

A CREATIVE PROBLEM SOLVING COURSE FOR
SELECTED ELEMENTARY STUDENTS

BY

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CHAPTER I

INTRODUCTION

Schools throughout the nation have put increased emphasis on creativity and the creative problem-solving process. This increased emphasis has been caused by an increased awareness of the creative potential and its importance to a democratic society, Smith said:

In recent years, an insatiable interest has developed in the creative process. Much of the interest has come with the realization of the value of the creative mind to the democratic way of life. It is an essential characteristic of the democratic way of life that each individual counts. It is an accepted democratic principle that each individual should receive equal opportunity to develop his potential. It is a known fact that the mechanized and technological age in which we live makes puppets of many men, rather than thinking, contributing and creative members of a democratic society. In factories and on the assembly line, the brains of Americans have been set to idling while the hands of Americans have automatically performed the menial tasks necessary to assemble an automobile or a TV set. America cannot afford such a wanton waste in manpower. America, standing on the threshold of the space age, cannot afford to lose one single mind that idles because of lack of stimulation and use. A whole society suffers when minds become strait-jacketed into narrow channels of thinking. Such minds resist new ideas, become selfish and self-centered and inhibit progress. Industrial leaders, alarmed over the human robots they have produced, are seeking ways to release the energy locked in the minds of their workers. Scientists seek perpetually and almost frantically for ways to approach the problems of the space age. Politicians work desperately at finding creative ways to meet new world problems. In all phases of life today the need for new and fresh ways of solving problems is apparent. Creativity has become a precious commodity. The schools must play a substantial role in producing this commodity in the

in the citizens it turns out for the democratic way of life.¹

The contribution education can make toward the development of the creative potential is not fully known. This study was an attempt to help clarify the development of the creative potential of slow learners.

STATEMENT OF THE PROBLEM

The purpose of this study was to determine the effect Creative Problem Solving Teaching Methods had on the quantity and quality of ideas and academic achievement of intermediate grade slow learners in Butte, Montana.

Butte appeared to have followed the national pattern of dichotomizing students into college preparation and non-college preparation, particularly in the vocational and general education categories. The general education category included classes for slow learners.

It seemed that emphasis had been placed on the traditional lecture and fact memorization approach to teaching slow learners. Little had been done to concentrate instruction toward the creative problem-solving aspect of learning. A creative program for students, showing below average academic ability, was haphazard and no substantial effort to foster creativity within the group had been made.

¹Smith, James A., Setting Conditions for Creative Teaching in the Elementary Schools, P xi.

Educators in Butte, Montana, have accepted the challenge to develop the creative potential. This study was an attempt to learn more about developing the creative abilities of slow learners.

PROCEDURE OF THE STUDY

This study included 44 students with an Intelligence Quotient between 75 and 90, as measured by the Slosson Non-Verbal Intelligence Test.

Lecturing was kept to an absolute minimum. A premium was placed on the ability to defer judgment during the ideation process in its several aspects: orientation, preparation, analysis, incubation, synthesis and evaluation. The free use of imagination was the keystone. Uncommon responses and solutions were greeted with enthusiasm and freely explored.

Three tests of creative ability and the Stanford Achievement tests were administered to the students in the experimental classes at the beginning and end of the program. A test of creative abilities was administered to a control group at the beginning and end of the program.

A series of interviews were held with the students and their parents to determine additudinal changes. Letters were also written to the writer by the parent, expressing their feelings toward the program.

SIGNIFICANCE OF THE STUDY

Approximately 15 per cent of the children who attended

elementary school in Butte, Montana, during the 1967-1968 school year fell into the "slow learner" category. The methods of instruction used to teach these students had not changed significantly in 20 years. Achievement had averaged one to two years below grade level expectancy.

This study was intended to add more information and pedagogic insight into the learning patterns and instructional methods used with slow learners. The information retrieved could strengthen the role performance of both student and teachers.

LIMITATIONS OF THE STUDY

This study was limited by the small number of students sampled--a total of 44. A control group composed of students with similar learning abilities was not available.

DEFINITION OF TERMS

"Slow learners" referred to students with an Intelligent Quotient between 75 and 90, as measured by the Slosson Non-Verbal Intelligence Test.

"Creativity" was defined as a mental process that involves tapping one's experiences and rearranging them into something new to the individual, not necessarily new to society.

Research on development of creative potential, IQ as it relates to creativity, the relationship of creativity and achievement, and the principles basic to creative teaching are discussed in Chapter II.

CHAPTER II

REVIEW OF RELATED LITERATURE

Since the middle 1950's attention had been focused on the divergent thinking process. Up until this time, there had been little research done in this area. Smith stated:

Up until 1955 most of the literature on creativity was largely philosophical, with only a trickle of research articles available on the subject. The accepted belief among educators was that creativity was an intangible quality, found only in a few people, which could not be researched. It was often called 'talent' and creative people were thought to be different or queer. Little was known about the divergent thinking process or about the manner by which creative talent was developed.¹

In 1954, J. P. Guilford aroused some interest in research in this area with an article that appeared in The Meaning of Creativity Research Bulletin, entitled "The Nature of Creative Thinking". Since the launching of Sputnik in 1957, interest in creativity has launched hundreds of research studies, numerous articles and many books on the subject.

Improvement of Creative Ability

For years educators have been debating the question of whether creative thinking could be effectively taught and

¹Smith, James A., Setting Conditions for Creative Teaching in the Elementary School, P. 2.

whether imaginative ability in problem solving could be deliberately developed through instruction and practice.

Parnes² reported that results of 10 studies supported the conclusions demonstrated by 90 per cent of forty odd studies, that productivity in creative thinking can be increased significantly. Torrance³ taught ten teachers of grades 1 through 6, five principles of how to teach creatively. They were (1) Treat pupils' questions with respect, (2) Treat imaginative ideas with respect, (3) Show pupils that their ideas have value, (4) Permit student to do some things for practice without threat of evaluation, and (5) Tie evaluation in with cause and consequences. The teachers tried to teach in the same manner for four weeks. A control group was taught for four weeks under normal conditions. A test showed superior gains for the experimental group of students in scores for originality and elaboration in four of six grades, superiority in word fluency in three, and superiority in flexibility in two.

Rusch, Denny and Ives⁴ compared an experimental group taught creatively for the school year and a control group taught in the regular manner. Two teachers and two classes

²Parnes, S. J. "Can Creativity be Increased?", A Source Book for Creative Thinking, pp. 185-192.

³Torrance, E. P. The Nature of Human Intelligence, pp. 313-345.

⁴Rusch, R. R., Denny, D. A. and Ives, W., Elementary School Journal, pp. 363-368.

of sixth-grade students were in each group. Seven divergent production test scores were given at the beginning and at the end of the school year. The experimental groups gained significantly more on five of the seven tests; in none was the control group superior.

