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The "Depth" Versus The "Breadth" Method For The Development Of Creativity At The Sixth Grade Level.

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This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of The University of New Mexico in partial fulfillment of the requirements for the degree of

MASTER OF ARTS IN ART EDUCATION

THE "DEPTH" VERSUS THE "BREADTH" METHOD
FOR THE DEVELOPMENT OF CREATIVITY
AT THE SIXTH GRADE LEVEL

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THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts in Art Education
in the Graduate School of
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Albuquerque, New Mexico
June, 1969

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ABSTRACT OF THESIS

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STATEMENT OF PROBLEM

There have been many studies on student behavior, personality and intelligence in relation to creativity. Also, research has been conducted on methodologies of teaching, but very little has been done on the methodology or how we teach art and its relationship to creativity.

This study involved an experiment in various art activities to determine if there was any difference between a breadth (varied activities and media) and a depth (varied activities with concentration in one medium, paper) method of teaching art in developing greater creativity among sixth grade students.

HYPOTHESES

1. There is no significant difference between a breadth versus a depth method of teaching sixth grade art to develop creativity in a child.
2. There is no significant difference in the degree of agreement of the judges as to what constitutes the creativity in the children's art work.

RESEARCH METHODS

The sample obtained for this study involved two sixth grade classes in a lower middle class caucasian school in a city of the southwest, thus using a cluster sample. The classes had been previously equalized as to academic ability. Previous studies (Frankston) recommended a depth method for junior and senior high, and sixth grade was selected to see if the depth method was advantageous at this level also.

The methodology consisted of 12 lessons, including a pre-

test and post-test in design. The lessons for both groups were conducted, on an average, for one hour per week for each group. The control group received lessons in a wide variety of media and motivational experiences. Whereas, the experimental group received lessons involving one basic medium: paper, with a variety of motivational experiences.

The designs were judged by two art education instructors at the University of New Mexico and two elementary teachers. Each design was rated on eleven criteria with each criterion being rated on a five point scale (very poor to excellent).

RESULTS

An analysis of covariance gave an F score of 3.91 on the pre-test and post-test scores. This was significant at the 5% level, resulting in a rejection of the null hypothesis.

There was some agreement between judges, but this was not significant, thereby indicating a lack of reliability of the criteria selected for evaluation. An intrarater reliability was determined which was also found to be not significant.

CONCLUSIONS

There was some indication from the data obtained that there may have been some gain in creativity using the depth method, but further research is needed.

The results of the data showed there was very little consistency in the ratings between the judges. Before research in methodology can continue a more consistent means for evaluating children's art needs to be developed.

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CHAPTER I
INTRODUCTION

STATEMENT OF THE PROBLEM

The main purpose of this study was to determine if there was any difference between a breadth method involving a wide variety of media, and a depth method of concentrated activities using one medium in developing greater creativity of sixth grade students.

Included in this main objective, since the designs of the students were to be evaluated to determine the gain or loss of creativity, was the need to establish a set of criteria for judging. As a second objective it was necessary to determine the validity of these criteria as a means for evaluating children's designs.

Two groups, an experimental and control group, were used in this study. The control group's activities for a twelve week period included varied activities in subject matter and media. The experimental group's activities were similar since they also had variety in subject matter, but they were limited to one medium (paper), for the twelve weeks.

Designs had been taken at the beginning and the end of the twelve weeks and judged by four raters, using eleven criteria for evaluation.

Using these criteria, it was determined if:

- a. there was any observable difference in the degree of

gain of creativity between the groups.

b. these criteria were valid as measures for judging children's art.

Creativity needs to be developed in children. This has been brought out by many art educators such as Victor Lowenfeld, Kenneth Beittel and Edward Mattil. Therefore, constant study is needed to find ways of better improving our present methods of teaching art. Several different educational practices in art are being used today. The proponents of going into a concentrated study of one subject or medium for several weeks have tried this with apparent success at the junior and senior high school level. This study endeavors to determine whether this type of program would be successful at the upper elementary level.

ASSUMPTIONS UNDERLYING HYPOTHESES

This study was undertaken due to the diversified opinions of leading art educators as to the most effective method of developing creativity in children.

Before this study was completed this researcher assumed that there would be a certain amount of boredom and restlessness among the students concentrating on one medium for twelve weeks. Furthermore, it was assumed during the evaluation of the children's designs that the judges would be in agreement in their opinions of what constituted a creative design.

HYPOTHESES

1. There is no significant difference between a breadth versus a depth method of teaching sixth grade art to develop creativity in a child.
2. There is no significant difference in the degree of agreement of the judges as to what constitutes the creativity in the children's art work.

DEFINITION OF TERMS

BREADTH - Breadth consists of activities involving a variety of media (crayon, paper, chalk, toothpicks, seeds, beans, tagboard, thread and string) in both two and three dimensions with a variety of motivational experiences. (These experiences are described in the appendix)

DEPTH - Depth consists of activities emphasizing a knowledge of one medium (paper) with various experiences to increase skill and understanding in the use of this medium.

CREATIVITY - Creativity in this study was defined by the following criteria:

Deliberate Approach

1. sharp or clean edges
2. careful or precise handling of the media
3. smooth or polished surfaces
4. tight or restricted forms, evidence of care in drawing shapes and lines

Spontaneous Approach

1. blurred or rough edges
2. loose and bold handling of the media
3. rough and rugged surfaces
4. loose and free forms and lines, evidence of not being pre-planned

Criteria for both approaches

1. functional and full coverage of paper surface making the background a part of the overall design

2. variety in size of shapes with at least one third of the shapes different in size
3. use of overlapping shapes with at least two thirds of the shapes overlapping

According to Burkhart² both the spontaneous and deliberate approaches may result in equally creative work, so criteria for both were used in this study.

SPONTANEOUS APPROACH - This was defined in terms of freedom or ease in movement in the use of materials and rendering of forms.

DELIBERATE APPROACH - This was defined as a stiffness in the handling of the total work, of the placement, and treatment of the material. Good work was deliberate in the classical sense rather than simply rigid.

LIMITATIONS OF STUDY

This researcher had several problems during the classes conducted in the experiment. There was a rather large turnover of students in both classes. Also several students were absent on the days of the pre-test and post-test. This resulted in only fourteen children from one class and twenty in the other that were there for the whole twelve weeks of lessons.

Other difficulties arose during the teaching of the lessons due to interruptions caused by other activities conducted in the school such as fire drills and time out for

pictures to be taken. Interruptions caused a lack of desired motivation in these cases affecting the creativity of the child, and consequently affecting the results of this study.

This study was conducted in a lower middle class neighborhood and the classes were already grouped before the study. Therefore, a major limitation would be in determining to what groups the results of this study would apply. More studies need to be conducted to determine if the results would be similar in other school situations such as upper and lower class schools in all areas of the United States.

REVIEW OF THE LITERATURE

In many books on art education it has been pointed out that a variety of materials were needed for this age level (eleven to thirteen) in order to develop greater creativity, yet, I found very little research to support these statements. Viktor Lowenfeld,¹⁸ a leading art educator, emphasized the importance of varied materials, as did other educators such as Margaret Erdt⁷ and Blanche Jefferson¹¹, Manfred Keiler¹² took the opposite point of view stating that too many new materials were confusing.

This review of the literature has been divided into several parts which are relevant to this particular study.

First it was necessary to determine just why we need to teach art and develop creativity, and next to determine just what constitutes "creativity".

As this study was conducted with eleven year olds it was necessary to find related literature pertaining to the characteristics and abilities of this age level.

An important part of this study involved the planning of activities and materials suitable for the eleven to thirteen age level for both the control and experimental groups. This included the media to be used, instruction in the basics of design and types of activities.

Along with planning activities, literature needed to be found on the appropriate methods of teaching art. Predominately

a variety of experiences and media were suggested as appropriate. It was the purpose of this study to determine if this was true.

Upon completion of the lessons the designs needed to be evaluated. This was extremely hard to do and all available literature was referred to in order to find what has been done thus far. Some individuals reported different methods for evaluation as well as some tests and scales which have been devised.

Why Teach for the Development of Creativity

Gradually our country is becoming aware of the importance of creativity in an individual in all areas of endeavor. Brittain³³ points out that now creativity is encouraged in such areas as science, English and mathematics. Read²⁴ argued that art, creative aesthetic expression, must become the basis of education. He wrote that "The aim of education is the creation of artists, of people efficient in the various modes of expression".

Orze,⁵² at the end of his article, states that not every child we teach will make a career in art, but our society needs creative expressive individuals in all walks of life. Art education is as responsible to the future insurance man as it is to the future artist.

Leonardt Kreisle⁴⁵ quoted from King Solomon in his article that "where there is no creative vision, the people vanish!" He went on further to point out that the great civilizations of

Greece, Roman, Egypt and Mayan all excelled in the arts, but the people became complacent and their creative ideas diminished and the civilization declined, some even vanished. Leonardt Kreisle stated "It is my sincere opinion that the future of our own civilization can well depend upon the creativity of us today".

