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An Exploratory Study: The Relationship Of Apparent Creativity And Tested Creativity In Selected Second Grade Children

Stephanie Girolami
Carroll College

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AN EXPLORATORY STUDY:

THE RELATIONSHIP OF APPARENT CREATIVITY AND TESTED CREATIVITY

IN SELECTED SECOND GRADE CHILDREN

by

Stephanie Therese Cirolami

A Thesis

submitted to

the Department of Elementary Education of

Carroll College

In partial fulfillment

of the requirements for Academic Honors

with a B.A. Degree in Elementary Education

Helena, Montana

April 10, 1972
This thesis for honors recognition has been approved for the Department of Elementary Education.

April 10, 1972
To Dr. Allen Pope
   Who imposed his values on me -- with my consent.
   Thank you.

To "The Little People"
   Who are the creative spirit.
   Teach us -- grown-ups have much to learn from you.

To Mom and Dad
   Who love me and who by this love have imbued me
   with a respect for life and people. Thank you
   for these great gifts.
ACKNOWLEDGMENTS

The writer wishes to express sincere thanks to the following teachers whose observations and insights weighed heavily in this study: Mrs. Venita Needham, Mrs. Eiker, Mr. Larry Hayes and Sister Aquinata O'Sullivan, O. P.

This study would not have been possible without one group of individuals -- the second graders at Smith School.

Another group of individuals deserve special recognition. To my friends who put up with me during the trying times of thesis writing is extended a special "Thank you".
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INTRODUCTION

Concern for the creative potential is nothing new. Creativity, in the past ten years, has moved to a prominent position in the field of education. People such as J. P. Guilford, Getzels and Jackson, Calvin Taylor, E. Paul Torrance and Miriam Wilt have pioneered research in this area. Though many aspects of creativity have been studied, many remain unstudied.

There are many definitions and approaches available for "creativity". Margaret Mead defines creativity as a process in the individual to the extent that a person makes, invents, or thinks of something that is new to him. Erich Fromm sees creativity as an attitude; he describes it as "an ability to see, to be aware, and to respond with yourself as the whole person you are." Harold H. Anderson, concerned with the openness of creativity, defines it as a flow and interweaving of individual differences, a sort of dynamic individuality. Sydney J. Parnes, for his purposes, defines creativity as "behavior which demonstrates both uniqueness and value in its product". Maslow differentiates "special-talent creativeness"

2Ibid, p. 44.
3Ibid, p. X.
from "self-actualizing creativeness". Jerome Kagan states that "creativity refers to a product, and if that product was made by a man, we give him the honor of the adjective". Torrance's process definition of creativity requires that a sequence of experiences take place. Thus is seen the variety of ideas available from a variety of people about a very controversial topic.

This emphasis on and interest in creativity has already had far reaching effects on our present educational system. It has caused educators to become concerned about such educational goals as the production of fully-functioning, mentally healthy, well-educated, and successful individuals who are not afraid to take their place in society. Recent research findings indicate strongly that these goals are undeniably related to creativity.

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5 Anderson, p. 82.


8 Ibid., p. 5.
CHAPTER I

THE NATURE OF CREATIVITY

IN THE PRIMARY AGE CHILD
CHAPTER I

The Nature of Creativity in the Primary Age Child

Tell me, tell me of everything!
What makes it Winter
And then Spring?
Which are the children
Butterflies?
Why do people keep
Winking their eyes?
Where do birds sleep?
Do bees like to sting?
Tell me, tell me please, everything!

Tell me, tell me, I want to know!
What makes leaves grow
In the shapes they grow?
Why do goldfish
Keep chewing? And rabbits
Warble their noses?
Just from habits?
Where does the wind
When it goes away go?
Tell me! or don't even grown-ups know?^9

Curiosity seems to appear in all children at an early age,
and it forms an important basis for learning. Is it this curiosity,
this ability to question that is the basis of an individual's creativity?

It has been pointed out that the rudiments of creativity, with
which most of us begin life, are readily observed in the art, play, and
speech of the young child:

Curious, imaginative, and still passionately
close to his feeling...he (the child) does express
a sense of joy and enthusiasm, a spontaneity and
intensity of feeling which adults admire and envy.


The untutored child possesses two qualities which are always preserved in the mature artist: Imagination, and the ability to encounter his own feelings.11

and

This child of the dancing foot, the nimble mind, the laughing eye, the hungering heart—he has, he is the creative spirit.12

Fromm believes that children have a basic capacity for creativity.