Parnes⁵ reported on a study conducted at the University of Buffalo and funded by the Creative Education Foundation. The first class in creative problem solving was inaugurated 12 years ago. The syllabus was based on the principles and procedures set forth by Alex F. Osborn in his book, Your Creative Power. Since then 1200 day students and evening students have completed such courses. The conclusions drawn from the research were as follows: (1) Creative imagination can be developed (2) Creative problem-solving courses can measurably improve the ability of students of average intelligence to produce good ideas (3) A systematic course of instruction in applied imagination can also produce significant gains in personality traits, such as confidence, initiative and leadership potential.

Cartledge and Krauser,⁶ in an experiment designed to stimulate creativity in first-grade children, divided 120 students who scored the lowest on a screening test of creativity into experimental and control groups. The experimental

⁵Parnes, S. J., op cit., p. 186.

⁶Cartledge, C. M. and Krauser, E. L., Elementary School Journal, pp. 295-299.

group had five 20-minute training sessions on how to improve toys by using Osborn's principles for developing new ideas. One-half of the experimental and control groups were motivated for number of suggestions, the other one-half for quality. The hypothesis of difference between the trained and the now-trained students was supported by the .01 level of significance but not the hypothesis of difference between students motivated by quantity and quality of response.

Research seemed to demonstrate that we can design educational programs to develop creative potential. Education need not wait for creativity to develop on its own.

Relationship of IQ and Creative Ability

The standard IQ test, commonly used in schools to measure student giftedness, did not measure creative potential. Smith stated:

Our intelligence tests, such as those designed by Binet, were supposed to measure giftedness in children, but creativity is a kind of giftedness, and these tests did not identify creative children. The difficulty lies in the fact that all the items in the Binet tests deal with convergent thinking principles; every test designed since the Binet test has been validated against it. Consequently, the IQ test has continued over the 7 years to measure only convergent thinking processes.

Getzel and Jackson⁸ found the relation of creative

⁷Smith, James A., op. cit. p. 3.

⁸Getzel, J. W. and Jackson, P. W. Creativity and Intelligence.

potential and creative production to the traditional IQ has been close to zero where groups of superior IQ were concerned. The low range of IQ show a substantial correlation. When the whole range of IQ was included, say from 65 to 150, there was a characteristic scatter plot. The plot showed that when IQ was low, scores on test of creative potential were low. When the IQ was high, there was a wide range in performance on creative tasks. They also point out that electing high school students in the highest fifth in terms of IQ would miss about 70 per cent of the highest fifth on divergent production tests.

Torrance⁹ reports that from a total of 178 coefficients of correlation between measures of intelligence, and a total of composite measure of creative thinking ability, the median is .20. The median of the 88 coefficients between intelligence and verbal creativity is .21, and the median of 144 coefficients of correlation between intelligence and figural creativity is .06.

Mednich and Andrews¹⁰ used 1211 University of Michigan freshman to examine the correlation of the Remote Associates Test and the Scholastic Aptitude Tests of verbal and mathematical ability. The subjects were divided into five subgroups, having equal score ranges on the verbal section of

⁹Torrance, E. P., The Minnesota Studies of Creative Behavior, pp. 137-151.

¹⁰Mednick, Martha T., and Andrews, Frank, M., The Journal of Creative Behavior, pp. 428-431.

the SAT. The correlation between RAT and SAT was obtained within each subgroup and for the total group. RAT correlated .43 with the verbal section of SAT and .20 with the mathematics portion of SAT.

The correlation suggested that intelligence was moderately related to creative ability. There was no differential decline in this relationship as the level of intelligence increased; if anything, there was an opposite tendency. The suggestion, that creativity and intelligence **are** relatively independent processes among the very bright and more closely related at lower levels of intelligence, was not supported in this particular instance.

The highly creative children, as identified by the Minnesota Creativity Thinking Test, and the highly intelligent ones, as identified by an individually administered intelligence test, were differentiated in a study conducted in the University of Minnesota Elementary School. The highly creative group ranked in the upper 20 per cent of their classes on creativity but not on intelligence. The highly intelligent group ranked in the upper 20 per cent on intelligence but not on creativity.

Torrance reported "that regardless of the measure of IQ or scholastic aptitude used, and regardless of the educational level about 70 per cent of the top 20 per cent

on creativity would have been excluded from gifted groups selected on the basis of IQ alone."¹¹

The research does not show a clear relationship between creative potential and intelligence measured with traditional instruments. It does, however, tell the educator to be cautious when identifying and labeling giftedness in students.

Relationship of Creativity and Achievement

Research conducted by Torrance¹² at the University of Minnesota Elementary School demonstrated that students with high IQ scores (upper twenty per cent of a sample of a measure of intelligence) and highly creative students (upper twenty per cent on a sample on creative measures), showed no significant difference in academic achievement. Achievement was measured by the Gates Reading Test and the Iowa Tests of Basic Skills.

A study of Cicirelli¹³ investigated a hypothesis concerning (2) interaction between creativity and IQ, as they effect achievement, and (b) IQ thresholds where creativity began to affect achievement and (c) where IQ itself has no effect. The study involved 609 sixth grade pupils (IQ range

¹¹Torrance, Paul E., Education and the Creative Potential, p. 7.

¹²Ibid., p. 8-9.

¹³Cicirelli, Victor G., Journal of Educational Psychology, pp. 303-308.

from 70 to 102), using a factorial design with eight levels of IQ (California Test of Mental Maturity) and three levels of creativity (Minnesota Test of Creative Thinking). Measures of achievement were the Gates Reading Test and the California Tests of Arithmetic and Language. Twelve combinations were used for separate analyses of variance. At the .05 level of significance, results generally implied additivity and linearity, instead of interaction and thresholds. The relationship between creativity and achievement was weak.

Benteley¹⁴ studied 75 graduate students in education in an attempt to clarify relationships between creative abilities and academic achievement. Creativity test scores, Millers' Analogies Sources and Achievement Scores, representing Guilford's categories of Cognition Memory, Divergent Thinking and Evaluation were used. He obtained a coefficient of correlation of .53 between scores on the Torrance Tests of Creative Thinking and scores on a test of achievement requiring applications of the knowledge acquired. The coefficient of correlation was .03 on a multiple choice test requiring the recognition of the correct answer. On tests requiring memory he obtained a correlation of .11 and on tests involving evaluation one of .38.

The Miller Analogies Test, however, correlated only

¹⁴Benteley, Joseph, Journal of Educational Research, P. 361-272.

.37 with scores on creative application tests, but .47 with the multiple choice test, .41 with a memory test, and .36 with the evaluation test.

In a study involving intermediate grade children, Bowers¹⁵ obtained coefficients of correlation ranging from .152 to .63 between a composite measure of creativity and measures of educational achievements.