D'Amico⁵ believed that the artist was one of the most valuable members of society; that the artist's approach to living and to his work was one of creative sanity of which the world needs more. The child also can be helped to create his own personality and attitudes toward life to make him a better member of our society.

Dewey⁶ also suggested that the task of art education was to restore continuity between the refined and intensified forms of experience that are works of art and the everyday events, doings and sufferings that are universally recognized to constitute experience.

Conrad³ established five goals or reasons for teaching art. First, children learn through art activities. This encourages them to produce expressive forms by learning to invent, to use their imagination and to draw from experience. Second, art can encourage unconscious thought processes, thereby stimulating reasoning and intuition. Third, a person develops as an individual and is unique or different from others. Fourth, the art program can be planned to develop the senses of seeing, hearing, smelling and touching; and fifth, cultural

understandings can grow out of well planned art activities.

Herbert Read²⁴ used the term "moral goodness" to identify the human virtue or insight possessed by artists.

Dewey⁶ also pointed out the importance of art as an activity and product which influences human experience for its own sake and not just in terms of money. He further stated some art experiences are important for everyone for the development of a constructive, creative personality.

Frederick Logan¹⁶ stated that the great artist is one who has grasped some fundamental significance in life and manages to convey that significance to others.

These comments by leading educators bear out the importance and value that teaching art creatively can have on the full and total development of children.

Schaefer-Simmern²⁷ emphasized the fact that acquisition and accumulation, both material and intellectual, have become the predominate values of life. A lack of these marks a person as inadequate. As a result man is only partly educated. His sensuous, emotional, intellectual and physical powers are neglected; thus his creative capacities do not develop. This is one reason why people do not know how to use their leisure time constructively.

We are beginning to have more leisure time than ever before in our history. Work hours are shorter, longer vacations and better health at retirement age offer more free hours, but many do not know how to use this time to their advantage.

Daniel Mendelowitz²² found that all who take art classes later in life find it an absorbing activity that has become important to them. They all liked to spend more time on their particular interest and wished they had started earlier in life. The activities seemed to answer a need to do things beyond making a living, caring for families, visiting friends, or watching T.V.

Mendelowitz further commented that art satisfies the desire to do with ones hands, to be creative. It also develops the capacity for independent thought and action, develops self sufficiency and originality of expression. It also provides the opportunity to express oneself, thereby developing a personal sense of rightness. It is relaxing after a hard days work. Tense muscles relax and one feels refreshed in body and spirit.

For one to have the desire to create later in life it is necessary to instill this desire in childhood. Margaret Erdt⁷ wrote that art becomes a source of inspiration, productivity and enjoyment that very early has meaning in the life of a child. Art is a language, a visual language, that can be read and understood by children.

Charles Gaitskell⁹ lists six reasons for teaching art in the elementary school:

1. Belief in the creative ability of all children.
2. Belief in the integrated acquisition of skills, that learning of skills should be related to needs of the learner.

3. Belief in the necessity for freedom of thought which is brought about by engaging in artistic pursuits.
4. Belief in experience as the basis for expression. It is believed that a child should experiment freely with tools and materials.
5. Emphasis upon the development of taste in order to develop the ability to discriminate between good and bad design.
6. Belief that art can help develop worthy citizens.

Gaitskell also pointed out that art is necessary for the development of worthy citizens. Taylor²⁸ also supported this belief in the following statement: "Schools are concerned with the mental health of a child and a healthy personality growth is a goal. Although there is no definite information concerning creativity and mental health, there still is enough evidence to show that stifling creative desires cuts down the satisfaction of living and ultimately creates tension and breakdown.

Researchers are now finding that creative thinking can contribute importantly to the acquisition of information and educational skills. A creative person learns and thinks when he appears to be playing.

We are also discovering that creative thinking is important to success in vocations. Also, it takes little imagination to recognize that the future of our civilization depends upon the quality of the creative imagination of our next generation."

Wold and Hastie⁶⁰ further support the claims of others for the justification of an art program and especially emphasize the fact that art makes an important and unique addition to the pupil's knowledge. The aesthetic perceptual habits of the student are developed through the structure of knowledge in art and the experience leading to this knowledge.

Rees,²⁵ too, pointed out that art has a definite value to the good life of dynamic creative living. He wrote that "one who uses art can see deeply into life and develop a sense of beauty which is the essence of life. Art, to him, is the accompaniment of all life, existing as a means to communicate his ideas, to express his emotions, to experience life, and to appreciate the deserving work of others."

Pauline Johnson⁴³ stated there is no better way to develop creative capabilities in children than by means of the arts. They teach the child to be constructive and to bring forth something new and unique that has passed through his mind. Children need the arts and are hungry for them and for the release they provide for the emotions. Virginia Purcell⁵⁴ adds to this by stating that "the child is always thinking, imagining, creating. It is his nature to do so." When the arts are neglected the child tends to become less flexible as he grows older and his ability to create becomes stifled.

Viktor Lowenfeld,¹⁸ one of the leading art educators, also supported the fact that the aim of art education was to use the creative process to make people more creative

regardless of whether this creativeness would be applied. He commented that if Johnny grows up and through his aesthetic experiences has become a more creative person who will apply it to his living and to his profession, one of the main aims of art education will have been fulfilled.

Wold and Hastie⁶⁰ summed up the primary purposes and values of art in education in the following:

1. Art has a structure of knowledge that reveals and creates reality for human experience in a unique way.
2. Art education provides aesthetic experience for the student that helps him to be aware of and responsive to beauty and meaning in the works of man and nature. It acquaints him with intelligible standards for appraisal and provides opportunity for the refinement of taste and subjective satisfaction from the aesthetic experience.
3. Art education, with the various forms of knowledge it contains, can make a significant difference in the student's preferences, perceptual habits, and behavior.
4. Through art, the student can develop an understanding of and satisfaction with his personal way of solving problems and expressing ideas and feelings about himself and the values of society.

From the comments of these educators the belief in the importance of art for the elementary child is well supported. Since art for the development of creativity is definitely a

need in the elementary school curriculum, there next arise many questions. What is creativity, and what methods will best produce the desired creative abilities in a child? It was the purpose of this study to determine the adequacy of one method (the use of one medium) to another which has been generally accepted as the best for this age level (the use of many media).

What is Creativity?

Creative thinking has many characteristics, as various educators have pointed out. It is rather intangible and difficult to define.

Gloria Bernheim³² commented that aesthetic quality was first defined as the goodness or badness of the overall success of the art product. These early methods presented problems with more recent studies being done to determine better methods for judging creativity. These are discussed in the section on judging children's art.

There has been a recent trend to emphasize the scientific attitude in all fields of endeavor and many feel that this is directly opposed to the creative attitude. The scientific attitude is characterized as rational, analytical and impersonal; whereas, the creative attitude is thought to be slightly irrational, intuitive and personal. Sharon Scholl⁵⁶ indicates the compatibility of these two attitudes in the field of education. She quotes Jerome Bruner as stating, "It is the intuitive mode

that yields hypotheses quickly, that produces interesting combinations of ideas before their worth is known." Therefore, for one to excel in scientific thinking one needs a creative, imaginative mind.

Martin Covington³⁷ discusses the nature of the creative process, for if one is to be able to determine and develop the creativity in others it is necessary to understand the creative process. The following three items Covington indicates are features of the creative process.

1. In any complex creative act there are always a great number of cognitive skills and activities involved. There are several skills which are crucial to the success of any creative problem solving task, such as the ability to state a problem in the broadest and least biased fashion, to seek relevant information through question-asking, to generate unique and clever ideas and to judge the appropriateness of these ideas with regard to the constraints of the problem.
2. In order for a person successfully to complete any complex creative task, he must coordinate and deploy these separate cognitive skills in an overall and strategic attack on the problem. Thus, in addition to being adept at exercising the specific separate skills, the potentially creative person must also learn to integrate, sequence and manage these skills

in an optimal way.

3. Still another crucial feature of the creative process is a set of distinctive attitudes and values possessed by the creative person. One of the most important of these attitudes is a disposition to look at phenomena in new and different ways. The creative person is not content or satisfied with current points of view but possesses a readiness to question or reject it. The most important attitude possessed by the creative person is a basic confidence in his own ability to carry on creative activities in the face of recurring frustrations and obstacles to thinking.

Covington concludes that creativity involves the ability to generate original, interesting and provocative ideas. A creative person also interprets a visual task in a new or unconventional way.

McFee¹⁹ wrote "Creativity refers to people's behavior when they do such things as (1) invent a new pattern, form or idea, (2) rearrange already established objects, patterns or ideas, and (3) integrate a new or borrowed factor into an already established organization."

May⁴⁹ defined creativity as the process of bringing something new into birth.

Meier²¹ wrote that "the characteristic creative artist engages in activities that are in a large measure original or at least in those that offer some fresh approach."

Lowenfeld¹⁸ defined creativity as "the ability to explore and investigate In child art creative growth manifests itself in the independent and original approach the child shows in his work."

These educators are in agreement that being original and thinking up new ideas is an ability of a creative person.

There have been several studies investigating what factors are related to creativity. J. P. Guilford⁴² conducted a study on armed forces personnel. He uncovered several factors that appeared to be related to creativity.

