Creative behavior and teacher-peer relationship

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CREATIVE BEHAVIOR AND TEACHER-PEER RELATIONSHIP

A PROJECT

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INTRODUCTION

"A spring of fresh water is a nuisance when it first issues from the ground, producing only mud and mire. It cannot be stopped by cement or earth fill; its flow will continue to seep around the edges. But when the spring is given a protective and delimiting margin, and a channel is provided for its stream, it becomes a source of joy. The same is true of creativity. The spring of creativity exists in all children, but in most, the flow has been blocked."\(^1\)

Creativity is as natural to the average student as it is to the genius, and our schools have neglected and even stifled the natural creativeness of the young.\(^2\) There would seem to not be any noncreative people as they differ only to degree, according to Kneller.\(^3\) A similar statement by another writer says that deep within each of us is a great imaginative power, different in quality and intensity.\(^4\) Not that every student should be treated as though he is destined to become a creative genius, but a school curriculum which aimed at utilizing student's creative abilities would be good for all the children while helping the gifted child develop his creative talents.\(^5\)

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\(^3\)Kneller, p. 14.


Educators are beginning to see a need to teach in a way that will foster creativity. For one thing, learning in a creative way is much more efficient and satisfying than learning in an authoritative way. For another, the value of creative needs is very evident in our daily lives, as all of our adult ways of interacting require creative abilities. It is generally accepted that there is an enormous economic value in new ideas, and accordingly, government and industry are continually looking for leaders with creative abilities. Gowan suggested that at the same time there are negative results of noncreativity evident. These are often seen in "an inefficient use of energy on a task one stage below expectations," as in most sports and hobbies. In these cases, the rules are set, and the participant puts an importance on the activity, which in turn keeps him from getting despondent over not doing something more meaningful. Often we see as a penalty of noncreativity boredom, rationalization, rage, destructiveness, neurosis, psychosis and flight. W. A. Sadler summed up the need for creativeness in our lives by saying, "If man is to become free, he must learn to develop his creativity."

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10 Ibid., pp. 101-102.

11 Ibid., p. 1.
It has been estimated that two out of every million people in history have been truly distinguished. With these figures we might ask: Why is creative productivity a rare occurrence? Why do we not produce more creative geniuses under modern educational practices?12

At this point, it would be well for us to ask about the school's role in encouraging creativity. Our schools in the past stifled much of the creativity of its students. This has been accomplished with authoritarian teaching, where the student is told what to learn, and to accept it as true without question.13 Far too much time has been spent teaching the child facts and not enough teaching him to develop his divergent thinking—the ability to produce possible solutions and hypotheses.14

The general observation is that starting at five years old, a child begins to lose much of his curiosity and excitement about learning. At nine he further loses creativity to his concern with conformity to peer pressure. In junior high, still more behavior norm conformity occurs. This has always been felt to be a developmental process. Susan Pulsifier feels "that it is due to the sharp man-made change which confronts the five-year-old and impels him by rules and regulations."15

13Torrance, Encouraging Creativity in the Classroom, p. 21.
15Gowan, Damas and Torrance, p. 97.
Torrance said that in our schools often the teacher maintains discipline at the expense of initiative and spontaneity. The emphasis is on the acquisition of knowledge rather than the original use of it.\textsuperscript{16} The newer types of learning—experience learning, research learning, sharing learning, and creative learning, have been completely neglected by formal education of the past.\textsuperscript{17} Part of this is due to the fact that schools are designed to pass on the culture and help the student find his adult role. Overstreet felt that schools tended to try to maintain the "status quo" as the society is anxious for children to be educated to attitudes like their own. Thus, students are not encouraged to think on their own, as this is dangerous, and they are taught to think "within limits."\textsuperscript{18} Parnes and Harding emphasized that educators have been turning out individuals who are conformists. In leisure time, we as a society, are more likely to engage in passive and regimented group action. In most of our activities, the clothes we wear and the food we eat, there is a tendency toward conformity.\textsuperscript{19}