Children still have the capacity to be puzzled. Their whole effort is one of trying to orient themselves in a new world, to grasp the ever new things which they learn to experience. They are puzzled, surprised, capable of wondering, and that is what makes their reaction a creative one.13

Such assertions have led to the bold statement that "The first basic truth about creativity is that all people are born creative." That is to say, creativity was in each of us as a small child. "In children creativity is a universal. Among adults, it is almost nonexistent." Something happens to this natural creativeness of children; somewhere along in their development, many children sacrifice their creativity.

The child's well-recognized early curiosity, his joy in new things, his drive to seek the unknown, to explore the mysterious, to seek excitement, seems to undergo alteration with age.16


13Erich Fromm, "The Creative Attitude", in Creativity and Its Cultivation, Ibid., p. 48.

14E. Sinnott, "The Creativeness of Life", in Creativity and Its Cultivation, Ibid., Chapter 2.

15H. H. Anderson, Creativity and Its Cultivation, Ibid., p. xii.

Guilford's Structure-of-Intellect-Model has been instrumental in identifying the characteristics and abilities of a creative person. He describes two basic cognitive or intellectual modes. The one (convergent thinking) tends toward the known, the predetermined, the usual and expected. The other (divergent thinking) tends toward revising the known, exploring the undetermined, constructing what might be: it is concerned with the novel and speculative. Guilford identified the following intellectual characteristics as most likely to be valid measures of creative talent: fluency, flexibility, originality, sensitivity to problems, and redefinition. In addition to these characteristics, Getzels and Jackson add boldness in thinking and an imagination that is given free reign. Rogers identifies the following three conditions of creativeness: openness to experience, internal locus of evaluation and an ability to toy with elements and concepts. Marksberry summarizes the attitudes which are basic to creativity as follows: curiosity about the environment, openmindedness, wondering or inquiring about things, objectivity, flexibility, intellectual playfulness and humor, indifference toward conformity to many cultural stereotypes, willingness and eagerness to try new ideas, willingness to work long hours over long periods of time, willingness to be alone physically and figuratively, confidence in one's own ability, sensitivity to various sensory stimuli in the environment and strong interests.

18 Getzels and Jackson, Ibid., p. 124.
Torrance, in his research with children, has identified the following as characteristics of creative potential: sensitivity to environmental stimuli, strong curiosity, tendency to manipulate and explore objects, spontaneous development and testing of hypothesis, original thinking, readiness to abandon old concepts, ability to see many rich and new possibilities, willingness to share ideas, value of own ideas and trust of own perceptions, independence of others, exceptional self-starting ability, sensitivity to defects, recognition of a disturbing element, necessity of active as well as quiet periods in the production of new ideas, willingness to follow through ideas, willingness to put up with tediousness, diversity of interests, wish to explore new ideas, and ability to transform ideas.

21

The characteristics of creative behavior enumerated so far seem to indicate that creativity is more than a haphazard mixture of person, process, and product. It would seem that "creativity" implies a style of life — an attitude toward life. It has been pointed out that creativity is present in all people. It follows that creativity, as found in individuals in varying degrees, has been developed by their experiences which have, in turn, influenced their attitudes toward themselves and toward life. Self-concept seems to be closely related to creative behavior. A person who accepts himself, has confidence in himself and who trusts himself would be willing to take risks associated with "creative" behavior. Such an individual would be daring enough to think in new directions, to open himself up to new experiences, to question accepted values, to try something new, and to change with

his new experiences.

The implications for a primary teacher are staggering. The teacher plays an important role in influencing those children and those attitudes with which she comes in contact. She has a determining role to play in the development of creative individuals. It will be necessary to challenge the students to think, question, and reason. It will be necessary to expose students to a variety of new experiences and ideas so that opportunity is given to encounter, savor, and grow. She must always be willing to build with the child a positive self-concept of himself. It will be necessary for her to be a creative individual herself. Children will value a creative life style if they are able to recognize it in their teacher. The primary teacher has a great responsibility: she must nurture the growth of already creative individuals.
CHAPTER II

THE PROBLEM: APPARENT VS.

TESTED CREATIVITY
CHAPTER II

The Problem: Apparent vs. Tested Creativity

This study is an attempt to compare the apparent creativity of primary aged children (that is, creative abilities and characteristics observable by an informed classroom teacher; subjective) with the tested creativity of the same children (that is, creative abilities and characteristics indicated by the results of a standardized test; objective).