1. originality - the ability to produce uncommon, remote or clever responses.
2. fluency - the ability to produce numerous ideas or responses to a problem.
3. flexibility - the ability to change to meet new requirements or to find new approaches to solutions.

Brittain³⁴ did a study similar to Guilford's except on a much smaller scale and in visual arts. He also found similar factors relating to creativity.

There was also curiosity as to whether creativity in the sciences and the arts were one and the same. Kenneth Beittel and Viktor Lowenfeld were both interested in this aspect of creativity.

Beittel¹ conducted a study comparing Guilford and Brittain's studies and this gave some support to the theory that the ability to think creatively can be related to several subject areas.

Paul Torrance,⁵⁸ doing further research into the factors making up a creative person, found that the highly creative students tended to be less desirable as pupils and less hard-working. The creative child was not the conforming child.

Brittain³³ lists the following traits as substitutes for the term "creativity".

1. originality
2. flexibility of thinking
3. fluency of ideas
4. skill at redefinition or rearranging
5. sensitivity to problems
6. liking for complexities
7. tolerance of ambiguity
8. positive feeling for assymetry or unbalance
9. attitude of non-conforming
10. resistance to pressure
11. ability to poke fun at one's self and others

According to Brittain³³ art activities are only means to the development of these mental and emotional capacities and to stimulate him to new or original ideas. Art should provide opportunities for numerous solutions rather than rewarding those who conform to the teacher's tastes. There should be ample opportunity for students to set their own goals. There should be a relaxed atmosphere without seeking for just success and where they can work at their own speed. The person should be the goal of an art program, not the development of skills or

techniques.

Prange⁵³ also agreed with other educators on the attributes of a creative person, and pointed out that they possess self confidence to a high degree, are not bound by a stimulus, are nonconformists and are particularly alert at divergent thinking.

Most art educators agree that a set of rules on art should not be taught. Freedom of expression and feeling should be allowed to encourage creativity. Herbert Read²⁴ discouraged drawing because children felt bound to produce realistically and were frustrated because they did not yet understand about perspective. They should not be bound by rules as this tended to restrain them from expressing themselves freely.

Leonardt Kreisle⁴⁵ defined creative thinking as "the birth of a new concept, or the application of known concepts in a completely original manner in order to effect the end result. A creative idea occurs when one has a thought that is entirely original with himself, regardless of whether or not it is unique to the entire world."

Kreisle⁴⁵ went further in his discussion to point out some inhibitors of creativity. These are:

1. Perceptual blocks - most individuals have built-in restrictions which reduce creativity.
2. Cultural blocks - fear of what other people will do or say.
3. Emotional blocks - fear of failure or criticism.

A quotation from Taylor²⁸ gives this definition for

creativity. "It has been suggested that the creative person is curious, enterprising in his ideas, intellectually persistent, tolerant of ambiguity; he shows he likes to think and to manipulate ideas; he has an inner need for recognition, he needs variety and autonomy; he has a preference for complex order and for challenges therein, he has an aesthetic and to some extent religious orientation; he resists premature closure and crystallization of concepts, though he has a strong need for ultimate closure; he desires mastery of a problem; he finds challenging the intellectual ordering of the apparently unclassifiable and he wants to improve upon currently accepted orders and systems."

Jefferson¹¹ gives this definition of creativity. "Art, to be creative, must be inventive. It must be concerned with the imagination of each child. Art brings into being something new through the exercise of imagination. The doing of art work involves labor and ingenuity as well as an unfolding of the child's ideas and feelings ignited by his inspiration to make this "something" that has not existed before and is not likely ever to be repeated."

As one can see from these quotations educators are in agreement about the nature of creativity. There are still factors which are subject to further research and perhaps some which have not yet been identified. What educators are not in agreement upon is the measurement of creativity.

Developmental Factors Concerning the 11 to 13 Age Level

Children at different levels of growth are capable of learning increasingly harder aspects of education. For one to assess adequately a child's work one should be aware of the characteristics of that particular age level. This study was conducted on sixth grade children ranging from eleven to thirteen years of age.

There is a tendency to expect too much from a child, or to expect him to compete with artists. D'Amico⁵ pointed out that activities should vary in simplicity and should be arranged to challenge every child. He commented that children up to age six abound in fresh imaginative ideas, but this creative power and interest diminish toward adolescence.

Covington³⁷ also found from research that fifth and sixth graders show little originality in the ideas they express. They appear to be groping for ideas they hope the teacher will supply.

D'Amico⁵ further pointed out that between the sixth and ninth grades students are busy. They are acquiring a sense of realism and an interest in many media and expressions. The interests of this age level in skills will augment the necessity for many processes and the mastery of many kinds of tools. The child of this period is not only eager for a wide range of experiences, but is also trying to find the expression that is most suited to his ability.

Read²⁴ called this the age of repression (11 to 14 years).

Progress in the attempt to reproduce objects is laborious and slow, and the child becomes discouraged. Drawing turns into conventional designs and the human figure is rare.

Lark-Horovitz and Norton⁴⁶ conducted two studies and found that the later stages of drawing tended to start around the ages of eight and nine and then gradually to increase. They also found that girls tended to reach various stages faster than boys.

Conrad³ also found that the art work of girls tended to be more developed than that of boys. He commented that it was difficult to list factors concerning intermediate graders, but some were:

1. Increases in the scope of the children's experience
2. Greater awareness of the physical environment
3. Increasing manipulative skill
4. Increasing familiarity with techniques and processes
5. Increasing self-consciousness
6. More critical attitudes toward their own work as well as toward the work of other children in the group
7. Greater susceptibility to cultural influences
8. Growing desires to be acceptable to the group. These desires result in tendencies toward conformity which strongly affect attitudes toward personal standards of accomplishment.

9. Increasing desires to achieve adult standards
10. Increased structuring of personality characteristics results in increased potential for individual uniqueness.

This adolescent period is a difficult time. As Schaefer-Simmern²⁷ pointed out, "at adolescence, critical judgment has usually progressed to the point where the young student refuses to recognize his pictorial achievements of self expression as conforming with his stage of mental development. He thus loses interest. As a result teachers tend to induce him to produce pictorially on a level toward the 'masters' and this has no relationship to his personality."

Mendelowitz²² again agrees on the fact that the nine to twelve year olds are leaving the free creative and spontaneous expression of the six to nine period. The characteristics of the nine to twelve period are that more naturalistic proportions are used. There is also more use of overlapping objects.

Gaitskell⁹ gives one possible explanation for this loss of spontaneity. He believes that the older child is still naturally inquisitive and creative, but he has learned to be cautious and that there is very little room for egocentric behavior.

Teachers, as a rule, do not accept or tolerate non-conformists or behavior problems, and these, it has been found, are most likely to be the most creative students.

Teachers must try to recognize this desire to be creative and to encourage it under proper direction so that the behavior will be acceptable to society.

Knudsen¹⁴ mentioned a few characteristics of this age level. The child becomes very self conscious in his work and his people become stiff and awkward in appearance. He is so conscious of detail that he may want to use pencil. Knudsen also pointed out, as did Mendelowitz,²² that this age begins to show depth by overlapping objects. They also begin to prefer certain art media and enjoy working together on group projects.

Contrary to the previous mentioned educators, Taylor²⁸ said "there is a drop in creative thinking abilities about fourth grade. Girls sometimes recover from this about the fifth grade. This recovery is mainly in fluency, not originality. The recovery in originality usually comes about sixth grade."

The other educators agree that the ability to be original is in the individual, but at this age it appears to be suppressed. As Johnson⁴³ commented, during the age of realism (11 to 13) they strive to make things look real.

Lowenfeld¹⁷ described two creative types, the haptic and the visual. The visual type starts from his environment, and his concepts are developed into a perceptual whole through the fusion of partial visual experiences. The haptic type is

primarily concerned with his own body sensations and with the tactual space around him.

According to Logan¹⁶ and Lowenfeld,¹⁷ in the pseudo-realistic stage (ages 11 to 13) diverging tendencies become more common. The individual is more concerned with the finished product than with the process.

Lowenfeld further showed that the visually minded child will tend to concentrate on the whole, whereas the haptic oriented child will concentrate more on details in which he is emotionally interested.

Summarizing, educators generally agree that about the fourth, fifth or sixth grades children tend to lose their spontaneity and freedom of expression that they had in the earlier grades. There may be various reasons for this, such as knowing that egocentric behavior is not acceptable, and children of this age do not want to appear different. Also, at this age a desire for realism enters into their work and they are frustrated when their efforts do not turn out like they think it should.

With some understanding of the problems and abilities of this age level, it is necessary to determine what tools, materials and activities are to be included in an art program, and the best methods of teaching to encourage and develop creativity.

Materials and Elements for Design

There are varied opinions on what materials should be included at this age level and how much use should be made of them. The majority of educators tend to emphasize the use of varied materials and activities for the encouragement of creativity.

According to Johnson⁴³ a better program can be achieved with a variety of well selected materials because these will challenge the inventive qualities in each child and open many avenues of expression.

Keel⁴⁴ pointed out that there is not enough variety of materials and subject matter in the classroom today. He says that art has been limited to "drawing and construction" and this is a poor program for the encouragement of art abilities.