Researchers have found that creative thinking can contribute importantly to the acquisition of information and educational skills. As Taylor stated, "recent experiments have suggested that many things can be learned more economically in a creative situation than in an authoritarian one, and that some people who learn little by authority can learn much creatively."¹⁶

Principles Basic to Creative Teaching

The elementary school years are critical in the development of creative talent. With this fact comes the realization that educators must be helped to understand what can be done within the classroom to foster creative growth. Taylor stated:

Sensitive observers have long noted and deplored the rise and decline of the child's creative powers during this period. Most of them have

¹⁵Bowers, J. E., Proceedings of the Second Minnesota Conference on Gifted Children, pp. 95-97.

¹⁶Taylor, Calvin W., Creativity Progress and Potential, p. 53.

done so in a spirit of helpless resignation or have made arbitrary pronouncement concerning the solution to the problem.¹⁷

Creative teaching is a unique and special method of teaching based on a set of sound principles. While creativity cannot be taught, it can be developed by setting certain conditions within the classroom. Hilgard, in speaking about conditions for creativity, noted:

The conditions for creativity will have to be carefully nourished if we want more creativity to be demonstrated. All our evidence shows that we must keep search alive, and we must allow sensitivity to new ideas, perhaps tolerating a little foolishness. We must not develop critical abilities to the point that anything unproven is stupid or anything weak is altogether wrong. We must not insist upon conformity, or we will end with traditionlists rather than innovators.¹⁸

The basic principles of creative teaching used in the classrooms of this study have been listed by Smith as:

(1) In creative teaching, something new, different or unique results. (2) In creative teaching divergent thinking processes are stressed. (3) In creative teachings motivational tensions are a prerequisite to the creative process. The process serves as a tension relieving agent. (4) In creative teaching open-ended situations are utilized. (5) In creative teaching, there comes a time when the teacher withdraws and children face the unknown by themselves. (6) In creative teaching, the outcomes are unpredictable. (7) In creative teaching, conditions are set which make possible preconscious thinking. (8) Creative teaching means that students are encouraged to

¹⁷Ibid, p. 80

¹⁸Hilgard, E., Creativity and Its Cultivation, pp. 179-180.

generate and develop their own ideas. (9) In creative teaching, differences, uniqueness, individuality, originality are stressed and regarded. (10) In creative teaching, the process is as important as the product. (11) In creative teaching certain conditions must be set to permit creativity to appear. (12) In creative teaching, teaching is 'success', rather than 'failure' oriented. (13) In creative teaching provision is made to learn knowledge and skills, but provision is also made to apply these to new problem-solving situations. (14) In creative teaching, self-initiated learning is encouraged. (15) In creative teaching skills are developed. (16) In creative teaching ideas and objects are manipulated and explored. (17) Creative teaching employs democratic processes, and (18) In creative teaching, methods are unique to the development of creativity.¹⁹

The size and characteristics of the population, the methods used to collect and analyze the data will be discussed, and the results of the evaluation will be reported in chapter III.

¹⁹Smith, James A., op cit., pp. 157-162.

CHAPTER III

METHODS USED IN THE STUDY

Most authors describe "gifted students" as those who score high on an intelligence test. Getzel and Jackson stated:

"In most studies the word 'gifted' was synonymous with 'high IQ' and the term 'gifted child' was for all intents and purposes only a short-hand way of saying 'child with a high IQ'."¹

For the students so identified, educators have set up special classes in which the curricula and the teaching methods have been designed specifically to nurture academic talent. Taylor pointed out:

"In Guilford's current version of his periodic table of the mind, there are 120 possible specific high level talents, with over 80 discovered to date. Typical intelligence tests cover only a subset of about 8 specific talents or about one-tenth of those known intelligence tests; therefore, do not cover the other nine-tenths known to date."²

As a general rule not all gifted persons excel in the same talents. Taylor stated:

If we conceive of each talent group as arranged on a ladder, we will find that those persons at the top of the ladder are essentially different ones than those at the top of another ladder. Furthermore, some of those at the top of

¹Getzel and Jackson, Creativity and Intelligence, p. 2

²Taylor, Calvin, The Journal of Creative Behavior, p. 84.

one talent ladder may well be toward the bottom of another. If we begin to search for and develop a third talent, that ladder will show a composition of members quite different from the other two. Those at the bottom of a previous talent ladder may rise as a subgroup to be almost average as far as the new type of talent is concerned. A fraction of them are more likely to be above average in the new talent area.³

This broad understanding of giftedness presents a most promising picture for educators. Taylor noted,

This is a very heartening outlook in terms of motivation of students and the potential in our human resources. The subgroup heretofore classified as educationally deprived will almost approach an average group in a new gifted area, and individually they will spread widely up and down this new type of gifted ladder--certainly not highly concentrated at the bottom. A third or more of them will tend to be average, and a somewhat different third of them will be above average in each new area of giftedness focused upon.⁴

The students represented in this study are not gifted as measured by the typical IQ instrument. Emphasis was placed on identifying and developing other forms of giftedness, namely, creativity. The influence within the classroom that a creative problem-solving atmosphere had on student achievement and general attitude was also measured.

In addition to the techniques used to develop a creative problem-solving atmosphere within the classroom, as reported in Chapter II, certain administrative commitments

³Ibid, p. 84

⁴Ibid, p. 86

were made to allow such development. The student's work was not evaluated and reported by using the traditional A,B,C,D or F. Report cards were replaced by parent-teacher conferences conducted four times per year. The student was given a certificate of completion at the end of the school year.

A fluid time schedule was utilized for teaching the academic disciplines. As an example, math was not taught at the same hour every day and the amount of time devoted to math need not be the same each day. Social studies was taught in the morning one day and the afternoon the next. This flexibility allowed the teachers to capitalize on the students' interests and needs.

A basal textbook was not used in any of the subject matter areas. The students were placed at their levels of achievement in the various disciplines by using supplemental materials. Achievement ranged from the 1.5 level to the 5.0 level.

Size of the Population

The population consisted of 44 students. They were divided into two classes of 22 students each, one at the Monroe elementary school and one at the Washington elementary school.

The original design of the study was for 25 students per classroom or a total of 50 students. This study began with 50 students but six transferred to other school systems

Characteristics of the Population

The two classes consisted of students enrolled in the fourth, fifth or sixth grade at the Monroe School and the Washington School. The class at the Monroe School consisted of six fourth grade students, nine fifth graders and seven in the sixth grade. The class at the Washington School had nine students in the fourth grade, six in the fifth and seven in the sixth grade.