Assumptions

1. Creative characteristics are discernible in primary aged children.

2. Creativity, as defined, can be measured.

3. A correlation between apparent creativity and tested creativity exists.

4. Responses by the students and teachers in the sample used in this study are representative of the responses of a total population of students and teachers.

5. The instruments used in this study measure that which they are purported to measure.

6. The students and teachers in this study did participate honestly and sincerely.

Delimitations

This study made no effort to determine the correlation of creativity, intelligence, or readiness class rank scored to achievement.
Descriptions of each child include, where possible, class rank according to Metropolitan Reading Readiness Percentile scores, Kuhlman Anderson I. Q. scores (based on a compilation of T-scores for Torrance Tests of Creative Thinking); observations noted by a cadet-teacher during ten weeks of student teaching, evaluations of each child by master teacher and cadet; and evaluation of two examples of children's work by art teachers at the college, senior high, and junior high levels.

Limitations

The sample of this study was limited to a second grade class in one elementary school in the Helena Public School System. This class consists of twenty-five children: Thirteen boys and twelve girls.

Because free access was not given to class records, it was not possible to compile as complete a description of each child as had been originally planned.

Definitions

Creativity. A process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, etc., identifying the difficulty; searching for solutions, making guesses or formulating hypotheses about the deficiencies: testing and retesting these hypotheses and possibly modifying and retesting them; and finally, communicating the results. This definition describes a natural human process, and for this reason, is favored by the author of the test. In the Torrance test, an attempt is made to assess the products that result from the administration of test activities in terms of Guilford's divergent thinking factors of fluency, flexibility,
originality, and elaboration. Explanations of these terms follow.

Figural fluency. The ability to produce a large number of ideas with figures within a limited period of time.

Figural flexibility. The ability to produce a variety of kinds of ideas, to shift from one approach to another, or to use a variety of strategies. This particular activity is concerned with figural modes of thinking.

Figural originality. The ability to produce figural ideas that are away from the obvious, commonplace, banal, or established. This requires the ability to delay immediate gratification or reduction of tension in order to get away from the obvious, easy, but low quality response.

Figural elaboration. The ability to develop, embroider, embellish, carry out, or otherwise elaborate ideas.\(^\text{22}\)

\(^{22}\) The definitions used in this paper include paraphrased material taken from E. Paul Torrance, Torrance Tests of Creative Thinking: Norms Technical Manuel, (Princeton, New Jersey: Personnel Press, Inc., 1966).
CHAPTER III

METHODS
CHAPTER III

Methods

Procedure

Data for this study can be divided into three areas. Test scores from a battery of tests were compiled for each child in order to present one description of each child. Included were the following: Metropolitan Reading Readiness Test (administered at the beginning of first grade), Kuhlman-Anderson I. Q. Test (administered in the first month of second grade), Torrance Tests of Creative Thinking, figural form (administered during the second month of second grade).

Scores for each test were then ranked from highest to lowest and set up in tabular form. This method allowed a comparison of rank in class for each child for each test. (see Table I)

The creativity scores presented a problem. Torrance Tests do not supply a total figural creativity score, but four individual scores in the areas of fluency, flexibility, originality and elaboration. (see Table II) A total creativity score with which to work would be more practical than would four individual scores. It became necessary to determine a single creativity score.

Before this was done, it was necessary to compute the coefficient of correlation between the four areas. Rank order coefficient of correlation is a measure of the degree of relationship, or "going-togetherness", between two sets of measures for the same group of
individuals. Unless otherwise specified, "correlation" usually means the product-moment correlation coefficient, which ranges from 0.00, denoting complete absence of relationship, to 1.00, denoting perfect correspondence.23

Rank order coefficient of correlation was set up between fluency and each of the three remaining test areas. The formula used was

$$r_s = 1 - \frac{6fd^2}{N^3 - N}$$

where $r_s$ is the rank order coefficient of correlation, $d$ is the difference in the two standard scores being compared, and $N$ is the number of test scores used. Following are the results of the calculations for $r_s$ in three comparisons:

- Fluency and flexibility $r_s = 0.81$
- Fluency and originality $r_s = 0.69$
- Fluency and elaboration $r_s = 0.26$

Fluency, flexibility, and originality have acceptable coefficients of correlation. The $r_s$ for fluency and elaboration suggests that there is a discrepancy between the fluency and elaboration scores, and use of the elaboration score in a total score should be questioned.

A total of the four creativity scores for each child were computed and placed in rank order. Using standard scores, a total of the three scores with relatively high $r_s$ were computed and placed in rank order. The

for these two scores (total of four areas and total of three areas) was then computed. The $r_s$ for the two total creativity scores was 0.91. This is an excellent $r_s$, but 0.91 indicates that there is a discrepancy between the elaboration score and others.