Gaitskell⁹ also encourages the use of many different media. He writes that "the physical development of the children is important in determining media. It is recommended that as many different media as possible be placed at their disposal. Indeed, unduly to restrict the variety and kinds of materials tends to inhibit expression in art. Unless children have a choice they cannot sufficiently explore and find which best suits their needs of expression. They need to learn to think and make judgments for themselves."

Knudsen¹⁴ continued to support this point of view by emphasizing that children need time to become familiar with

media and to explore its possibilities. She pointed out that since some children are more expressive in some art media than in others, they should be provided with a variety of media because it sparks the children's interest and growth.

Knudsen¹⁴ suggested the following media for children, ages nine through twelve:

chalk	finger paint	sawdust
clay	paper sculpture	thread
crayon	paper-mache'	watercolor
cut paper	powder paint	

Margaret Erdt,⁷ too, agreed that a flexible art program is the only possible way to meet the many varied art needs and maintain interest. A child needs to be independent and given opportunity to think. She emphasized the fact that never is a diversified program of art activities more urgently needed than during these years when the emotional, physical and maturation levels differ so widely in children.

Victor D'Amico⁵ encouraged the mastery of many tools and media and stated that the studio that offered many materials for children to work with and many channels of expression would be found much more successful than the classroom with a fixed and limited program under the direction of a teacher with a single viewpoint.

D'Amico⁵ goes on to emphasize that "creative expression requires flexible materials and media. The instruments are

the practical means toward originative expression and should fit the child's fingers and obey his will. They should be rich in possibilities so imagination will not be inhibited. A child cannot broaden his vision or grow in power with a limited range of materials; moreover, it is important to remember that tools, media and processes should fit the age level of the child."

D'Amico recommended for the nine to twelve years of age child: clay, watercolor, tempera, gouache, wood, stone and metal in addition to the usual crayons and charcoal, in order to present challenges to the intelligence. He also encouraged the teaching of pigment making to give a child a sense of mastery and thoroughness of his job.

Other educators who favor a variety in media are Arne Randall and Ruth Halvorsen.²³ They indicated that children in the upper grades want to know about a variety of approaches for expression of their ideas. They encouraged experimentation and exploration of media.

Mendelowitz²² encouraged the introduction of a new tool or technique or medium at this particular age level to provide a stimulus toward continued expression, and since this age has a particular desire to be grown up the use of adult tools or media is helpful against boredom. He especially encouraged craft activities using the art elements of line, form, color, texture and tone (light and dark).

Taking the opposite point of view is Manfred Keiler¹² who

pointed out that too many new materials were confusing and each one constituted a new technical problem independent of creative thought. For the creative process one needs to be familiar with all materials and tools. Also new materials need to be added slowly so there will be new ones during the twelve years of public school to perpetuate curiosity.

Keiler does not specify going into depth in the use of media, but in order for one to be fully aware and familiar with all possible uses of a particular medium this is necessary.

Earl Linderman⁴⁸ does indeed support a depth approach to the use of media. According to Linderman, in order to understand a particular subject one needs an awareness and understanding of art tools and materials, an increased awareness of the subject, persistence to the art task and self evaluation of the product.

Linderman indicated that tools and materials should be thoroughly familiar if he intended to use them to the fullest measure of his expression. Consistent practice in discovering what a specific tool or medium could do was a necessary prerequisite to the unleashing of artistic potential.

In order for a child to be fully aware of a tool's or medium's potential it must be used in various ways through exploration and experimentation. This would require a depth approach to the teaching process.

Johnson⁴³ suggested paper as a medium for exploration. This medium was selected for use in this study. She pointed

out the various uses of paper. It can be a medium for paints, crayons, chalk, charcoal and pencil as well as for weaving and construction. Newspaper classified ad section, construction paper, tissue paper and origami paper all can provide for a fuller program.

Most of the activities used in this study involved design. Also the criteria established by the researcher were based upon the elements of design. As these elements were similar to those reported by various art educators, only those listed by Joseph Orze⁵² were mentioned here. It is essential that the teacher have knowledge of these elements of design so that the knowledge may be passed on to the students to further their artistic growth. These design elements are :

1. Line -

Lines point the way and lead us back and forth through a work of art. Lines have character and should be selected to fit their task. Some may be bold and powerful, whereas others have a delicate appearance; but they must fit their role in the design.

2. Color -

Children should be aware of colors that create feeling; the cool and warm colors; which are frightening or happy. The colors used should fit the subject material.

3. Form -

Form concerns itself with shape, size, mass and proportion. For evaluation look to see if the form functions well and whether or not it has an interesting shape.

4. Texture -

Texture is the surface quality or the materials from which something is made. For evaluation look to see if the child's work has a variety of texture. Do the textures give special identification to his forms and add interest and variety to the work?

5. Space -

This is where line, color, form and texture live and operate. The negative space is the empty area around forms. This negative space is also important. If a work looks crowded it needs more negative space, or there may be a need for less negative space.

Compositional Elements:

1. Structure -

This is the total appearance with its elements to the viewer.

2. Rhythm -

The rhythm of a work of art is created by the movement of its elements and their arrangement by the repetition of colors, textures, forms, shapes, sizes and by the variety and contrast they achieve.

3. Balance -

Symmetrical composition is usually quite stiff and dull. Informal balance adds vitality to a composition and is usually more successful.

4. Dominance -

This is to give some element more emphasis than others.

5. Unity -

Even if one element dominates it still should be related effectively to the whole composition.

As a whole most educators are inclined to favor a varied art program where the child is free to explore and discover for himself. A few do encourage in-depth exploration of media so that creativity can be developed in its fullest sense upon the mastery of tools and media.

It is the hope of this researcher that this study may offer further support in determining which approach would produce the best results in the development of creativity.

There have been a few studies conducted comparing the breadth to the depth method of teaching art. These are discussed in the next section.

Methods of Teaching Art to Encourage Creativity

Research needs to be conducted in order to determine what kind of art program is best suited for the changes of an adolescent. Leon Frankston³⁹ pointed out that some encour-

age a large variety of media (breadth). Others suggest a depth approach.

Leon Frankston,⁴⁰ in another report, commented that a breadth approach would introduce a large variety of materials and exploratory emphasis on themes and motivational experiences. In essence, it would be an arts and crafts course where students not only move rapidly from one medium to another, but also from one theme to another.

The depth approach considers a narrow range of materials and topics. Content deals with matter presented, such as medium, topics and information.

Frankston⁴⁰ did further study into the ways art was presented in the past in the secondary schools. He found in the 1963 report of the NEA's Music and Art in the Public Schools that most secondary curriculums emphasized the breadth approach to teaching art. He did further study and found not only a vast variety of materials used, but also an equally depressive variety of themes.

This is a rather confusing issue. Several reports confuse rather than enlighten the issue. Frankston⁴⁰ found one report which states that "curricular structures that foster a variety of art activities offer both breadth and depth of material, techniques and principles in an effort to extend quality of opportunities in accordance with the personal nature of each student." Frankston asks, "breadth and depth

are opposites, so how can they both be taught at the same time?"

Frankston encouraged the depth approach in teaching art.

The following was taken from his report:

Developing a Depth Approach in Teaching Art

The rationale of this approach is based primarily on the nature of the creative process and the manner in which the artist works. A child attempting to achieve a personal style can by a depth and concentrated approach.

Those who support Breadth contend that students need a liberal education and to become acquainted with a variety of materials. This, they say, will develop desirable results such as aesthetic sensitivities. Art is indeed needed to humanize society.

But our society has developed rapidly, students are more widely traveled and have greater awareness of a variety of subjects than ever before. Students therefore, need a concentration. A variety of activities will not increase aesthetic sensitivities.

Students, too easily want to jump from one thing to another. Therefore, a teacher should set the pace for education and give the child what he needs and ought to have in order to develop the kind of visually literate and sensitive individual we are talking about."

Frankston does assume that the basic art program in the elementary school will be breadth and students will have covered main media and themes. But, as a child nears junior high there should be a gradual decline from breadth to depth.

Kenneth Beittel and Edward Mattil³¹ conducted a study on the effect of a breadth versus a depth method for teaching art.

In their study depth involved using related experiences in similar media, and the breadth using a variety of experiences and media. These groups were compared with a control group. The basis for comparisons was on mean gains and losses

on the spontaneity and the aesthetic quality of the pupil's art products.

This study was designed for the ninth grade because that was the last year all students were required to take art in the state of Pennsylvania. The students were selected on the basis of similarity and normality in the means and standard deviations of I.Q. scores.

The depth program in this study was concerned with painting. It included a variety of media enriched by slides, films. The study began with each child producing two paintings on a common motivation. These were used to determine the individual and group beginning levels of performance prior to the treatment.

During the months that followed a full set of the students' art work was evaluated to determine progress, regression or no change. They were evaluated according to spontaneity and aesthetic quality. These two were referred to as the "Art Quality". The Ideational Self-determination Test, including Barron's Complexity Measure and Beittel's Art Appreciation Test, as revised by Burkhart and Kincaid, were also used as evaluation measures.