Despite the growing interest and the great need for understanding in this field, it would seem that research in the area is only a recent endeavor. Guilford, after scanning the psychological abstracts

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\textsuperscript{16} Torrance, Encouraging Creativity in the Classroom, p. 75.
\textsuperscript{17} Meams, Creative Power, p. 242.
\textsuperscript{19} Parnes and Harding, p. 64.
\end{flushleft}
covering twenty-three years, found only one hundred eighty-six entries on the subject of creativity. Hutchison concluded in 1931, after a similar reviewing, that the subject had hardly been touched. Luckily, in recent years the immense value of creative abilities has been recognized and research is multiplying rapidly. However, due to the problems of definition, difficulty of establishing a practical criterion, and difficulty of testing for creativity, there is still much more to be learned on the subject and a need for more extensive research.

Delimiting the Problem

This research paper is aimed at presenting a general understanding of creativity, the school's role in its development, and a sampling of the existing research on the subject. Only a small facet of the whole picture will be researched, but it is hoped the contribution, though small, will add to the total picture and make it clearer. The general assumption drawn from various sources seems to point to a conflict between children displaying creative abilities and their teachers and peers. Since pupil-teacher relationship and peer acceptance can have a very great bearing on the total education as well as creative development, the researcher feels the need to establish data to help in determining if the conclusion is indeed true. Results of the study could lead to a re-evaluation of teacher education with emphasis on overcoming this educational paradox.

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20 Guilford, p. 19.

21 Ibid., p. 80.
NULL HYPOTHESES

$H_1$ The highly creative child is not unpopular with instructors.

$H_2$ The highly creative child is not unpopular with classroom peers.

REVIEW OF LITERATURE

What is Creativity?

In speaking of creativity, many misconceptions have been associated with the word. Sometimes it has been associated in everyday usage to mean behaving in an undisciplined way, or to mean anything unconventional. It has also been confused with quick-wittedness or highly developed verbal skill. Kneller has called these "pointers to creativity rather than the thing itself."$^{22}$

In the past we have seen theories that attempted to define creativity. It has been considered as divine inspiration, probably due to the fact that during the creative process, the mind goes inward and focuses on the problem.$^{23}$ Kneller related that this power was once felt to come from a superhuman source. The creator has also been seen in past times to be seized with some form of madness. Closer to modern times, creativity has been seen as intuitive genius, as a life force, and cosmic force. Most of the analysis this century has

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$^{22}$Cropley, pp. 20-21.

$^{23}$Gowan, Damos, and Torrance, p. 1.
been from a psychedelic viewpoint. Creativity has been connected with Extra Sensory Perception and hypnotism, stressing creation as coming from the unconscious.

Today, we find many varied definitions of creativity, differing many times in the viewpoint from which it is studied. Creativity may be studied from the standpoint of the person who creates, the mental processes involved, the cultural and environmental influences, and the product. In looking at the person who creates, we find these definitions: Torrance defined creativity as the process of becoming sensitive to problems, deficiencies, gaps in knowledge, and disharmonies. Kneller elaborated when he said, "We create when we discover and express an idea, artifact or form of behavior that is new to us." Erich Fromm suggested that creativity is shown if the individual has made something new and satisfying to himself or if he has related things in his experience not previously related and finds the product exciting. He also added that it is the ability to see, be aware, and to respond. Maclow distinguishes two types of creators: the

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24 Kneller, pp. 19-25.
25 Gowan, p. 21.
26 Kneller, p. 3.
28 Kneller, p. 3.
29 Gowan, Damos and Torrance, p. 125.
30 Gowan, p. 53.
The self-actualizing and the special talent. The self-actualizing is seen through the ability to live the everyday affairs of life in a creative way. He uses the housewife as an example when in cooking or clothes designing shows a good deal of creativity. The special talent creator is dependent on high abilities in his field and is generally restricted to that field, as in the writer or painter. In the profound sense, to be creative is to fulfill oneself as a person.