Because of this discrepancy, the total creativity score used was the total of fluency, flexibility and originality scores.

A second area of data included descriptions of children from observations of them by the cadet during her ten weeks of student teaching. Evaluations of each student by master teacher as well as cadet were noted. At the beginning of the study, it had been hoped that a description of each child, as found on file for each student, could also be used. This information was available in only a few cases and is, therefore, not consistently used in the descriptions. This information was gathered to present still another aspect of each child.

A third area of data was used. Evaluations of examples of each child's work were made by three art teachers in the Helena area. These teachers included people on the college, senior high, and junior high levels.

It was hoped that the compilation of this data would result in as complete a description of each child as possible from available sources.

**Instruments**

The Torrance Tests of Creative Thinking, figural form A was used to give a somewhat objective, standardized measure of creativity. This test is made available in the form of a Research Edition, together with extensive technical data that describe the current level
of the instrument's development. Publication of this test is being taken while knowledge and understanding about creative thinking are yet in a relatively underdeveloped state. Under these conditions, author and publisher are well aware that assessment cannot have reached the level of technical excellence that is eventually desired. It is hoped that publication of the research test in its present condition will encourage research, facilitate the collection of data, and accomplish the widening of knowledge that is so urgently needed.

At their present stage of development, these tests are considered ready for use in certain kinds of applications. The suggested uses of the Research Edition of the Torrance Tests of Creative Thinking as indicated in the Norms-Technical Manual include the following as legitimate uses:

1. Basic studies that will yield a more complete understanding of the human mind and its functioning and development.

2. Studies designed to discover effective bases for individualizing instruction.

3. Sources of clues for remedial and psychotherapeutic programs.

4. Assessing the differential effects of various kinds of experimental programs, new curricular arrangements or materials, organizational arrangements, teaching procedures, and the like.

5. As a means of becoming aware of potentialities that might otherwise go unnoticed.24

If one accepts the definition of creativity that the author has proposed, it becomes possible to recognize creative behavior, creative thinking abilities, and creative potential through both test and non-test procedures.25 Though the author has deliberately attempted to


25Ibid., p. 9.
construct test activities that are models of the creative process, involving different kinds of thinking and each contributing something unique to the batteries under development, an attempt has been made to assess the products that result from the administration of these test activities, in terms of Guilford's divergent thinking factors of fluency, flexibility, originality and elaboration.26

Torrance points out, however:

Since a person can behave creatively in an almost infinite number of ways and since there is a diversity of definitions of creativity, it would be impossible to provide all research workers and potential users of tests of creative thinking with satisfactory evidence of validity. The concept of an overall validity coefficient for tests of creative thinking ability is grossly inappropriate. It is much more useful to think in terms of a variety of kinds of criteria of creative behavior and a variety of kinds of creative thinking ability involved in these criteria behaviors.27

Observation is always highly subjective though the writer tried to be objective and thorough in her observations as she could be. It should also be noted, too, that the evaluations as done by the master teacher and cadet teacher were done, respectively, by a person with much classroom experience and a person with relative inexperience in a classroom. Thus, there may be obvious dissenting opinions about a certain behavior.

Ditto sheets with unusual shapes were used as instruments to evaluate the creative thinking abilities of the children. Children were directed to look at the shape, to turn the paper around and study the shape from all directions before making the shape into something it reminded them of. They were asked to try to think of


27Ibid., p. 23.
things that nobody else would. Such dittos were given periodically during the school year. The evaluations by the art people may differ noticeably due to varying opinions as to what constitutes "creative thinking abilities".

The validity of allowing a judgment to be based on only two examples of each child's work with the shapes may be called into question. It must be pointed out that children have often been judged, classified and categorized on less information and by people who are not considered to be experts in a field.
CHAPTER IV

RESULTS
CHAPTER IV

Results

The results reported in this chapter are based on the rank order scores compiled for each child on the Metropolitan Reading Readiness Test, Kuhlman-Anderson I. Q. Test, and the Torrance Tests of Creative thinking; on observations made by master and cadet teachers; and on observations made on some examples of children's work by three art teachers.

Analysis of Data

The data obtained through the administration of the Creativity test and the compilation of test scores in the areas of Reading Readiness and Intelligence Quotient was analyzed by comparing the rank order coefficient of correlation described in the preceding chapter.

The data obtained by the rank order arrangement of the creativity test scores was also compared with teacher observations.