The results or findings: There was a significant drop for all groups in the measures of personality structure. It has already been noted that a drop occurs also at the fourth grade level.

It was found that the depth group registered significant gains in aesthetic quality while the other groups did not. Also, the depth group gained in spontaneity while the breadth group lost significantly.

In the final analysis the depth group differed significantly from the breadth and the control groups in six out of eight comparisons and all changes were in the expected direction. In one out of four instances the breadth exceeded the control group.

It was found that progress could only be determined after several art activities, at least twelve were needed to note any improvement.

Summarizing, they found that the breadth method was the most popular, but the depth method showed the greatest gains over a one-year period. Data indicated students preferred a variety of experiences and this may have lessened the gains in the depth method over what they might have been if the students preferred this method.

It was recommended to start even earlier than ninth grade in engaging in sustained long-term projects of depth with less yielding to their demands for variety.

As a whole there still is not much knowledge at this time as to how depth versus a breadth method of teaching relate to the learning process. Further research is needed in this area. But teachers, in the meantime, do need to give serious thought

to selection of activities and motivation.

Teachers need to learn that some children have visual tendencies while others have non-visual tendencies. Some have a spontaneous approach to working while others are more deliberate.

According to Wold and Hastie⁶⁰ a good art experience should contribute to the development of creativity. The nature of the discipline, the way it is learned, and the psychological climate in which the school art activity takes place are conducive to the growth of creativeness within a learner.

There are several steps to successful art teaching and the way it is learned. A teacher must have certain knowledge and skills to be successful. Gaitskell⁹ lists the following steps for successful teaching:

1. Motivation -

This builds on past experiences. If a child is uninterested he will fail to profit from the activity.

2. Isolating and Defining a Theme -

Find a theme of interest to all the class.

3. Establishing Goals -

Help a child by clarifying a thought or finding a theme of interest.

4. Teaching -

Teaching is concerned with the enlargement of a

theme; with the use of tools and media, and with composition or design.

Any one of these steps is open to research and further study. From the lack of studies in art education there is evidence of a great need in these areas. This particular study conducted by the researcher investigates only one step - the teaching of media - in the overall development of creativity.

The last step in any art activity is the evaluation or judging of the children's art work.

Judging Children's Art

Evaluation of children's art has been a problem. In the schools a grade in art is almost always required. Logan¹⁶ pointed out that there were no short cuts in the way of tests or measurements to determine aesthetic powers or sensitivities. Logan quoted Thomas Munro as indicating that gradually some of the component abilities necessary in art may be identified, but we have a long way to go before we can definitely say that one person has more art ability than the next.

Lowenfeld,¹⁸ frowns on evaluation except to gain insight into a child's growth. He criticises those who evaluate only by external aesthetic criteria, the way a creative product "looks", its design quality, its colors, shapes, and their relationships. Lowenfeld says "This is unjust not only to

the creative product but even more to the child." Aesthetic growth, although important, constitutes only one fraction of the total growth of the child.

Conrad³ stated that evaluation criteria varied for each group of children and that it should fit the philosophy of education that guides each particular school. These should also be based on the needs of the children. Conrad further stated that children need to discuss and establish their own criteria. The criteria should be in these three large areas:

1. attitudes
2. knowledges (materials, tools and processes)
3. habits and skills

Lowenfeld¹⁸ listed the following components of growth in creativity:

1. Emotional growth

If individual satisfaction grows out of a feeling of achievement, if it is the result of one's ability to cope with a situation actively, it is a vital human experience which greatly contributes to the acquisition of self-confidence and happiness in life.

2. Intellectual growth

This is seen in the child's growing awareness of himself and his environment.

3. Physical growth

This is seen in his capacity for visual and motor

coordination; in the way in which he guides the line, controls his body, and performs his skills.

4. Perceptual growth

This can be seen in the child's increasing awareness and use of kinesthetic experiences, from the simple uncontrolled body movements during scribbling to the most complex coordination of arm and linear movements in artistic production.

5. Social growth

This can be learned in creativity actively by learning to assume responsibility for what he is doing.

6. Aesthetic growth

Herbert Read calls "aesthetic education" the education of those senses upon which consciousness, and ultimately the intelligence and judgment of the human individual are based.

7. Creative growth

In child art creative growth manifests itself in the independent and original approach the child shows in his work.

Scales and Criteria Devised in Various Studies

Developing a rating scale for the evaluation of children's art work has proved to be a problem. Art educators are not in agreement on what constitutes creativity in children's art.

Ronald Neperud⁵¹ conducted a study involving 178 fifth graders to determine if instruction about visual elements would be reflected in changes in children's drawings. Neperud judged drawings at the beginning, middle and end of the lessons. He devised an eight point rating scale, but he did not elaborate on what criteria he used in his evaluations.

Leon Frankston's³⁹ study on the depth approach was to determine the effect of two art programs (self developed and prescribed) and to compare the effect of two methods of teaching (spontaneous and divergent) on adolescents. This study involved sixty students from ages 13 to 17. The best of three drawings of each study was evaluated by a team of three judges. A three point scale was used (high - medium - low) with each evaluated for aesthetic quality, divergent art strategy and spontaneous art strategy.

Donald Gordon's⁴¹ study involved a group of experts and a group of laymen to determine how to separate good quality art from poor quality. This study involved ten oil paintings, five abstract and five realistic. The paintings were ranked on a five point scale and then the judges were asked to explain why they ranked the paintings as they did. The determinants of excellence found were: color, form, composition, texture, shading and lighting, technique in general, style conception, mood and content.

In the study conducted by Brittain and Beittel,³⁴ sixty-five art students were involved with their work being judged

by ten experts as to high and low in quality. The high level were said to have variety of texture and form. They had negative space as part of the overall design. They seemed to have a quality of spontaneity and had a feeling for visual tension and portrayed the essence of a mood or a feeling. The middle level tended to have a feeling of tightness in the forms or a careful application of design principles. Their constructions were designed as a single unit with the mood or theme portrayed clearly shown. The low quality drawings were linear and tended toward symmetrical arrangements and looked situational or sentimental. The lows seemed to have a sparsity of ideas and the forms were often isolated and had almost a schematic quality.

Paul Edmonston³⁸ pointed out that in the Brittain-Beittel study the judges showed preference for products indicating high spontaneity of approach and high level involvement in the process.

Edmonston³⁸ also indicated that in the Lark-Horovitz⁴⁷ study the judges preferred works which had characteristics termed "spontaneity, visual tension, motion related to assymetry, visual tension and motion related to assymetry and flexible organization."

These two studies both found that the judges preferred the spontaneous approach, but as Edmonston stated, there are famous artists who also use the deliberate approach and these

are also creative.

Robert C. Burkhardt² commented that in the past a method of sorting pictures from high to low, called a Gestalt or total judgment method has been used to evaluate art products. The method was used to develop a visual art scale which thirty art teachers developed. This was conducted in a study by Michael and their ordering was so close that it was concluded that this scale represented the standards of trained art educators. This visual scale was improved upon for instructional and research use by breaking it down into four groups representative of the spontaneous and deliberate high and low students.

Previous studies (Michael and Burkhardt³⁶) tended to mix spontaneous and deliberate types of art work into one large group, but later found evaluations proved to be self contradictory. Some students were highly original but worked in a deliberate manner. Whereas, others were highly flexible but still very originative. Thus, it was decided to separate spontaneous and deliberate type students and rate these from high to low. The various characteristics of spontaneous and deliberate handling are as follows:

Spontaneous Handling

Blurred or rough contours

Active or dynamic handling

Bold or rugged surfaces

Loose and free forms

Variety in the use of detail

Flexibility in the treatment of the whole

Functional use of the white of the paper

Deliberate Handling

Sharp or clean contours

Static or rigid handling

Redefined or polished surfaces

Tight or restricted forms

Repetition in use of details

Rigidity in treatment of the whole

Full coverage of the paper surface

Spontaneous handling is defined in terms of freedom or ease in movement in the use of materials and rendering of forms. It is fluid or unpremeditated art. It develops with speed and variety of movement. Strokes are various, some sensitive and delicate, others bold and vigorous. There is texture. Poor spontaneous work will look clumsy and messy.

Deliberate handling is a stiffness in the handling of the total work, of the placement, and treatment of the material. There is a degree of rigidity and in good work it is deliberate in the classical sense rather than simply rigid.

Scale

SH +	Spontaneous High Plus
SH -	Spontaneous High Minus
SL +	Spontaneous Low Plus

SL -	Spontaneous Low Minus
DH +	Deliberate High Plus
DH -	Deliberate High Minus
DL +	Deliberate Low Plus
DL -	Deliberate Low Minus

Nitschke and Burkhart² also developed the Eight Analytical Visual-Verbal Judgment Scales. Most of these are related to Spontaneity. High use of variety of materials, exaggeration of forms and dramatic contrasts are signs of good quality work.

Deliberate may be high in quality, even with a low use of variety in materials, exaggeration of forms, dramatic contrasts, complexity and gradation of values and nonspatial, but they do have a high degree of variety in shapes, patterns and organizational unity. These works should be considered high in art quality as they are related to the more restrained abstract and nonrepresentational design movements of our time. Low in variety of shapes and patterns, and organizational unity are simply poor.