In terms of the product, creativity is defined as the process which results in a novel work that is acceptable and useful or satisfying by a group at some point in time. Carl Rogers felt that "it is the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people and circumstances on the other." Cropley designated that creativity should always lead to worthwhile results. It seems that most of the definitions involving the product include the criterion of novelty. To be appropriate, a product must fit its context and make sense. Jackson and Messick also add

31 Gowan, Damos and Torrance, p. 2.
32 Kneller, p. 89.
33 Gowan, Damos and Torrance, p. 2.
34 Farnes and Harding, p. 65.
35 Cropley, p. 21.
36 Kneller, p. 3.
transformation to the list of criteria.38

Just what is creative differs from time to time and from one
culture to another.39 So to decide if a product is genuinely creative,
there must be a comparison with other products of the same class.40

MacKinnan classified two types of creativity. In type I "the
creator externalizes something of himself into the public field," such
as the poet, painter and so on. In type II "the creative product is
unrelated to the creator as a person," as in the example of the
scientist.41 Finally, Guilford limited creativity in its narrowest
sense to the abilities that are most characteristic of creative people.
Abilities are manifested in creative behavior which leads to creative
products.42

Creativity is more than just the "product" and should be judged
also on the process by which the product was derived. The process as
identified by some includes hypotheses formation and testing and com-
munication of results.43 Kneller rejected the view, however, that
creativity is simply another form of problem solving and would rather
place it under the category of "phenomenon."44

38Ibid., p. 10.
39Cropley, p. 7.
40Kagan, p. 4.
41Gowan, Demos and Torrance, p. 229.
42Guilford, p. 78.
43Gowan, Demos and Torrance, p. 2.
44Kneller, p. 11.
Kneller offered several stages to explain the process undergone in creativity.

1. First insight—the germ of an idea or problem is born.
2. Preparation—a thorough searching of the solutions to the insight. The creator may weigh the strengths and weaknesses of these possibilities, study how others solved the problem, and generally get a good knowledge of his subject.\(^5\)
3. Incubation—a period of unconsciousness takes over, and the mind tries to unravel all the information presented. This period may be long or short and the creator is often unaware of the process.
4. Illumination—sudden insight as the pieces suddenly fit together.\(^6\)
5. Verification—testing the solutions, revising, carrying out the insights to a final form. This may take years and may end up with entirely different results from the initial insight.\(^7\)

Wallas, Cewey, Rossman and Guilford proposed similar models for the creative process.\(^8\)

Kneller stated several conditions which allow the creative process to prosper. The creator must be immersed in his subject, committed to the task and detached from other things, have imagination and judgment, interrogate his findings, use the errors, and submit to the act of creation.\(^9\)

\(^5\) Ibid., pp. 50-51.
\(^6\) Kneller, pp. 52-53.
\(^7\) Ibid., p. 57.
\(^8\) Gowan, p. 8.
\(^9\) Kneller, pp. 58-61.
How to Recognize the Creative

In the study of creativity, a great deal may be learned by examining the characteristics of the creative person. One thing that is coming to be known more and more is that creativity and high intelligence are not the same, as it was once thought they were. Part of this former view is due to the belief that divergent thinking and creativity were synonymous. No one really knows if this is true as there are no "true" tests for measuring creativity. Cropley identified two points of view for the relationship between intelligence and creativity. First, creativity adds to achievement by building onto conventional intelligence. Second, a minimal level of I. Q. is necessary for high levels of achievement, but beyond the minimal level, the presence or absence of creativity is determined by other factors. Another way of stating this is "that intelligence is highly correlated below about 120 I. Q., but above that figure, they are nearly independent variables." As a result, it is sometimes very difficult to identify the creative child. But in comparing the creative child and high I. Q. child, Massialas and Zezin found that highly creative adolescents are more stimulus free and less bound by instructions. They are more humorous and seem to "experience a special delight in a playful intellectual activity for its own sake. They seem to exhibit

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50 Cropley, pp. 20-21.
51 Cropley, p. 31.
52 Gowan, Damos, and Torrance, p. 9.
more violence and aggression that high I. Q. adolescents. The high I. Q. students tend to move toward models set up by teachers, whereas creative students tend to move away from the stereotyped model of teachers. Barron posed several questions to both creative and high I. Q. students. The more creative students answered in the following manner.