The students in both classrooms had IQ scores, as measured by the Slosson Non-Verbal Intelligence Test, of between 75 and 90. Approximately 80 per cent had repeated at least one grade. Other general characteristics, as noted on the students' permanent record cards and as observed by their classroom teachers, included:

- (1) Prior academic failure
- (2) Disciplinary problems
- (3) High rate of absenteeism
- (4) Negative self image
- (5) Need of instant reinforcement
- (6) Rejection by their peer group
- (7) Hyperactive
- (8) Came from economically deprived homes
- (9) Lack of rapport with parents
- (10) Dislike for school
- (11) Low scores on achievement tests

Collection of Data

Creativity. Three tests of creative ability were administered to the experimental and control groups, A Uses Test, A meaning Test, and A Blob Test. (See Appendix A.) A pretest was given in September of 1967 at the beginning of the program and a post test was given in March of 1968, near the end of the program. The tests were constructed on the basis of similar test employed by Getzel and Jackson.⁵ These tests were designed to distinguish the creative from the less creative student on the basis of originality, incongruity and divergence of thought.

Uses Test. The student was asked to think of as many different uses as he could for common objects which may have one main stereotyped use. The objects listed on the pretest were (1) bricks (2) pencils (3) paper clips (4) tooth-picks and (5) a sheet of paper. The objects on the post test were changed to include (1) rubber bands (2) a ruler (3) a piece of rope (4) a pocket knife and (5) a coat hanger.⁶

Meanings Test. Words which have one or two common meanings were presented to the student, and he was asked to write down as many meanings as came to his mind. The list was composed of the following words, (1) case (2) duck (3) fall (4) cap (5) tail (6) blue (7) play (8) meal (9) top (10) stick (11) will (12) fire (13) steer (14) time (15) bite

⁵Getzel and Jackson, Op cit, pp. 195-268

⁶See Appendix for actual text blanks used.

(16) fair (17) out (18) punch (19) fly (20) hit (21) line (22) fish (23) pitch (24) right and (25) buck. The pre and post test contained the same words but listed in a different order.⁷

Blob Test. Students were asked to add their own lines, colors and additions to a large wiggly line or two in an otherwise blank space, and then to name the creation and write a story about it.⁸

Achievement. The Primary, Intermediate I and Intermediate II levels of the Stanford Achievement Test were employed on a pretest and post test basis. The appropriate battery was utilized for each participant in accordance with his normally scheduled grade placement. The pretest was administered in September, 1967, and the post test in March, 1968.

Interviews. A series of interviews were held with the project enrollees and their parents. A definite effort was made to contact both parents. Parents were given a guarantee that anonymity would be respected, so that the feeling of expression would not be inhibited.

The interview utilized a structured guide in an attempt to insure that all salient facets would be adequately explored. The interviewer elicited, stated self perceptions by non-directive methodology within a structured, conceptual

⁷Ibid

⁸Ibid

framework. Questions asked about the parent were: (1) Child's attitude toward school and authority, (2) How conscientiously does he do his homework, (3) Does he demonstrate more self-confidence, and (4) Has he developed any new interests. The parents were asked to express their attitudes about the program, and if they wished to see the program continue. Random samples of the interviews have been included in the latter portion of this chapter.

Analysis of Data

Creativity. For each test of creativity used, four comparisons of mean scores were made: (1) Between experimental and control groups on the pretest, (2) Between experimental and control groups on post test, (3) Between experimental groups on pre and post tests (4) Between control groups on pre and post test.

All statistical comparisons were made using a T test for differences of means. The level of confidence selected for rejecting the null hypothesis of "no change" and "no difference" was .001 or less.

Achievement. A T test was used to determine the significance of the difference between an observed mean, the post test, and a known mean, the pretest adjusted.

This analysis was based on the assumption that growth would occur during the project, regardless of the teaching methodology employed. To facilitate computation, it was

necessary to accept the premise that past growth was evenly distributed throughout training. The score obtained on the pretest was divided into equal growth units in relation to the number of years of past training. Seventy per cent of one growth unit was then added to the pretest to obtain the adjusted score.

Results of Pretest and Post Test on Creativity

Uses Test. The difference of means test used was provided by Blalock.⁹ The formula is as follows:

$$t = (\bar{x} - \bar{x}_2)$$

$$\sqrt{\frac{N_1 S_1^2 + N_2 S_2^2}{N_1 + N_2 - 2}}$$

$$\sqrt{\frac{N_1 + N_2}{N_1 N_2}}$$

The subscripts "1" and "2" were varingly applied to the two samples under comparison. First, to pretest comparisons between experimental and control groups in Phase I, to pretest and post test comparisons of each group separately for each test and to the control versus experimental comparisons on both tests in Phase II. This involved a series of eight T tests, where T was held to be significant only if $p < .001$.

Pretest Comparison Between Experimental and Control Groups. A total of 96 students in the control group took the pretest. The class average for different uses of the items

⁹Blalock, Hubert N., Social Statistics, pp. 172-176

given was 12.5.

In the experimental group, 43 students took the pre-test. The class average for different uses of the items given was 17.3.

The differences of means as measured by a T test was 3.50. This was significant at the .001 level.

Pretest and Post Test Comparison Within the Control Group. Only 21 students in the control group took the post test. The class average for different uses of the items given was 15.3. The difference of the means, as measured by a T test was 1.63, which was not a significant increase..

Pretest and Post Test Comparison Within the Experimental Group. The number of students taking the post test was 41. The class average for different responses was 28.7. The differences of means was 5.30, a significant increase.

Post Test Comparison Between the Control Group and the Experimental Group. A total of 21 students in the control group took the post test as opposed to 41 in the experimental group.

The class average for different responses to the items given was 15.3 for the control group and 28.7 for the experimental group. The differences of the means was 5.04. This was significant at the .001 level.

Summation. On both the pretest and the post test the experimental group had significantly high mean scores on the Uses Test than did the control group.

Meaning Test. The differences of means test used on the Meanings Test was the same as that used on the Uses Test, namely:

$$T = (\bar{X}_1 - \bar{X}_2)$$

$$\sqrt{\frac{N_1 S_1^2 + N_2 S_2^2}{N_1 + N_2 - 1}} \quad \sqrt{\frac{N_1 + N_2}{N_1 N_2}}$$

The subscripts "1" and "2" were varyingly applied to the two samples under comparison. First, to Phase I comparisons between experimental and control groups, to pretest and post test comparisons of each group separately for each test, and to the control versus experimental comparison on both tests in Phase II.

Pretest Comparison Between Experimental and Control Groups. A total of 97 students took the pretest in the control group and 40 in the experimental group. The class average of different meanings given of the items listed was 1.75 in the control group and 1.68 in the experimental group. The differences of means was .978. This was not significant at the .001 level.

Pretest and Post Test Comparisons Within the Control Group. In the Control Group, 33 students took the post test. The class average of different meanings given was 1.95. The

differences of means for the pretest and post test was 2.46, which was not significant at the .001 level.