Gloria Bernheim³² pointed out in her report that Beittel and Burkhart found that pictures could be judged by using a continuum of good to bad, but several problems arose over the method. Beittel did another study and reported these findings:

- 1.) the kind of spontaneous judgment a judge makes on a given art product depends greatly upon the kind of personality characteristics he himself has and
- 2.) the kind of aesthetic judgment he makes is highly

correlated with the kind of art product he produces, the amount of training he has had and his level of sophistication.

Finding a suitable criteria for judgment of art products is a vital concern of art educators stated Norma Trowbridge⁵⁹. She conducted a study to develop a useful criterion for creativity in children through evaluation of their art products. This study also attempted to determine whether there was any agreement between competent art judges.

Three art judges in art education were used. The three judges accepted a widely held view of creativity that it embodies two basic concepts: (1) the new, novel or unusual (2) the apt, appropriate or valuable. Each judge within this framework was permitted to use his own definition of what he considered creative. This study used a one to eleven scale for scoring creativity. A similar scale was also used to determine technical competence. Agreement between judges was .74.

In addition to scales to determine the amount of creativity which are devised by researchers, tests have also been created as a means of identifying creativity in art work.

The Graves Design Judgment Test consists of 90 sets of two or three abstract designs and tests eight art principles: unity, dominance, variety, balance, continuity, symmetry, proportion and rhythm.

The Meier Art Judgment Test is similar but includes subject matter. Neither of the above tests touches upon variables as color or surface texture or media in three dimensions.

Thomas⁵⁷ mentioned several shortcomings of these tests such as measures of art ability need to be found that can be adapted to different schools or philosophies. So far artists disagree on what is good art.

E. W. Rannells⁵⁵ criticised present tests as being slanted to determine a student's ability in a particular interpretation of art work, such as the neatness and precision needed in advertising. A student may excel in that area but his creativity may be nil.

Rannells⁵⁵ and Munro both criticized the test makers of not being even aware of a tenth of the aesthetic qualities they are supposed to be measuring.

Summary of the Review of Literature

In conclusion it has been pointed out by Brittain³³ and others that creativity is to be encouraged in all areas of endeavor, including art. Creativity is needed to develop a well adjusted person socially. Therefore, studies are needed to determine the best educational practices needed to develop creativity in children.

One method for teaching art has been to go into a depth

study of one medium. Leon Frankston⁴⁰ conducted a study on the depth approach. He found that the depth approach had more significant gains in developing creativity than the more diversified breadth approach. His study involved 60 students, ages 13 to 17. A team of three judges evaluated drawings on a 3 point scale (high - medium - low).

Kenneth Beittel and Edward Mattil³¹ also conducted a study on the effect of a depth versus a breadth method for teaching art. Their study in depth involved related experiences in a similar medium with the breadth utilizing a variety of experiences and media. These groups were compared with a control group. The basis for comparisons was on mean gains and losses on the spontaneity and aesthetic quality of the pupil's art work. The Ideational Self-Determination Test, including Barron's Complexity Measure and Beittel's Art Appreciation Test as revised by Burkhart and Kincaid were used as evaluation measures. It was found that the depth group registered significant gains in aesthetic quality while the other groups did not. Also, the depth group gained in spontaneity while the breadth group lost significantly.

These two studies by Frankston and by Beittel and Mattil are about the only research conducted on the depth method of teaching art versus the breadth approach. Therefore, this study endeavored to add to the present research.

There were several studies on evaluating art which was also a major concern of this study. Burkhart's² characteristics

for spontaneous and deliberate approaches were used in this study with some modifications.

Donald Gordon's⁴¹ study had paintings ranked on a five point scale. Criteria for evaluation included color, form, composition, texture, shading and lighting, technique, style, mood and content.

Norma Trowbridge's⁵⁹ study involved a scale of one to eleven for scoring creativity.

After reading the various studies and their methods for scoring it was determined to use a five point scale in this study for each of the criteria.

Norma Trowbridge also determined to find if there was any degree of agreement between judges. Agreement between judges was .74 in her study.

This was another aspect of this study, to determine if there was any agreement between the judges, and also to determine the degree of agreement of each judge from the pre-test to the post-test.

CHAPTER II
METHOD OF ATTACK

PROCEDURES EMPLOYED

Subjects of the Study

Two sixth grade classes in a lower middle class caucasian school in a city of the southwest (Albuquerque) were used in this study, thereby using a cluster sample. This researcher recognized the limitations of this kind of sample, although the classes had been previously equalized as to academic ability. The mean I.Q. for the control group was 103, and for the experimental group - 102. These students came from lower class and lower middle class families. Due to absences and students moving, the final subjects in the study consisted of fourteen in the experimental group and twenty in the control group, making a total of thirty four students.

Description of the Design

The design consisted of twelve lessons, including a pre-test and a post-test in design. The lessons for both groups were conducted, on an average, of one hour per week for each group. The researcher tried to keep the motivation for both groups as similar as possible in order that the variable motivation would not influence the results of this study.

The control group received lessons in a wide variety

of media and motivational experiences. Whereas, the experimental group received lessons involving one basic medium: paper, with a variety of motivational experiences.

These lessons were based mainly on designs with the main motivation consisting of demonstrations and discussion. This was similar to the lessons presented to the control group. There was one basic difference in the lessons presented to the two groups and that consisted of the media. Paper in various forms, and using it in different ways, constituted the medium for the activities of the experimental group.

SOURCES OF DATA

After completion of the lessons the designs were mounted on construction paper backgrounds to remove all names in order that sex or name of the student would not influence the judges' ratings. This researcher did keep a list of who did create each design and their corresponding number. The designs were numbered one through thirty-four for the pre-test and thirty-five through sixty-eight for the post-test. Numbers one through twenty and thirty-five through fifty-four belonged to the control group, and numbers twenty-one through thirty-four and fifty-five through sixty-eight were the experimental group's designs. The judges were not aware of which numbers belonged to which group or which designs were the pre-test or post-test.

The judges for this study included two elementary education

educators teaching in the Albuquerque Public Schools, and two art education educators teaching at the University of New Mexico.

Data Gathering Instruments

Various criteria are suggested by many educators to evaluate children's art, as was pointed out in the review of the literature.

For this study a five point scale was selected from Very Poor to Excellent. Each design was rated on eleven different criteria with each criteria being rated on this five point scale. The eleven points used for evaluating each design are as follows:

Deliberate Approach

1. sharp or clean edges
2. careful or precise handling of the media
3. smooth or polished surfaces
4. tight or restricted forms, evidence of care in drawing shapes and lines

Spontaneous Approach

5. blurred or rough edges
6. loose and bold handling of the media
7. rough and rugged surfaces
8. loose and free forms and lines, evidence of not being pre-planned

Criteria for Both Approaches

9. functional and full coverage of paper surface making the background a part of the overall design
10. variety in size of shapes with at least one-third different in size
11. use of overlapping shapes with at least two-thirds of the shapes overlapping

These criteria were taken from Burkhart's² suggestions for evaluating art, with some additions. As both spontaneous and deliberate approaches may result in creative work, both of these approaches were included in the rating sheets. See the appendix for an example of the rating sheet used in this study.

A correlation was conducted to determine the reliability of these criteria.

CHAPTER III

PRESENTATION AND ANALYSIS OF EVIDENCE

The main purpose of this study was to determine if there was any significant gain in creativity of the experimental group over the control group. To determine this gain, if any, an analysis of covariance was taken from the raw scores given by each of the four raters for each of the eleven criteria utilized in rating these designs.

Analysis of the first variable, the sum of the scores of the pre-test, gave an F score of 4.1. The second variable, the sum of the post test scores, had an F score of 4.3. This was a definite gain, significant at the 5% level. This shows, that according to the raters using the suggested criteria for judging, the post-test or follow-up lesson did show a significant gain in creativity. The judges did not know which set of designs were completed after the lessons. Therefore, their ratings were not based on prior knowledge that the set that they gave higher ratings to were the designs completed last.

This does indicate that there was an improvement in the overall designs according to the ratings of the judges. This improvement may also be attributed to a difference in pre-test and post-test lessons. The medium was the same, but the children seemed to enjoy the final activity much more as they were not restricted as much. The first lesson involved certain

geometric shapes and one color. The final activity involved rubbing objects by experimentation. The shapes cut were of any desired shape and they were not limited as to colors. Therefore, this improvement may not be due so much to the lessons taught in between the pre-test and post-test, but rather to the type of culminating activity.

An analysis of covariance of the sum of the scores of the pre-test and the post-test gave an F score of 3.91. This score was significant at the 5% level which rejects the null hypothesis. This F score indicated that the experimental group had a significant gain in creativity over the control group.