1. I like to fool around with new ideas, even if they turn out later to be a total waste of time. (True)

2. The best theory is the one that has the best practical applications. (False)

3. Some of my friends think that my ideas are impractical, if not a bit wild. (True)

4. The unfinished and the imperfect often have greater appeal for me than the completed and the polished. (True)

5. I must admit that I would find it hard to have for a close friend a person whose manners or appearance make him somewhat repulsive, no matter how brilliant or kind he might be. (False)

6. A person should not probe too deeply into his own and other people's feelings, but take things as they are. (False)

7. Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down. (False)

8. Perfect balance is the essence of all good composition. (False)

From the answers, Barron concluded that independent people are open to challenges presented by imperfections.

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54 Parnes and Harding, p. 232.
The creative child is most often identified by his interests, attitudes and drives rather than by his intelligence. Creative people often express part-truths, but the part they express is the generally unrecognized. They lead more complex lives. They have more contact than most with the life of the unconscious, with fantasy, reverie, and the world of the imagination. Guilford says that the creative person thinks with more fluency, more flexibility and with greater originality than the ordinary person. He also identified the creative as having more novel ideas, possessing a greater synthesizing and analyzing ability, and as being capable of a highly complex conceptual structure. The highly creative child has a strong sensitivity to problems, emotional stability and openness to experience. At the same time, he has tendencies toward an individual lifestyle. The creative person displays a great deal of humor, courage to take risks, playfulness with ideas, curiosity, manipulative questioning ability, autonomy, feminity of interests, dominance, self-assertion, self-acceptance, resourcefulness, radicalness, and complexity of

55 Gowan, p. 11.
56 Farnes and Harding, p. 236.
57 Gowan, Damos, and Torrance, p. 106.
58 Guilford, p. 93.
59 Gowan, Damos, and Torrance, p. 116.
60 Gowan, p. 13.
personality. Most highly creative people can be found to be skeptical of things until they are proven and are nonconformists as well. "The creative person is able to tolerate conceptual ambiguity; he is not made anxious by configural disorder, but sees in this a clue to a higher syntheses." A great fund of free energy is also a characteristic of the creative person. Kagan said that creative persons are truly independent, not just deliberate nonconformists. Kneller stated that creativity takes certain mental abilities: the ability to change one's approach to problems, to produce ideas that are relevant and unusual, to see beyond the immediate situation, and to redefine the problem. In this sense, a mother can be creative in how she raises her children, or a man can be creative on the job or with his hobbies.

Although the lists of common traits held by the creative person can be very useful, one criticism is that they are not specific enough to allow identification. The identification is further complicated by the fact that many creative children lead creative lives at home and noncreative lives at school.

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61 Gowan, Damos, and Torrance, p. 3.
62 Kneller, pp. 62-68.
63 Gowan, Damos, and Torrance, p. 4.
64 Kagan, p. 28.
65 Kneller, p. 13.
66 Massialas and Zevin, p. 11.
67 Gowan, Damos, and Torrance, p. 245.
Many of the attributes of the creative person can be a great irritant to parents, teachers and society as a whole. The values often looked for in the "Ideal American Boy" are echoed in conformity as opposed to the independent, creative person. Introspective behavior is not considered valuable as it is troublesome. Also behaviors useful in creativity—adventurous, unorthodox, unwilling to accept authority without reason, and tendency to ask awkward questions—are not prized in girls. At the same time, sensitivity to problems and awareness are often considered effeminate qualities and are not prized in boys.

Not only does society discriminate against the creative child, but he is usually less popular with teachers as well. He is often a threat to discipline, gives unexpected responses to questions, causes diversions that waste time, asks embarrassing questions, will guess and be playful with ideas. He's more independent; often less studious and orderly as he has better things to do; he sees things differently than his peers, is often over-critical of others, thinks unconventionally, breaks rules. All of this makes him very difficult to identify, as he may simply be mistaken for an awkward student.