Pretest and Post Test Comparisons Within the Experi-Groups. The number of students who took the post test was 41. The class average of different meanings given was 2.07. The differences of means for the pretest and post test was 3.57. This was significant at the .001 level.

Pretest and Post Test Comparisons Between the Control Group and the Experimental Group. A total of 33 students in the control group took the post test as compared to 41 in the experimental group. The class averages for different meanings were 1.95 in the control group and 2.07 in the experimental group. The differences of means was 1.02. This is not significant at the .001 level.

Summation: The pretest comparisons of the control and experimental groups showed no significant difference. The same is true for the post test. The control group showed no significant difference during the pretest, post-test period, while the experimental group showed significant increase.

This is possible because the scores of the experimental group started a little lower (not significantly) than those of the control group, but ended a little higher. The gap between the pretest and post test scores of the experimental

group is much larger than that of the control group. It was this difference which was statistically significant.

Blob Test. The Blob Test was not subjected to the T test method of comparison of differences of means. Instead a comparison of percentages was made.

TABLE I. A COMPARISON OF THE PERCENTAGES OF RESPONSES MADE BY THE EXPERIMENTAL AND CONTROL GROUPS ON THE BLOB TEST.

Items	Experimental Group		Control Group	
	Pre-Test	Post Test	Pre-Test	Post Test
Most Common Picture	23%	33%	45%	56%
2nd Most Common Picture	10%	10%	11%	5%
3rd Most Common Picture	8%	5%	16%	0%
Incongruities in Story	25%	49%	15%	5%
Unexpected Endings	58%	56%	33%	34%
Humor	3%	15%	11%	2%
Incongruities in Picture	43%	49%	15%	27%
Violence/Agression Expressed	23%	54%	18%	24%

Test results showed the control group demonstrated much less variation in them than the experimental group. However, looking at the incongruities in the picture, both groups had more in the second test, but the experimental classes are higher each time. A tendency toward unexpected ending is also more pronounced in the experimental group. An interesting reversal occurred in the case of humor. The

experimental group increased its tendency to humor by about 5 times over the test period. The control group, which originally expressed over $3\frac{1}{2}$ times as much humor as the experimental group decreased its tendency to use humor by about $5\frac{1}{2}$ times over the same period.

A more moderate reversal of the same sort appeared in the appearance of incongruities in the stories. The experimental classes started fairly high and nearly doubled this trend, while the control groups started at a moderately low level and decreased to $1/3$ of the pretest level.

The increase in the inclusion of violent and aggressive themes in their pictures and stories, was extremely high in the experimental group but only moderate in the control group.

The test data on creativity showed a significant increase in the development of "creativity" in the experimental group, while in the control groups "creativity" developed very little. A more thorough report will be made in the "Conclusions" section of Chapter IV.

Results of the Pretest and Post Test on Achievement

The Primary, Intermediate I, and Intermediate II level of the Stanford Achievement Test were administered to the experimental group on a pretest and post test basis. The appropriate battery was utilized for each participant in accordance with his normally scheduled grade placement.

To be considered statistically significant, any improvement or regression in the average class score $\bar{x}$ had to be greater than expected, purely by chance, due to measurement error. The .05 and .01 levels were chosen.

TABLE 2. PRETEST ACHIEVEMENT SCORES OF THE STUDENTS IN THE EXPERIMENTAL GROUP

Test Items	n	$\bar{x}$	S.D.
Word Meaning	47	35.0	9.1
Paragraph Meaning	44	31.6	9.9
Spelling	42	33.4	8.6
Word Study Skills	31	23.5	9.1
Language	43	25.8	9.5
Arithmetic Computation	39	29.8	11.6
Arithmetic Concepts	41	33.3	11.1
Arithmetic Application	41	33.6	8.1
Social Studies	42	34.8	6.7
Science	41	35.0	7.6
Median Test	41	32.3	7.4

$\underline{n}$ = number taking the test

$\bar{x}$ = class average

S. D. = Standard Deviation

The class average on achievement was 32.3. This score will be compared to the post test class average to determine significance of achievement.

TABLE 3. POST ACHIEVEMENT SCORES OF THE STUDENTS IN THE EXPERIMENTAL GROUP.

Test Items	n	$\bar{x}$	S. D.
Word Meaning	41	41.95	13.80
Paragraph Meaning	41	39.07	12.90
Spelling	41	37.88	9.90
Word Study Skills	22	29.77	13.40
Language	41	31.27	9.10
Arithmetic Computation	41	43.83	11.80
Arithmetic Concepts	41	39.41	12.40
Arithmetic Application	40	41.70	9.00
Social Studies	40	42.95	7.60
Science	40	41.83	6.80
Median Test	41	39.93	8.40

n = number of students who took the test

$\bar{x}$ = class average

S. D. = Standard Deviation

The assumption made was that growth would occur during the project regardless of the teaching methodology employed. To facilitate computation it was necessary to accept the premise that post growth was evenly distributed throughout training. The score obtained on the pretest was divided into equal growth units in relation to the number of years of past training. Seventy per cent of one growth unit was then added to the pretest to obtain the adjusted score. (The seventy per cent represent the ratio of time between the pretest and the post test and the regular school term.

TABLE 4. THE PRETEST ADJUSTED SCORES OF THE STUDENTS IN THE EXPERIMENTAL GROUP

Test Items	n	$\bar{x}$	S.D.
Word Meaning	44	41.5	9.9
Paragraph Meaning	44	37.6	10.8
Spelling	42	39.7	9.0
Word Study Skills	31	28.6	10.3
Language	43	30.8	10.6
Arithmetic Computation	39	35.4	13.2
Arithmetic Concepts	41	39.5	12.1
Arithmetic Application	41	40.1	9.3
Social Studies	42	41.7	7.6
Science	41	41.8	8.5
Median Test	44	38.5	7.8

$\bar{n}$ = number of students

$\bar{x}$ = class average

S. D. = Standard Deviation

The adjusted pretest scores were used to measure the significance of growth in achievement.

Results. If the experimental group had an average change of 1.76 to 2.31 at the .05 level and 2.31 at the .01 level, we could conclude a significant gain. The average change at the .05 level was 1.76 and 2.32 at the .01 level. A significant gain occurred. The average change of the experimental group was 7.6. This represented an increase from the pretest class average of 32.3 to the post test class average of 39.9. The gain of 7.6 showed that the increase could not be expected by chance alone.

The difference between the known mean and an observed mean was 1.08. To be significant at the .05 level, the difference had to be 2.02 and 2.70 at the .01 level. The writer

accepted the null hypothesis. There was no significant difference between the post test and the adjusted pretest scores.

Interviews With Parents

A series of interviews were held with the project enrollees and their parents. A definite effort was made to contact both parents. Their attitudes toward the program are represented in five randomly selected interviews.

(1) A report of an interview with the parents of two boys who attended the experimental class at the Monroe School.