TABLE I

Mean Scores and Standard Deviation of Pre-Test of Experimental and Control Classes			
	N*	Means of pre scores	Standard deviation
Control Group	220	12.42	2.42
Experimental Group	154	12.60	2.95

* N=number of scores processed

TABLE II

Mean Scores, Standard Deviation and Adjusted Post Means of Post Test of Experimental and Control Classes with Covariance of Pre Scores with Post Scores				
	Means of Post Scores	Standard Deviation	Adjusted Post Means	F
Control Group	12.83	2.85	12.86	3.91
Experimental Group	13.45	2.88	13.40	

The mean scores of both groups were almost the same on the pre-test which showed the groups to be about the same at the start of the lessons. Scores for both groups were higher on the post-test with a significant gain of the experimental group. As was pointed out before, this had a 5% level of significance thereby rejecting the null hypothesis.

Another aspect of this study involved the criteria used by the judges to determine the degree of creativity of each design. These criteria were taken basically from Burkhart's² set of suggested criteria for grading children's art. To these were added three points relative to these particular designs.

A correlation was taken comparing the scores of each of the four judges with each other to determine the inter-rater reliability. This would give some indication of the reliability of these criteria as a means for judging children's art.

TABLE III

Correlation Coefficients Showing Judges Ratings on Pre-Test and Post-Test		
Raters	Pre-Test	Post-Test
1 with 2	.11	.26
1 with 3	.39	.38
1 with 4	.54	.45
2 with 3	.14	.18
2 with 4	.17	.28
3 with 4	.12	.46

After finding the median score of the pre-test correlations

and post-test correlations and applying the Spearman-Brown prophecy formula of $r_{(new)} = \frac{rk}{1 + r(k-1)}$ the following reliability was obtained:

TABLE IV

Interrater Reliability of Pre-Test and Post-Test Correlations			
Pre-Test		Post-Test	
Median Score	New Reliability	Median Score	New Reliability
.16	.43	.33	.66

From these coefficients it was evident that there was some agreement among the judges. There was a closer agreement on the post-test than on the pre-test. This data further supports the rejection of the null hypothesis.

Establishing criteria for judging children's art was difficult and the lack of significant interrater reliability shows this. Some educators have mentioned the difficulty of setting down a set of rules for grading creative efforts. These are subjective in nature and everyone has his own set of likes and dislikes due to his environment, his educational background and his own temperament. Another difficulty expressed by the judges was the criteria for both spontaneous and deliberate approaches. This proved confusing. The

criteria should have been more in behavioral terms with perhaps fewer points on which to grade.

As a matter of curiosity the intrarater reliability was also determined to see if there was any agreement of each judge between the pre-test and post-test.

TABLE V

Correlation Coefficients Showing Intrarater Reliability Ratings on the Pre-Test and Post-Test	
Judge	Pre-Test, Post-Test
1 with 1	.30
2 with 2	.09
3 with 3	-.03
4 with 4	.59

According to these coefficients there was very little agreement as to how to judge children's designs consistently even among each judge. Judges numbered 1 and 4 showed the most consistency.

From the above correlations it is shown that these criteria were lacking in significant reliability, and for future studies it would be advisable to revise and develop a different set of criteria.

The data in this study provided inconclusive evidence

as to the desirability of concentrating on one medium to increase creativity. Of course it is understood that more than one study is needed to substantiate any certain method of teaching.

From the data there was an indication that perhaps concentration on one medium was a more effective way of teaching art to upper grade children. Yet, a better and more accurate means for judging children's art needs to be developed.

CHAPTER IV

SUMMARY AND CONCLUSIONS

BRIEF RESTATEMENT OF PROBLEM AND PROCEDURES

This study was conducted in an effort to determine whether going into depth or conducting a series of lessons involving one medium would develop greater creativity on the part of sixth grade children, or if it was more desirable to have a variety of materials as recommended by Viktor Lowenfeld and other leading art educators.

The second purpose of this study was to develop a means for judging children's art in a consistent manner through the development of a set of criteria. The reliability of these criteria were then determined by obtaining a correlation on the judges scores.

Two sixth grade classes in a lower middle class caucasian school in a city of the southwest (Albuquerque) were involved in this study. The classes were previously determined in order to have equal amounts of abilities in all the classes. Therefore, this researcher did not have any selection in the students used.

These two classes each received a series of twelve lessons, including the lessons consisting of the pre-test and post-test. The control group received a variety of lessons in subject matter and media with an emphasis on the basics of design. The experimental group also had a variety of lessons in subject

matter, but paper was the only medium used for the lessons. Again the emphasis was on design.

A set of designs (the same lesson for both classes) was obtained at the beginning and at the end of the lessons. The designs were then judged by four raters as to their degree of creativity, using a specified set of criteria.

Two of the judges were elementary education teachers with the other two judges being art educators from the University of New Mexico. Each judge evaluated each design on eleven criteria. Each criteria was rated on a five point scale from Very Poor to Excellent. (See Appendix for example of rating sheet).

FINDINGS AND CONCLUSIONS

From the data received it was found that both groups definitely gained in creativity according to the judges evaluations.

Taking an analysis of covariance of the pre-test scores covaried with the post-test scores gave a mean increase of 0.85 ($F=3.91$). This was significant at the .05 level of significance, thus the null hypothesis was rejected. This indicated a significant gain of improvement in creativity of the experimental group over the control group. This significance could be due to several factors. It may indicate that concentrating on one medium, or going into depth

does produce greater creativity in children than varied activities or a breadth program. But, since the reliability of the criteria used in judging lacked an adequate level of significance this data was also not reliable. Another variable involved is the fact that the experimental group was this researcher's own class and this may account for the significant difference.

Correlation coefficients were obtained to determine the interrater reliability using the criteria selected. It was found that there was a small degree of agreement among the judges, but this was not significant. Thus, the criteria selected were not adequate as a means of judging children's art. There was very little reliability among each judge from the pre-test to the post-test. Therefore, the null hypothesis was not rejected.

In conclusion, it was evident that these criteria were not adequate for judging children's art. They needed to be stated in more behavioral terms so that each judge would judge more alike. This may prove difficult. According to Thomas⁵⁷ artists have yet to agree on what is good art. The shortcomings of present grading systems are pointed out in the review of literature.

Future studies are definitely needed in this area of methodology as very little has been done. What studies there are differ widely as to what are the best methods for developing creativity in children. Educators agree that developing

creativity is of leading importance to the development of a fully educated individual in our society today. It is also vitally necessary for the preservation of our civilization. Therefore, more studies and research is needed in this field.

This study further indicated the possibility that the "depth" method may be significantly superior to the "breadth" method in developing creativity, but a more adequate set of criteria are needed for more reliability in judging the children's art in order to determine more accurately this gain in creativity.

From the results of this study and by reading research conducted by others, the direction of further research needs to be in determining how evaluations can be made of children's art in a consistent manner. Until this is accomplished it will be exceedingly difficult to conduct significant research in methodology when there are weaknesses in the measurement of creative efforts.

APPENDIX

MOTIVATION AND PROCEDURES FOR CONTROL GROUP'S ACTIVITIES

Pre-lesson or Pre-test:

Motivation: There was a discussion of the basic geometric shapes and the use of lines in an overall design. Included in this discussion was where design is used today. The various intensities of color were shown by examples.

Procedures: Each child created an overall design using geometric shapes. Only one color was used in varying degrees of intensity.

Lesson One: Crayon Etching

Motivation: The effects of rubbing over various surfaces was demonstrated. Children suggested ideas for surfaces. Making their own surface texture out of tagboard was suggested for this activity.

Procedure: A piece of tagboard was completely covered heavily with crayon. Next, the whole surface was completely colored over with a dark crayon and then scratched to let the underlying colors show through. The shapes of tagboard were placed underneath while scratching so that the shapes would appear.

Lesson Two: Paper Strip Designs

Motivation: The elements of design were reviewed, such

as balance and using all of the paper surface. The children were asked to explain of what the third dimension consisted in comparison with a flat surface.

Procedure: Strips of $\frac{1}{2}$ " tagboard were stood on edge and glued to a background of construction paper. The children were encouraged to curl, fold, bend or twist the strips. After experimenting and arranging them in various ways they were then glued in place.

Lesson Three: Stenciling

Motivation: The children discussed, from previous experiences with chalk, their understanding of the attributes of chalk. There was a demonstration on how chalk could be applied to a surface by brushing with cotton. Again the basic principles of good design were reviewed.

Procedure: Chalk was rubbed on a piece of paper towel. Then cotton balls were used to dust the chalk powder onto the design. Shapes were cut from squares of tagboard and then arranged on a background of construction paper. The cotton with chalk on it was to be brushed away from the stencil. The stencil could be moved to create overlapping designs.

Lesson Four: Toothpick Sculpture

Motivation: Children love to build and construct.

Therefore, not much motivation was needed to encourage them to build in depth. They did need guidance to keep them from building stereotyped items such as houses. Constant attention was needed for this activity in order to create an awareness to the spaces they were creating.

Procedure: Toothpicks were used by gluing ends together to build a three dimensional sculpture. It was built upon waxed paper to prevent being stuck to desks. Later tissue paper was applied to certain areas created by the toothpicks. The final product was either sprayed or varnished.

Lesson Five: Analagous Designs

Motivation: A review was undertaken again on the attributes of chalk and their ability to blend easily. There was a discussion of color and their order, blending from one color to the next. This lesson also included a discussion of the primary and secondary colors.