Torrance pointed out that the very fact that creativity involves independence of mind and nonconformity to pressure groups makes the

68 Ibid., pp. 133-134.
69 Cropley, p. 63.
70 Kneller, pp. 70-71.
creative individual experience some unusual adjustment problems. This is why some repress their creative tendencies while still others maintain them but must learn to cope with the resulting anxieties. By using their creative talents, many children become alienated from friends. One fine example of this principle is exemplified in Edna Ferber's classic *So Big* in which her hero sacrificed his individuality and creativity in order to be with the crowd. A more modern example can be found in Richard Bach's *Jonathon Livingston Seagull*, who managed to keep his creative genius and was consequently ostracized from his society. The keen observation made by these two writers is strengthened by Buhl's 1961 study of creative engineering students. He found his high creatives desirous of warm relationships. In order to maintain these friendships, they aimed for average scholastic attainment to avoid competition. Torrance summed up the thoughts on the creative's adjustment when he said, "From the foregoing it should be obvious that a large share of the highly creative child's adjustment problems are likely to be centered in his psychological isolation and estrangement from his peers and teachers. It will be no news to counselors that peer groups exercise rather severe pressures against their most creative members. In no group thus far studied have we failed to find relatively clear evidence of the operation of these pressures."
Analysis of Studies

In order to get a clearer picture of creative development, an analysis of studies dealing with creativity was made. The summary of the studies follows. In addition, an annotated bibliography is included in the Appendix.

In the perusal of studies it was found that often problems of design are encountered. Many of the studies are complicated by the fact that a series of tests must be given in order to identify the creative and then more tests given to test the hypotheses. Because of this, it is not uncommon to begin with a really large sample size and end up with a considerably smaller working number of subjects recognized as truly creative. Also, studies attempting to look at how maternal behavior affected aspects of creativity were forced to rely on retrospective methods which undeniably limited the findings.

Another major problem in creativity studies is that tests used to identify the creative are often subjective, as when experts are asked to evaluate the tasks by using such grading scales as originality, flexibility, or uniqueness of ideas. Other tests are graded based on assumptions of creative personality traits found from other studies. For example, Eisenman (7) used a "complexity-simplicity preference for symmetrical polygons" scale to discover his creatives, who, it was assumed, would choose the more complex polygons. With all of these factors of testing and design in mind, a clearer view can be obtained of the findings.
Wallach and Kogan (17) found that creativity was a different form of excellence than intelligence and could not be accurately measured by an intelligence test. Ward (16) backed them up with his own studies. Cicerelli (1) was unable to find any I. Q. thresholds.

In trying to discover which maternal traits lead to more creative children, Nichols (9) discovered that authoritarian child-rearing practices lead to high achievement and conformity but to a lack of creativity. Another study on maternal attitudes leads us to believe that mothers of creative children are more self-assured, independent, more tolerant, and prefer change and unstructured demands (Domino, 4). The teacher, another influential person on the child's creativity, was examined in a study by Torrance (14). He found that the motivation from a highly creative teacher produced a higher degree of creativity in the children in her classroom. Torrance (15) also set out to determine if those people diagnosed as creative actually lived more creatively. The elementary education majors he used as subjects were found to be more inventive, flexible, original, more willing to continue learning, and used more ideas and methods as teachers eight years later than did their less original counterparts.

Eisenman (7) investigated an unusual area when he studied the relationship between birth order and creativity. The findings hint that first born males are more creative than later born males. There were no significant birth order effects among females.

A great many of the studies on creativity are designed to discover personality traits that contribute to making a person creative.
Cross (2) found his artists to be dominant and self-sufficient. Drevdahl (5) obtained results which identified creatives as being more flexible, fluent, original, withdrawn, radical, self-sufficient, sensitive, non-conforming and individualist. MacKinnon (8) arrived at the conclusion that creative people have a good opinion of themselves. They prefer the complex and asymmetrical. They tend to be more open to experience. At the same time they're dominant, outspoken, independent, flexible and not particularly sociable. Drevdahl (6) researched in another study and obtained data to suggest that his creatives were skeptic, unconventional, had a less structured education and were more independent in college.