Interview. Attitude toward school has changed so much this year. Both boys are much more interested in going and are trying so much harder to learn. Homework is now done because they want to do it. No fight to get them at it. Worked on a project for the Netherlands for five hours last night. Are anxious to please teacher.

Both boys like Mrs. Callahan very much. Missed her when she was out sick. Kept saying to mother, "hope Mrs. Callahan comes back tomorrow." Lost some of their enthusiasm for school during her absence, but have regained it.

Attitude at home has also been affected. Both are more cooperative in the family setup.

Mother hopes that both boys will be in Mrs. Callahan's class next year. Feels they need to continue with the type of training they are getting.

Mother said she felt sure if her older boys had had this kind of training they wouldn't be such school problems now.

(2) A report of an interview with the parents of a daughter who attended the experimental classes at the Monroe School.

Interview. More interested in school. Talks about what is done in school at home. Didn't used to do it. Scope of interest has broadened considerably. Now reads at home every night.

Mother hopes program continues so student can have the advantage of this type of education for the next two years.

Student thinks so much of Mrs. Callahan--would do anything for her. School didn't have the same meaning for student when Mrs. Callahan wasn't there.

(3) A report of an interview with the parents of a son who attends the Washington School.

Interview. Mother says that son is much more interested in school this year and seems to be doing better. He had no interest in school before. It was a fight almost every morning to get him out the door to go. Now he looks forward to going and does not want to miss. Likes Mr. Sullivan very much.

He is even showing more interest in extra-curricular activities. Is now playing ball after school and loves it. He seems better adjusted around the home also--is happier. Likes to do his homework, and does a good job, mother says. Before he could care less if his homework was done.

Mother said she surely is grateful for the help son is receiving this year and feels he has improved tremendously.

(4) A report of an interview with the parents of a son who attends the experimental class at the Washington School.

Interview. This program and Mr. Sullivan saved this boy from Miles City, according to the mother and father, and they are so thankful. For the first time in his school career he is displaying an interest in school. He does his homework every night because he wants to do it. He is also very particular about how he does it. Is not satisfied unless it is done well. Never misses school and looks forward to going each morning. This is a complete turnabout for him. He

has learned how to study and how to make good use of his time.

The many projects Mr. Sullivan has had the class work on has greatly stimulated his interest in learning. He now talks about getting as much education as possible. Before he could care less.

Both father and mother said they endorse the program 100%, and to Mr. Sullivan they will be eternally grateful for what he has done for their son.

Father has an aunt who is a county superintendent in South Dakota. He has discussed the program with her. She is very much impressed with what the program has done for him and the possibilities it has for helping slow learners. She would like to initiate a program of this type in her district and has asked the father to contact the Director of the program to see if he would be willing to supply her with an outline of the program.

"For the first time in my life I feel that I am someone and that I am important" is a remark he made the other day at home.

(5) A report of an interview with the parents of a son who attends the experimental class at the Washington School.

Interview. Mother is very happy and satisfied with the class in Creativity. She says her daughter likes school more and has learned more this year than in any year of her school life. She has learned to be more self-dependent. Does all her homework without asking for help. Is very enthusiastic about school this year.

She is doing more reading this year because she understands better. When she was chosen "chief" for the Indian Project she did so much reading about the tribe that the mother said the daughter was able to tell her many things she herself had never heard of.

She thinks the world of Mr. Sullivan. When he sent a note home saying that she should go to bed earlier she went to bed that night two hours earlier than usual, and did so without any argument.

She talks about the projects they are working on at school and seems to have a good understanding of them. Mother said she is really amazed at the number of different topics she can talk about. Said daughter's retention is much improved.

The parents were virtually unanimous in their belief that the project had an important positive effect on the classroom performance of the children enrolled. The remarks of the five parents written in this report closely parallel the feelings of all the parents interviewed.

A summary of the study, the conclusions and recommendations are reported in Chapter IV.

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to determine the effect Creative Problem Solving Teaching Methods had on the quantity and quality of ideas and academic achievement of intermediate grade slow learners in Butte, Montana.

Summary

The important role creativity plays in a democratic society was quickly being recognized and the nurturing of the individual's creative potential had become a responsibility of the public schools. Research projects designed to add information about creativity and intelligence, creativity and achievement, and the nurturing of creativity had been conducted in public and parochial schools throughout the nation.

The research showed that creative thinking and the individual's imaginative ability to solve problems could be developed through instruction and practice. Each individual is born with creative potential, and this potential can be developed by following some basic principles of creative teaching. Educators need not wait for the creative potential of the child to develop on its own but may design programs to assist its development.

Research showed there is little relationship between

an individual IQ and his creative ability. Giftedness has been regarded as an individual's ability to achieve a high score on an intelligence test. The standard IQ test used in public schools did not measure creative potential. Regardless of the measure of IQ on scholastic aptitude used, and regardless of the educational level, about 70 per cent of the top 20 per cent on creativity would have been excluded from gifted groups, selected on the basis of IQ alone.

Experiments showed that students with high creative ability achieved as well as students with high IQ scores. Most of the experiments conducted showed no significant difference in academic achievement.

The study conducted in Butte, Montana, was an attempt to acquire more information about nurturing creative development, creativity and academic achievement and the basic teaching principles needed to "create" an atmosphere within the classroom that fostered creative development. The population of the experimental group consisted of 44 students with an IQ score, as measured by the Slosson Non-Verbal Intelligence Test, of between 75 and 90. Approximately 80 per cent of these students had repeated at least one grade.

The experimental group was divided into two classes of 22 students. Each class included students from the fourth, fifth and sixth grades. One class was conducted at the Monroe Elementary School and one at the Washington

Elementary School.

The students selected for the experimental group had been labeled "slow learners" by their teachers and administrators. They were discipline problems, had a negative self image, disliked school, and needed instant and constant reinforcement. The majority of these students came from economically deprived homes and seemed to lack a rapport with their parents.

The methods of instruction used within the classrooms were designed to foster the creative potential of the child. Situations were kept open ended whenever possible, unique and different responses were encouraged, and divergent thinking processes were stressed. Teaching was "success" rather than "failure" oriented, ideas and objects manipulated and explored, and uniqueness, individuality and originality was stressed and regarded.

Report cards were not used to report pupil progress. The parents were invited into the school to discuss their child's progress with the classroom teacher. A certificate of completion was given to the student at the end of the year.

A set daily time schedule for teaching the various academic disciplines was not followed. The time of day a subject was introduced and the amount of time devoted to it depended upon the needs of the individual and the group.

Basal text books were not used in all subjects.

Supplemental materials were used, allowing the teacher to place the student at his level of achievement in the various subjects.

The students in the experimental group were given pretests and post tests to determine growth in creativity and academic achievement. The pretest was administered in September of 1967 and the post test in March of 1968.