Comparison of Rank Order Coefficients of Correlation

A comparison of $r_s$ was set up between creativity rank order and the two remaining test areas. The results were as follows:

Creativity and Reading Readiness $- - - - - - r_s = 0.09$

Creativity and I. Q. $- - - - - - - - - r_s = 0.46$

The relatively low coefficients of correlation between each area being compared seems to indicate that the Torrance Tests of Creative Thinking measure something other than what is measured by either the Reading Readiness or I. Q. tests.
Table 1: Comparison of Class Rank for Test Battery Scores
(highest to lowest)

<table>
<thead>
<tr>
<th>Children</th>
<th>Metropolitan Reading Readiness (based on percentile scores)</th>
<th>Kuhlman-Anderson (based on I.Q. scores)</th>
<th>Creativity (based on T scores)</th>
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Boys are numbers; Girls are letters

* Score not available

** Motor Co-ordination Difficulties: may have affected test results

*** Second year in first grade at time of testing

**** Not a valid score: reacted strongly to testing situation
<table>
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<td>16</td>
<td>7</td>
<td>25</td>
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<td>F</td>
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<td>23</td>
<td>22</td>
<td>17</td>
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<td>G</td>
<td>9</td>
<td>8</td>
<td>12</td>
<td>11</td>
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<td>H</td>
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<td>21</td>
<td>13</td>
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<tr>
<td>I</td>
<td>10</td>
<td>14</td>
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<tr>
<td>J</td>
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<tr>
<td>K</td>
<td>17</td>
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<td>16</td>
<td>22</td>
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<tr>
<td>L</td>
<td>19</td>
<td>11</td>
<td>9</td>
<td>3</td>
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</tbody>
</table>
Comparison of Teacher Observations

Observations made by teachers were also compared to the Creativity Rank Order Scores developed in this study. The wide variance from person to person found in the defining of the term "creative behavior" may account for the diversity of opinions as to which children exhibited a creativity in their classroom behavior or in their work.

1. Master Teacher's Observations. The writer's master teacher identified two different groups of creative individuals in her classroom. One group exhibited a creativity in their written stories; the other group exhibited a creativity in their art work.

The master teacher felt that I, C, D, J, and 3 displayed a creativity in the stories they wrote. She listed L, A, 6, 10, and 11 as creative in their art work.

<table>
<thead>
<tr>
<th>Creative Story Children</th>
<th>Readiness Rank Order</th>
<th>I. Q. Rank Order</th>
<th>Creativity Rank Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>G</td>
<td>4</td>
<td>9</td>
<td>9</td>
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<td>D</td>
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<tr>
<td>J</td>
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<td>10</td>
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<td>3</td>
<td>22</td>
<td>4</td>
<td>2</td>
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</tbody>
</table>

Creative Art Children

<table>
<thead>
<tr>
<th>Creative Art Children</th>
<th>I. Q. Rank Order</th>
<th>Creativity Rank Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>score unavailable</td>
<td>7</td>
</tr>
<tr>
<td>A</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>score unavailable</td>
<td>23</td>
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<td>10</td>
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<td>22</td>
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<td>11</td>
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<td>5</td>
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</tbody>
</table>

Rankings of the creative "story" individuals were consistent with the academic excellence rank order as indicated by the I. Q. and reading readiness score rankings. In their classroom performance, these children have indicated their abilities to excel in academic
areas. It must be noted, also, that these children all were ranked in the top half of the class in terms of the creativity rank order.

Those children identified as creative in their art work ranked more consistently with the creativity rank order than with the academic excellence rank order. These children all ranked in the top half of the class in terms of the creativity rank order. Teacher comments for some of the children follow:

"B enjoys art."

"I excels in all she does. She is, I would say, the most creative child in this class -- possibly because she is so widely read." (I ranked twelfth in the creativity scores.)

"G is a very bright child. She has an excellent command of the spoken word."

"L. Art is her forte. She is very talented. Her family background puts her quite at ease with art -- her mother is a commercial artist, and her aunt teaches art. It may be that this 'talent' is something she's acquired...that she's learned how to implement techniques. She's way ahead of the other kids in this respect. She doesn't apply herself in her school work -- she's always busy thinking about what she is going to draw."

"6 has his best ideas when they're for art, but he has difficulty expressing them. He's very embarrassed trying anything he's not sure of."

"10 has really surprised me. Every once in awhile he'll get an idea in art that shows good thinking."

"11 has been coming up with some very interesting ideas in art lately."