Csikszentmihalyi (3) arrived at an interesting conclusion in his study of artists. It seems that the artists that went into a task without a predetermined problem were more concerned with discovery and produced more creative pictures.

The concept behind most of the research in this area is based on one important question. Can you teach or foster creativity? Torrance (13) feels that you can judge from his study which revealed children showing more flexibility, ideas and cleverness as a result of training. He also discovered in the same study that children asked to produce the most clever ideas actually produced more ideas than those asked to produce as many as possible without regard to quality. At the adult level, Parnes (10) found a persistence of learning acquired in a creative problem solving course from eight months up to four years. When attempting to show that creative behavior could best
be taught by programmed instruction, Reese and Parnes (11) revealed that subjects with training showed more creativity than those not trained, and those trained with instructor interaction fared better than those taught strictly by programmed instruction.

PROJECT

Sample

Fifty-four students from Fairview Elementary School in Knox County, Tennessee were involved in the study. There were fifteen eight-year-olds, seventeen nine-year-olds, twenty ten-year-olds, one eleven-year-old, and one twelve-year-old in the two self-contained third-fourth and fourth-fifth split classrooms. The students attended a rural community school with a total enrollment of two hundred two. Of the fifty-four, twenty-nine were girls and twenty-five were boys.

Collection of Data

In order to indicate if indeed creative children are unpopular with teachers and peers, the collection of data had to be done in two areas. The creativity of each child had to be determined as well as his popularity. As the popularity could only be decided by the immediate classmates and teachers, the two classes involved were treated independently.

Barr states that "as a part of social growth, people continually exhibit preferences for some individuals and not for others."
Sociometry has recognized this fact and has provided means for helping teachers better understand interpersonal relationships. One means of determining this through sociometry is to develop a sociometric scale. In this study, each subject was asked to name three people from his class whom he would like to invite to a small party in his home. The results were charted in a sociometric scale to count the frequency that each child was chosen. The two classes were then ranked independently of each other, number one being the child most frequently named and twenty-seven the least frequently named.

Realizing that the task of ranking twenty-seven students from most preferred to least preferred would be extremely difficult if not impossible for a teacher to do, the means of establishing teacher approval was changed accordingly. Each teacher was asked to name the five students she most preferred to work with and the five she least preferred to work with and the five she least preferred to work with, in order of preference. These were ranked among themselves from one, most preferred, to ten, least preferred.

The tests used to distinguish the more creative students from the less creative were the Incomplete Figures Task and the Circles Task taken from the Minnesota Tests of Creative Thinking. The tests were given as group tests. The Incomplete Figures Task involved providing six incomplete figures to be finished by the subjects. The

following samples were among those used in this study. Examples were given and the instructions were stated as follows:

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By adding lines to the six figures below, sketch some object or design that no one else in the class will think of. Try to include as many different ideas as you can in your drawing. In other words, don't stop with your first idea for completing the figure; keep building onto it. Make up titles for each of your pictures and write one at the bottom of each block next to number of the figure.

The time limit was set at ten minutes. The Circles Task was administered by providing a sheet with forty-two small circles, each one inch in diameter. Again examples were given. The instructions were stated as follows:

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In ten minutes see how many objects you can make from the circles below. A circle should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. Your lines can be inside the circle, outside the circle, or both inside and outside the circle. Try to think of things that no one else in the class will think of. Make as many things as you can and put as many ideas as you can in each one. Add labels or titles, if the identity of the object is not clear.
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The tests were evaluated in terms of fluency, flexibility, elaboration and originality. There are many factors involved in creativity, but as these four were the only ones tested, creativity is defined in these terms for the purpose of this study. Originality is the uncommonness of response. While fluency refers to the number
of responses made, flexibility designates the number of different categories represented. Complexity refers to the elaboration of the basic ideas.