The test used to measure creative growth included a Uses Test, A Meanings Test and a Blob Test. The Stanford Achievement Test was used to determine the amount, if any, of academic growth.

The results of the tests used to measure creative growth was compared to those of a control group. The control group consisted of fourth, fifth and sixth grade students of similar abilities and background but taught by methods which did not emphasize creativity.

The pretest scores and the post test scores of the experimental group on the Stanford Achievement Test were compared. The chance factor of growth was explored to determine, if any, growth that occurred was pure chance.

The pretest achievement scores were adjusted to determine if growth resulted from instructional techniques used in the study. The assumption was made that a certain amount of growth would have occurred regardless of the methods of instruction used.

The students in the experimental group showed

significant gains on the tests of creativity. The control group did not improve significantly. Achievement in the experimental group showed a significant increase that could not be explained by chance alone. However, it could not be conclusively proven that it might not have occurred in a regular classroom situation.

Interviews were held with the parents of the children who participated in the program. Questions were asked about the child's attitude toward school and authority, how conscientiously he does his homework, has his self confidence improved and does he have any new interests. The parents were encouraged to speak freely, and their responses were recorded.

Conclusions

As a result of this study, A Creative Problem Solving Course for Selected Elementary Students, the writer arrived at the following conclusions:

Major Conclusions

- (1) Students in Butte, Montana, who are categorized as "slow learners", have creative potential.
- (2) Creativity can be developed in slow learners in Butte, Montana, by using the basic teaching principles used in this study.
- (3) Achievement, as indicated by a standardized

test, showed a significant increase that could not be explained by chance alone. However, it could not be conclusively proven that it might not have occurred in a regular classroom setting.

- (4) The students' personal development, as evidenced by observation and interviews, show a substantial positive effect on achievement interest and attitude.

Minor Conclusions

In addition to the major conclusions stated, the writer arrived at the following minor conclusions:

- (1) Report cards do not necessarily serve as an incentive for improvement of "slow Learners"; instead, they may contribute to self-negativism and frustration.
- (2) Parents usually become more involved with and more enthusiastic about the "education process" when they can see growth and success in their children.
- (3) The flexible time schedule appeared to have more advantages than the fixed time schedule when teaching slow learners.
- (4) The teacher who directs the learning process, under the conditions stated in this project, must be empathic, imaginative, able to cope with ambiguity and understand creative teaching techniques and the characteristics of creative children. The success of a program of this type lies with the teacher.

RECOMMENDATIONS

As a result of this study, the writer makes the following recommendations:

- (1) Additional studies be conducted to determine

the influence the "creative teaching" approach has on the achievement growth of slow learners.

- (2) Additional studies be conducted to determine the influence the "creative teaching" approach has on the development of creative potential and academic achievement with student of average and above average academic ability.
- (3) Curriculum planners, school administrators, and classroom teachers place more emphasis on the creative abilities of slow learners.
- (4) The system of reporting academic growth of slow learners be revised.
- (5) Daily time schedules for teaching academic disciplines to slow learners be flexible rather than rigid.
- (6) The principles of creative teaching used in this study be tried under experimental conditions when teaching other slow learners.

BIBLIOGRAPHY

- Benteley, Joseph, "Creativity and Academic Achievement," Journal of Educational Research: 59:pp 361-272.
- Blaylock, Hubart N., Social Statistics, McGraw Hill Book Company, Inc., New York, pp 72-176.
- Bowers, J. E., "Creative Thinking Abilities and School Achievement." In E. P. Torrance (ed.) Creativity: Proceedings of the Second Minnesota Conference on Gifted Children, Minneapolis: Center for Continuation Study 1959, pp 95-97.
- Cartledge, C. M. and Krauser, E. L., "Training First Grade Children in Creative Thinking Under Quantitative and Qualitative Motivation." Journal of Educational Psychology 54: 295-299, 1963.
- Cicirelli, Victor, G., "Form of the Relationship Between Creativity, IQ and Academic Achievement," Journal of Educational Psychology 56:303-308, December 1965.
- Getzel, J. W. and Jackson, P. W., Creativity and Intelligence, Wiley, New York, 1961, 293 pp.
- Hilgard, E., Creativity and Its Cultivation, McMillan Publishing Company, New York, 1961.
- Mednick, Martha T. and Andrews, Frank M., "Creative Thinking and Level of Intelligence", The Journal of Creative Behavior. 1:4: 428-431, Fall 1967.
- Parnes, S. J., "Can Creativity be Increased?" A Source Book for Creative Thinking, Scribner, New York, 1962, 185-192.
- Rusch, R. R., Denny, D. A. and Ives, S., Fostering Creativity in Sixth Grade, Elementary School Journal 65:363-368, May 1965.
- Smith, James A., Setting Conditions for Creative Teaching in the Elementary Schools, Allyn and Bacon, Inc., Boston, 207 pp.
- Taylor, Calvin, W., Creativity, Progress and Potential, McGraw-Hill Inc., San Francisco, 1964, pp 241.

USES TEST

LISTED BELOW ARE FIVE OBJECTS, WRITE DOWN AS MANY DIFFERENT USES AS YOU CAN FOR EACH OBJECT. BE SURE TO WRITE USES FOR EACH OBJECT. WRITE DOWN ANYTHING THAT COMES TO MIND, NO MATTER HOW STRANGE IT MAY SEEM.

Name _____ Grade _____ Date _____

EXAMPLE: Pliers: 1. Pick up a hot dish
2. Twist wire

1. BRICKS:

2. PENCILS:

(PHASE 1 TEST)

3. PAPER CLIPS:

4. TOOTHPICKS:

5. SHEET OF PAPER:

(On the actual test these objects were spaced over two pages to allow room for the students to write.)

1. RUBBER BANDS:

2. A RULER:

3. A PIECE OF ROPE: (PHASE 2 TEST)

4. POCKET KNIFE:

5. A COATHANGER:

YOUR NAME _____
YOUR TEACHER _____
GRADE _____

MEANINGS TEST

SEE HOW MANY DIFFERENT MEANINGS YOU CAN THINK OF FOR EACH
WORD IN THE LIST BELOW:

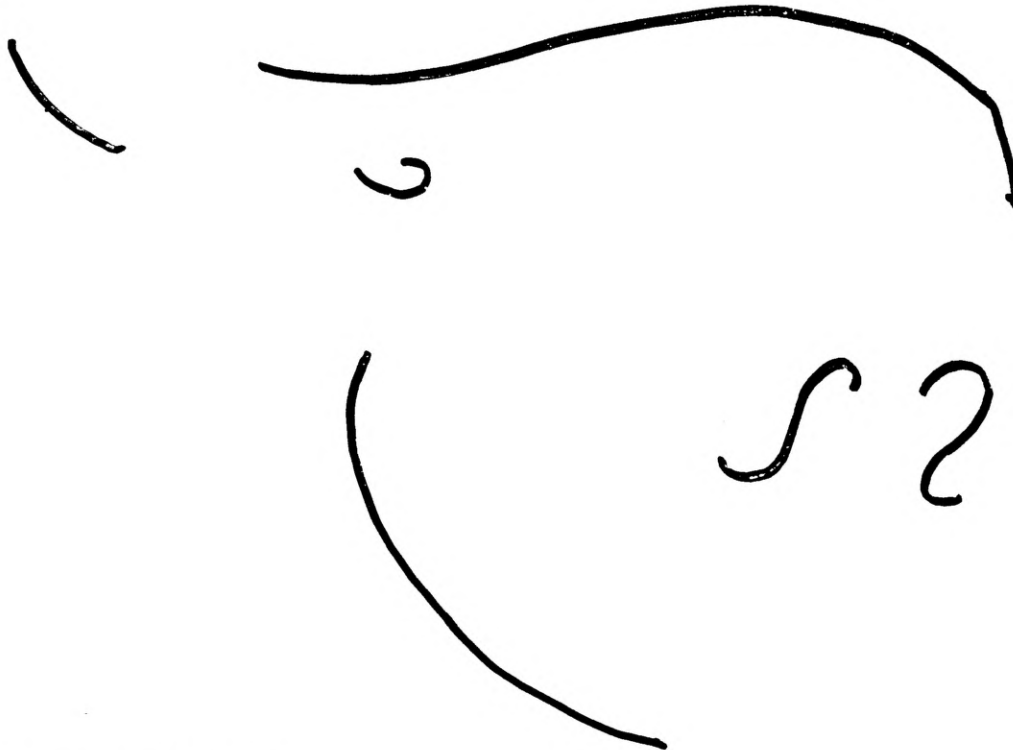
- (Example: Pick (1) A tool you dig with
(2) Something you play a guitar with
(3) To take a fruit from a plant
(4) To choose something
(5) To lift
(6) A thing you break ice with

1. Case
2. Duck
3. Fall
4. Cap
5. Tail
6. Blue
7. Play
8. Meal
9. Top
10. Stick
11. Will
12. Fire
13. Steer
14. Time
15. Bite
16. Fair
17. Out
18. Punch
19. Fly
20. Hit
21. Line
22. Fish
23. Pitch
24. Right
25. Buck

(These are the words for the Phase 2 test
in the order in which they were given;
The Phase 1 list contained the same words
in a different order).

YOUR NAME 40
YOUR TEACHER _____
GRADE _____

WHAT IS IT?



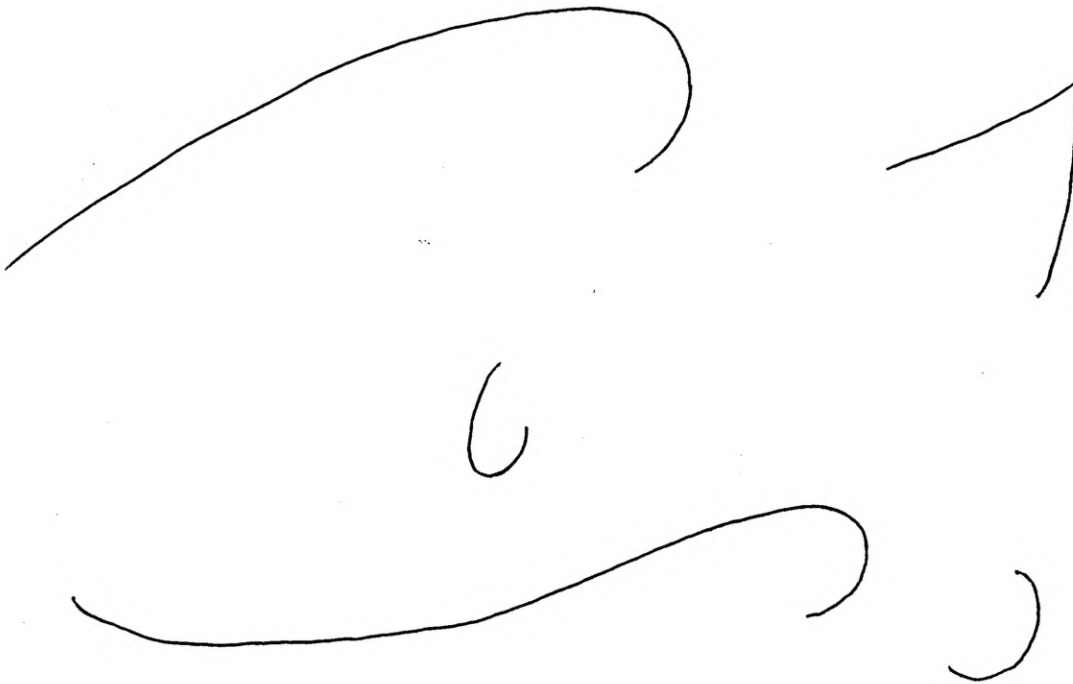
("Blob" test, Phase 1)

WHAT DOES THIS LOOK LIKE TO YOU?

BEGINNING WITH THE LINES ABOVE, SEE WHAT KIND OF AN OBJECT YOU CAN DRAW. USE AS MANY OF YOUR OWN LINES AS YOU LIKE. WHEN YOU ARE DONE WITH YOUR DRAWING, MAKE UP A STORY ABOUT YOUR OBJECT. IT CAN BE ANY KIND OF STORY YOU WOULD LIKE IT TO BE. WRITE YOUR STORY ON THE LINES BELOW AND CONTINUE IT ON THE BACK OF THIS PIECE OF PAPER. IF YOU NEED EXTRA PAPER TO FINISH YOUR STORY, YOUR TEACHER WILL GIVE YOU SOME. DON'T FORGET TO GIVE YOUR STORY A TITLE.

YOUR NAME _____
YOUR TEACHER _____
GRADE _____

WHAT IS IT?



("Blob" test, Phase 2)

WHAT DOES THIS LOOK LIKE TO YOU?

BEGINNING WITH THE LINES ABOVE, SEE WHAT KIND OF AN OBJECT YOU CAN DRAW. USE AS MANY OF YOUR OWN LINES AS YOU LIKE. WHEN YOU ARE DONE WITH YOUR DRAWING, MAKE UP A STORY ABOUT YOUR OBJECT. IT CAN BE ANY KIND OF STORY YOU WOULD LIKE IT TO BE. WRITE YOUR STORY ON THE LINES BELOW AND CONTINUE IT ON THE BACK OF THIS PIECE OF PAPER. IF YOU NEED EXTRA PAPER TO FINISH YOUR STORY, YOUR TEACHER WILL GIVE YOU SOME. DON'T FORGET TO GIVE YOUR STORY A TITLE.