Procedure: The students picked about five pieces of chalk that were analagous colors. These were applied heavily to white construction paper (8½" X 11"). Then shapes of various size and shape were cut from this chalked paper and arranged on a dark background to create an overall design.

Lesson Six: Seed Mosaics

Motivation: This activity was not announced in advance due to the tendency for children to copy from another picture. Preceding the activity was a discussion of what subjects would be good for a mosaic. Realistic and abstract were both encouraged.

Procedure: On a piece of cardboard (8½" X 11") the student sketched his design or drawing. Then, using a variety of seeds, beans, corn, rice, in various colors, these were arranged and glued to create a mosaic. When finished the surface was varnished.

Lesson Seven: Tagboard Sculpture

Motivation: Again there was a discussion on three dimensional objects and the spaces and areas that could be created. The class looked over some of their toothpick sculptures pointing out why some were better than others.

Procedure: Tagboard was the medium for this activity. Shapes were cut with slits. The slits were used to fasten one shape to another, thus building a three dimensional structure. Some of the shapes were covered with colored poster paper or punched with holes to create other interesting effects to the sculpture.

Lesson Eight: Thread Designs

Motivation: This lesson introduced a new medium not often used, a needle and thread. It was shown on

the board how geometric shapes with curved areas could be made from a series of straight lines. The students were fascinated by this rather puzzling activity.

Procedure: Tagboard was used for a foundation surface. Points were then plotted about $1/8$ " apart in two directions. Using the needle and thread these points were connected, allowing each thread to cross over the preceding thread thus creating some very unusual designs.

Lesson Nine: Crayon Batik

Motivation: Malaya has a process for making tapa cloth and this was discussed with the class. Again the basic elements of good design were discussed.

Procedure: A piece of brown butcher paper was crumpled and rubbed until it was soft and pliable like cloth. Crayon designs were then applied to create an overall design. These were then ironed in to create a batik effect.

Lesson Ten: Line Designs

Motivation: Scribble designs were demonstrated on the board and how various shapes could be created with a loose free movement of a crayon. The use of the whole paper surface was again emphasized.

Procedure: Using a background of colored construction paper ($4\frac{1}{4}$ " X 11") a design was created by scribbling

with a crayon. The areas created were then colored in with various colors of crayon. The final step involved outlining the shapes created with white string to make the design more distinct.

Final Lesson or Post Test

Motivation: There was a review of lesson one and the experiences in that lesson on the effects of rubbing crayon on paper over a rough surface. Again various surfaces were suggested that would produce some unusual effects.

Procedure: Each student was given three pieces of paper and encouraged to go all over the room rubbing various surfaces with different colors of crayon. Then various shapes were cut from the different crayon textures and arranged on a background of construction paper.

This series of lessons consisted of lessons on design with a variety of media being presented. The various media included: crayon, tagboard, construction paper, seeds or beans, toothpicks, chalk, tissue paper, butcher paper, needle and thread. The main motivation for the lessons consisted of a demonstration and discussion before the students tried the activity.

MOTIVATION AND PROCEDURES FOR
EXPERIMENTAL GROUP'S ACTIVITIES

Pre Lesson or Pre-Test:

Motivation: This was as identical as possible to the lesson given to the control group except that it was done the following day.

Lesson One: Tissue Paper Designs

Motivation: It was discussed that they were going to have several lessons to learn many different ways of working with paper with design being the basis for subject matter. The class suggested different kinds of paper that could be used. Tissue paper was selected for this first activity. Each child was given a piece of tissue paper and asked what could be done with it to create a design. They found it could be crumpled, rolled, twisted and overlapped to create new colors.

Procedure: After experimentation each child created a design with tissue paper on construction paper. Some kept a two dimensional effect, whereas others created depth through twisting and folding. The full coverage of the paper surface was emphasized.

Lesson Two: Papier-mache' Masks

Motivation: As this lesson occurred at Halloween time, the desire to make masks was not hard to develop.

It was further pointed out that this was another way to use paper.

Procedure: A frame of newspaper was made to fit the face of the child. Crumpled newspaper was placed inside. Next two to three layers of newspaper strips dipped in wheat paste were arranged over the surface. Facial features were emphasized by the placing of more wadded up newspaper underneath the strips. The finished masks included being painted with tempera with yarn added for hair.

Lesson Three: Paper Mosaics

Motivation: Our class had been selected to make a real 3 ft. by 5 ft. mosaic out of tiles for the new library. Before work could begin on that, a design needed to be created and selected, so this lesson was more of a contest. Each child was to create a small mosaic in paper. Then one would be selected later for the large mosaic. Again it was pointed out that paper was being used in yet another way.

Procedure: Small squares of construction paper were previously cut and students could come to the table and take whatever colors they needed. Some tried designs while others tried a more realistic approach gluing the small squares to create a mosaic.

Lesson Four: Tissue Paper Stained Glass Designs

Motivation: There was a general review of the characteristics of tissue paper and also how light can shine through. It was also pointed out how light shining through two overlapping colors creates a new color.

Procedure: Two pieces of construction paper (4 $\frac{1}{4}$ " X 11") were given to each child. These were to be cut identically with various shapes. Tissue paper of various colors were then arranged between these two construction paper frames and glued. All of them were arranged on the windows to allow the light to filter through.

Lesson Five: Tissue Paper on Bottles

Motivation: Christmas was coming and this was an idea for presents. Tissue paper was again the medium with the use of light for added effects.

Procedure: Each child brought a clear bottle with an interesting shape. Small pieces of tissue paper were glued onto the bottle overlapping each other. When finished a coat of polyvinyl acetate was added for luster. Light, again shone through to make a very attractive bottle or vase.

Lesson Six: Papier-maché Animals

Motivation: Children like to work in three dimensions. Therefore, they were very eager to begin working with papier-maché. We had already had one lesson

in papier-maché so rules were reviewed. Animals were suggested as subject matter with a demonstration preceding the activity.

Procedure: Rolled newspaper tied and secured into shape served as the foundation for the animals. Next strips of newspaper dipped into paste were applied (about three layers). The final animal was then painted, varnished and decorated with yarn, buttons, etc. as desired.

Lesson Seven: Paper Flowers

Motivation: It was our class's turn to decorate the cafeteria, so flowers were suggested for the tables.

Procedure: Crepe paper was used as the medium. Heart shaped petals were cut and rolled on pencils. They were slid off the pencils by crumpling. These were then arranged on the end of a wire later bound with green crepe paper.

Lesson Eight: Woven Designs

Motivation: First there was a general review of all the different things they had created so far with paper. They also discussed how and what kind of paper was used in each case. This time construction paper was to be used in only two dimensions.

Procedure: Two or three colors were selected. Each child picked out his own colors. One piece (8½" X 11")

was cut into a series of slits. These did not have to be straight. The other colors were cut into strips and woven through the slits to create an interesting design.

Lesson Nine: Symmetrical Designs

Motivation: First there was a discussion on design and balance. Examples of symmetrical and assymetrical designs were shown followed by a discussion of which they liked best and why. This lesson was to be on symmetrical designs.

Procedure: Construction paper was folded in half and cut (not on fold). When opened up both halves were identical. Several of these were cut in two or three colors. These were then arranged on a background of construction paper, keeping the folds of pieces together so that both halves of the total design were mirror images of each other.

Lesson Ten: Paper Strip Designs

Motivation: The elements of design were again reviewed, such as balance (symmetrical and assymetrical) and using all of the paper surface. They were asked to explain what the third dimension was. Again, it was mentioned that paper was the medium in this activity.

Procedure: Strips of $\frac{1}{2}$ " tagboard were stood on edge and glued to a background of construction paper. The children were encouraged to curl, fold, bend or twist

the strips. After experimenting and arranging them in various ways they were then glued.

Final Lesson or Post-Test

This lesson was as similar as possible to the one taught to the control group.

EVALUATION SHEET OF CHILDREN'S DESIGNS

INTRODUCTION

The evaluation of the accompanying designs is a part of my master's thesis in art education. This is an experimental study comparing the breadth versus the depth approach in the use of media in the sixth grade. Two sixth grade classes were used involving 20 children from one class and 14 from the other. A set of 34 designs was obtained before instruction of 12 lessons began, and another set at the end of the period of instruction, making a total of 68 designs for evaluation.

I will greatly appreciate your help in evaluating these designs according to the following criteria.

PRE AND POST LESSON PROCEDURES

One set of designs, numbers 1 - 34, used crayon as the medium. The students were limited to one color of their own choice. They were to use different values of the same color making an all over design of geometrical shapes.

The other set of designs, numbers 35 - 68, consist of various shapes cut from paper which had previously been rubbed with crayon on different surfaces to create various textural effects. The children were permitted to choose colors and surfaces to rub through experimentation. Shapes were then cut and arranged on a background.

DIRECTIONS FOR EVALUATION

Each design should be evaluated on a five point scale, from very poor to excellent use, for each of the criteria listed. Put an X in the appropriate column which best describes the design for each of the criteria.

Be certain to put the design number for each design above the ratings for that design.

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