To enhance the validity of the creativity tests and take away some of the subjectivity in scoring, numerical values were assigned to each of the above defined terms. Scoring for fluency and flexibility was done by merely counting the number of responses and categories of each figure. It was found that many subjects gained high scores in these two areas while gaining very little in originality and elaboration. As these were felt to be weaker determinants of creativity than originality and elaboration and would prove to throw off the results of the final tally, all scores for fluency and flexibility were coded. Those with zero-ten points were given a numerical value of one, ten to twenty-score of two, twenty to thirty-value of three, and thirty to forty received four. Elaboration was scored according to number of ideas added to the basic concept. For example, a plain apple was given zero, the stem added one extra point, a worm added another, and each idea added one extra point up to the highest score of six points for each figure. Scoring of originality required the listing of every response and the tabulation of the frequency of use. Those responses given by twelve per cent or more were assigned a score of zero, twelve to five per cent received one point, five to two per cent received two points, two to one per cent were given three, and one per cent or less were assigned four points. Each subject's scores for all four areas were then tallied and ranked among the others in
his own class. Again the two classrooms which participated in the study were ranked independently of each other. The scores were ranked from one, most creative, to twenty-seven, least creative. 75

Analysis of Data

Upon completion of the scoring, the data was organized into four parts to establish if there was any relationship between creativity and popularity. The creativity ranks for Class I (third-fourth grade) were compared with the ranks devised from the sociometric scale and with the ranks from the teacher-approval poll. The same operation was performed for Class II (fourth-fifth grade). The tables showing these comparisons are labeled Tables I and II in the Appendix.

Each set of data was computed by using the rank correlation formula,

$$r_s = 1 - \frac{6 \sum d_i^2}{n^3 - n}$$

To test the significance probability, the formula $$Z = \sqrt{n - 1 \cdot r_s}$$ was completed for a two-sided alternative and checked with the Table for Standard Normal Probabilities. The results were as follows:

Class I—Teacher approval compared with creativity ranks

$$r_s = 1 - \frac{6 (100)}{10^3 - 10}$$

$$Z = \sqrt{9 (.40)}$$

$$P(|Z| > 1.2) = .230$$

75 Torrance, Guiding Creative Talent, pp. 214-239 were used as a basic reference for the Minnesota Tests of Creative Thinking.


77 Ibid., p. 332.
Class II—Teacher approval compared with creativity ranks

\[ r_s = 1 - \frac{6 \times 68}{10^3 - 10} \quad Z = \sqrt{9} \times (.59) \quad P (|Z| > 1.77) = .0768 \]

Class I—Peer approval compared with creativity ranks

\[ r_s = 1 - \frac{6 \times 2948}{27^3 - 27} \quad Z = \sqrt{26} \times (.1001) \quad P (|Z| > .51) = .61 \]

Class II—Peer approval compared with creativity ranks

\[ r_s = 1 - \frac{6 \times 2112}{27^3 - 27} \quad Z = \sqrt{26} \times (.35) \quad P (|Z| > 1.78) = .075 \]

The rank correlation is used merely to indicate if there is a relationship between the two independent observations, creativity and popularity. From the computations it was found that there is little relationship at the five per cent level, but Class II revealed more relationship in both areas than Class I.

Since rank correlation simply shows a relationship, if any, and fails to stipulate in which direction this relationship lies, charts and scatter diagrams were devised. These help to indicate if the research tends to lean in any one direction, for example if the more creative children tend to be among the most popular or the least popular. See Tables III and IV in the Appendix.

**IMPLICATIONS OF FINDINGS**

The findings reveal that there is very little if any correlation between creativity and popularity. This appears to uphold the null hypotheses that the creative child is indeed not unpopular with peers or instructors since creativity has little to do with popularity.
as found in this study. The researcher finds this fact incongruent with stated opinions discovered in the review of the literature which imply that the creative child does experience unpopularity and disapproval because of his creativity. This may have been influenced by the small sample and limited definition of creativity used in the study. The ages of the subjects could also help explain this inconsistency as eight to ten-year-olds are not considered to be as vulnerable to peer pressures as older children are.