These observations of the master teacher indicate that the creative behavior can be observed in children. The dichotomy of two creative groups may point to a basic uncertainty as to what constitutes "creative behavior" as such. In a recent undergraduate research program at State University College, Oswego, New York, it was found that teachers in one study were much better able to perceive high I. Q. than high creativity in their students.\textsuperscript{29} It may be that teachers have not been sufficiently prepared to recognize creative behavior in their students.

2. Cadet's Observations. The following students were considered by this writer, while cadet teaching, to be the highly creative students in her class:

<table>
<thead>
<tr>
<th>Children</th>
<th>Creativity Rank Order</th>
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<tbody>
<tr>
<td>H</td>
<td>-19</td>
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<tr>
<td>6</td>
<td>-13</td>
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<tr>
<td>5</td>
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<tr>
<td>C</td>
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<td>3</td>
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<tr>
<td>D</td>
<td>-3</td>
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<tr>
<td>A</td>
<td>-4</td>
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</table>

In some cases, her observations were borne out by the creativity rank scores established. In two cases, the children she felt were creative did not rank outstandingly high on the test.

Following are the descriptions of each of the children by this writer:

H is an intelligent child, but school seems to bore her. She'll daydream when you feel she should be working, she'll make up excuses to get out of her seat — it seems that sometimes she just doesn't like to sit still. She has a good imagination; she tells charming

stories and gives her art work interesting titles, e.g., "The Playful Mitten". Her language is very picturesque, e.g., "This weekend we saw gobs of geese flying South". Unusual things appeal to her. For "Snow and Tell" she brought in rocks that she liked because of their shape or the way they felt; a bird's nest; a clump of ground that had been struck by lightning. She once brought a puppet and gave the class a puppet show.

5 had just moved to Montana before school opened. He was very insecure and nervous while he was adjusting to his new class. He's very perceptive, noticing things around the room right away that the other children might not notice at all. He asks intelligent questions and questions that follow a logical sequence. One day during a discussion about what certain smells make us think of, one of the children remarked, "Talking about the smell of turkey makes me hungry." 6 immediately asked, "Didn't you eat lunch today?" He's very imaginative and puts a lot of thought into his work before he begins anything. I feel that he is still not sure enough of himself to take a risk in a new situation.

5 is a bright child. He has a very easy-going attitude toward school, and his world. He has a good sense of humor and a good imagination. He does some very deep thinking once in awhile. When the class was discussing how birds knew when to fly South for the winter, he said that "The birds could see that there wasn't as much food as there was before, and they're smart enough not to wait until there's no food left." He is inconsistent in that he doesn't always exhibit creative behavior; just every now and then.

C has a very easy-going attitude toward her world, too. She
is not content in merely observing things. She, too, is inconsistent in that her creative thinking exhibits itself only in snatches.

H approaches everything he does with a very open attitude. He has a tremendous self-starting ability. He'll get interested in something on his own. He's a good worker, willing to stick with something until he's finished with it. Occasionally, he'll get a clever idea for something, and exhibit some of that inconsistent creative behavior.

D is a good student. She can be depended on to do well in anything she undertakes. Occasionally she'll do outstandingly well, and come out with profound ideas.

A is a bubbly little girl. She has a good sense of humor and is very imaginative. She likes to make other people laugh, too. Her creative ideas exhibit themselves in very sporadic spurts.

This cadet teacher approached her observations of a class's creativity in terms of an attitude toward wondering and a disposition toward thinking. It may be that this cadet was observing something other than creative thinking in the cases of H and G. Then again, it is possible that this test made no provision to measure those creative abilities which these children exhibited.

3. Art Teachers' Observations. Observations made by the art teachers were amazingly uniform with the creativity rank order established by the Torrance Tests. They did, in only four cases deviate from this rank order: the art teachers identified as creative those children who ranked 16, 18, 19 and 25 on the Torrance Tests. A compilation of all opinions resulted in the identification of the eleven most creative children, in accordance with the creativity rank order established by the Torrance Tests.
A junior high school art teacher in the Helena School System identified the art work of A, B, L, and 13 as being the most creative of the group's. She felt that the most creative work -- that requiring the most thought -- resulted when the child put himself into his work and worked in and/or with something he knew.

