>
<th>Retest Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tl</td>
<td>Im</td>
</tr>
<tr>
<td>19</td>
<td>72</td>
<td>18</td>
</tr>
<tr>
<td>20</td>
<td>61</td>
<td>14</td>
</tr>
<tr>
<td>21</td>
<td>66</td>
<td>12</td>
</tr>
<tr>
<td>22</td>
<td>76</td>
<td>18</td>
</tr>
<tr>
<td>23</td>
<td>66</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>51</td>
<td>9</td>
</tr>
<tr>
<td>25</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>26</td>
<td>75</td>
<td>19</td>
</tr>
<tr>
<td>27</td>
<td>70</td>
<td>16</td>
</tr>
<tr>
<td>28</td>
<td>65</td>
<td>13</td>
</tr>
<tr>
<td>29</td>
<td>80</td>
<td>17</td>
</tr>
<tr>
<td>30</td>
<td>65</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: Tl=Total Williams' Inventory score, Im=score for imagination, Cu=score for curiosity, Co=score for complexity, and Rt=score for risk-taking.