The study cannot be expected to provide answers that hold true for the whole population, but can only give some indication of the situation of one sample at one time and place. However, it can perhaps give a better insight into the total picture of creativity in the classroom.

SUMMARY

A research study was conducted to determine if highly creative students are popular or unpopular with teachers and peers. Fifty-four third, fourth and fifth grade students were given a test to determine their creativity ranks. At the same time, a sociometric scale and a teacher poll were administered to determine their ranks in popularity. The ranks were then compared and computed by using the rank correlation formula. Very little relationship was found to exist between creativity and popularity by teachers or peers, but this relationship, however small, tends to lean toward a general acceptance of the highly creative student.
Considering the rural community school involved in this study, it would be interesting to compare the results with those of a larger urban school. If more extensive creativity tests requiring oral as well as written responses were given, the findings of the study might again be influenced.
BIBLIOGRAPHY


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*CR = creativity ranks; PAR = peer approval ranks; TPR = teacher preference ranks.
TABLE II  
CREATIVITY RANKS COMPARED WITH TEACHER PREFERENCE RANKS

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*The subjects are ranked among themselves.
TABLE III
TEACHER PREFERENCE POLL

M = Most Preferred
L = Least Preferred
CR = Creativity Rank

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From the table, it would appear that in these two classes there is a tendency for the more creative to be in favor with their instructors.
### TABLE IV

**SCATTER DIAGRAM COMPARING CREATIVITY AND PEER ACCEPTANCE**

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- **Most Creative:** Students ranked 1 to 4 are considered most creative, while those ranked 19 to 27 are considered least creative.
- **Least Creative:** Students ranked 1 to 4 are considered least creative, while those ranked 19 to 27 are considered most creative.

The scatter diagram visually compares creativity and peer acceptance, with points representing the relationship between creativity and popularity.
TABLE IV (continued)

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BIBLIOGRAPHY OF RESEARCH STUDIES


An attempt to prove an interaction between I. Q. and creativity and to establish a maximum and minimum I. Q. threshold.


A study to identify personality traits of creative artists. A comparison is made between this study and existing studies in this area. The findings seemed to agree with former studies.


A report on the relation between the attitudes expressed by an artist and the resulting quality of his artistic product. They seemed to find that artists who approached an artistic task with no set problem in mind and had to discover one produced better drawings. Small sample, but limitations are stated clearly.


Maternal personality traits were compared to find a correlation between those factors and the sons' creativity.


This study attempted to identify personality factors that were important for creative people. A comparison was made between creative, non-creative, arts and science subjects.


A comparison is made between the personality traits and productivity of creative versus non-creative psychologists. Contains a small sample, but as a pilot study this is justified.

The purpose of the study was to investigate the relationship between creativity and birth order. A comparison is made between findings in this research and findings in former studies.


An attempt to identify the personality correlates of creative architects.


This study tested the hypothesis that restrictive attitudes by mothers is negatively related to creativity of the child. Other attitudes by the mother were also explored to find a relationship. Although the study is retrospective, the limitations are recognized.


An experiment to test the value of a creative problem-solving course months after its completion.


Basing the research on the assumption that creative behavior can be taught, the researchers developed a study to see if the behavior could be taught best with purely programmed instruction or with teacher instruction.


A review of research literature on creativity. He emphasizes areas which need further research.

The question in this study was twofold—does training help a child toward creative thinking? Does telling a child to produce more ideas get better responses that telling him to think of the most interesting and clever ideas he can?


Torrance attempted to establish proof that highly creative teachers provide more motivation for creativity than do low-creative teachers.


Long-range validity study investigating the possibility that more creative elementary education majors make better, more creative, more involved teachers than low creative elementary education majors. Big implications for selection and training.


Two studies designed as a follow-up to Wallach and Kogan to determine if the results given with ten-year-olds hold true with seven and eight-year-olds and Kindergartners. Results were the same.


An attempt to prove that creativity involves a different type of excellence than intelligence. They tested in a free, play atmosphere with no time limits and found different results from studies done in a test environment.

Basic Reference

Studies Not Worthwhile


Illogical conclusions drawn from data.