A high school art teacher in the Helena School System also felt that the most creative responses of the children to the shapes resulted when these responses came from their own experience. He identified the works of the following as the most creative:

<table>
<thead>
<tr>
<th>Children</th>
<th>Creativity Rank Order</th>
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<tbody>
<tr>
<td>A</td>
<td>4</td>
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<tr>
<td>B</td>
<td>14</td>
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<tr>
<td>E</td>
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<td>13</td>
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</table>

An art instructor on the college level identified the following art work as that requiring the most creative use of the shapes:

<table>
<thead>
<tr>
<th>Children</th>
<th>Creativity Rank Order</th>
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<tbody>
<tr>
<td>3</td>
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<td>5</td>
<td>1</td>
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<td>16</td>
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<td>25</td>
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<td>A</td>
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<td>C</td>
<td>6</td>
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<td>19</td>
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<tr>
<td>L</td>
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</tbody>
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31 Interviews with Mr. Larry Hayes, Art Teacher, Helena School District, January and February, 1972.

All three instructors identified the work of E and H in their considerations of the most creative. It is interesting to note that the creative rank order for E was eighteenth, and for H, it was nineteenth. Two identified J in their studies. The creative rank order for J was 10. Two listed D as creative. The creative rank order for D was third.

The results of the art teachers' judgments concerning the creativity exhibited by the children in their art works were compiled. It is interesting to note the similarity between the rank order established by the creativity test and those individuals identified as creative by the art instructors. Those children who ranked first, second, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, fourteenth, and sixteenth were identified as creative by at least one of the three art teachers. The children who ranked third, eighteenth, nineteenth and twenty-fifth were identified by two or more of the art teachers as creative.

These observations of the art teachers again indicate the seemingly high inconsistencies in the creative behavior which is apparent in primary aged children. The varied opinions these experts express also indicate the difficulty in assessing creative behavior.

It is this writer's opinion that the art teachers' judgments of creativity can be compared to the test results and to the observations by the classroom teachers which were based on classroom behavior of the children. Torrance's basic definition of creativity
describes a natural human process which leads to a communicating of results. Creativity can be exhibited in a number of ways. Therefore, creativity evidenced in a child's work is just as legitimate as creativity evidenced in a child's classroom behavior.

In view of the results discussed in this chapter, one fact becomes evident. This is the great diversity of scores within the Torrance Tests. The results of the creativity test point out the variance of scores between the four areas measured.

Some implications are also apparent as a result of this study. First, the creativity test seems to measure something other than what the reading readiness and I. Q. tests measured. Second, the nature of creativity in primary aged children seems to include elements of inconsistency. Creative children, as observed in classroom behavior and as identified by the Torrance Test, do not seem to manifest constant creative activity. Third, observable behaviors seem to mark certain children as highly creative. A teacher would be able to recognize highly creative behavior if she had the background and was aware of the characteristics of creative behavior. Last of all, Torrance Tests of Creative Thinking may prove to be a useful tool in identifying creative potentiality that might otherwise go unobserved.
CHAPTER V

SUMMARY AND CONCLUSION
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Summary and Conclusion

This study was undertaken in an attempt to explore the relationship between apparent creativity (i.e., observable creative abilities and characteristics) and tested creativity (i.e., measurable creative abilities and characteristics) in primary children. Three areas of data were employed. A battery of test scores were compiled for each child and placed in rank order. Those tests included were Metropolitan Reading Readiness Test, Kuhlman-Anderson I. Q. Test, and Torrance Tests of Creative Thinking, figural form. This rank order placement enabled a comparison to be made of each child with the others in the group in terms of relative creativity and relative intelligence. A second area of data included a comparison of observations made by master and cadet teachers with the creativity rank order established. Lastly, three art teachers in the Helena area evaluated two examples of each child's won work and these evaluations were compared to the creativity rank order developed from the scores of Torrance Tests of Creative Thinking.

The results of the data collected and the implications of these results have substantially encouraged this writer. Although such a limited study can not prove conclusively that apparent creativity and tested creativity are one and the same thing, it does demonstrate that highly creative behavior can be observed in children and this behavior can be measured by a research instrument.
This study points out the necessity of developing a valid measurement of creative thinking abilities. Creative potential is still a very nebulous term. Much research remains to be done as knowledge and understanding about creative thinking are in a relatively undeveloped state. Since there are a variety of definitions of creativity, a person can behave creatively in an almost infinite number of ways. It would be impossible to hope that at this stage of development one test could adequately identify every kind of creative behavior. The Torrance Test, as a research test, has not yet attained the level of technical excellence that it is hoped it will one day achieve. There are, most certainly, aspects of creativity on which the Torrance Test did not touch. This possibly accounts for the variance of opinions in teachers' observations. Nevertheless, the Torrance Test has its usefulness as a tool in identifying some "creative" behavior and it does present a starting point for measuring observable creative behavior. However, any standardized instrument is only an effective tool that goes hand in hand with perceptive observations on the part of the classroom teacher.

The incongruities in teacher opinions as to which children exhibited creative behavior points toward the necessity of recognizing highly creative behavior. Such recognition presupposes informed and competent people who have been prepared to discern the characteristics associated with creative behavior. This writer believes that teacher education programs must be designed to produce teachers who can identify and guide creative talent more effectively. Such programs are imperative if tomorrow's teachers are expected to keep pace with the recent developments in the educational field. A course offered on an undergraduate level dealing with recognition and development of creative potential
would be justified at this time. This writer also feels that a methods course which specifies concrete, creative ways of stimulating learning should be offered.

This study also points to the need for identifying learning preferences in a classroom. A tool that enables creative potential to be identified could play an important role in identifying a learning style. Not all people learn in the same way; it is ineffectual for an educational system to insist that all children try to learn in the same manner. It is this writer's belief that learning should be an enjoyable experience. If it were possible to fit education to an individual's style of learning, wouldn't that individual get that much more out of his educational experience because it was made to appeal to him?

Schools must be designed not as places of teaching, but as places of learning where thinking of all sorts take place; critical, creative, constructive, independent, logical, liberal, and analytical. This demands that objectives and curriculum be changed to include the development of creative thinking skills. Methods and materials that will foster creative growth and stimulate students to learn creatively must also be developed.

It is hoped that this study will not be looked upon as a culmination. It is actually a beginning. The surface of research in the field of creativity has barely been scratched; it presents a relatively new field which has yet to be thoroughly explored. A few of the possible considerations for future study might include the effect of the environment on creativity development; the long range effects of education and creative thinking on the development and stimulation of creative potential; the relationship of acculturation and a loss of creative potential; a longitudinal study of a group of creative
children to follow the development of their creative potential.

Harold H. Anderson shares an interesting thought in looking back on his considerations of creativity:

In viewing creativity in perspective, it seems rather futile to expect to meet our declared national need for creativity by identifying those adults in whom the spark of individuality has been kept alive. There are not enough such adults... There would seem to one feasible method. It would be difficult and it would take time. Why not take any generation of small children, already creative, and find out how to cultivate them?33

There is no time to spare. A generation of creative children are waiting to be cultivated.

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Activity 1. PICTURE CONSTRUCTION

Below is a piece of colored paper in the form of a curved shape. Think of a picture or an object which you can draw with this piece of paper as a part. On the back of these shapes you will find a thin layer of paper that can be peeled away. Look. Now you can stick your colored shape wherever you want it to make the picture you have in mind. Stick yours on the next page where you want it and press down on it. Then add lines with your pencil or crayon to make your picture.

Try to think of a picture that no one else will think of. Keep adding new ideas to your first idea to make it tell as interesting and as exciting a story as you can.

When you have completed your picture, think up a name or title for it and write it at the bottom of the page in the space provided. Make your title as clever and unusual as possible. Use it to help tell your story.
Activity 2. PICTURE COMPLETION

By adding lines to the incomplete figures on this and the next page, you can sketch some interesting objects or pictures. Again, try to think of some picture or object that no one else will think of. Try to make it tell as complete and as interesting a story as you can by adding to and building up your first idea. Make up an interesting title for each of your drawings and write it at the bottom of each block next to the number of the figure.
Activity 3. LINES

In ten minutes see how many objects or pictures you can make from the pairs of straight lines below and on the next two pages. The pairs of straight lines should be the main part of whatever you make. With pencil or crayon add lines to the pairs of lines to complete your picture. You can place marks between the lines, on the lines, and outside the lines—wherever you want to in order to make your picture. Try to think of things that no one else will think of. Make as many different pictures or objects as you can and put as many ideas as you can in each one. Make them tell as complete and as interesting a story as you can. Add names or titles in the spaces provided.

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What Is This?
BIBLIOGRAPHY

A. BOOKS


B. PERIODICALS


C. OTHER SOURCES

**Personal interview with Mrs. Rebecca Eiker, Junior High Art Instructor, Helena School District. January, 1972.**

**Personal interviews with Mr. Larry Hayes, High School Art Instructor, Helena School District. January and February, 1972.**

**Personal interviews with Mrs. Venita Needham, Second Grade Teacher, Helena School District. September, 1971 through March, 1972.**

**Personal interviews with Sister Aquinata O'Sullivan, Art Instructor, Carroll College, Helena, Montana. January and February, 1972.**