The Relationship of Intelligence and Creativity in Kindergarten Children's Easel Paintings

Grace Scheftner Besch
Loyola University Chicago

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THE RELATIONSHIP OF INTELLIGENCE AND CREATIVITY
IN KINDERGARTEN CHILDREN'S EASEL PAINTINGS

by

Grace Scheftner Besch, B.S., M.E., M.A.

A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Philosophy

Department of Education
Loyola University
of Chicago
January, 1966
Grace Besch was born in Milwaukee, Wisconsin, on March 29, 1923. After attending the city's public schools and graduating from the U.S. Grant Elementary School and South Division High School, she entered Milwaukee State Teachers' College in February, 1941. In June, 1944, she received a B.S. degree.

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Having been accepted for work at the doctoral level at Loyola University, Chicago, the writer began this program in June, 1963. A sabbatical leave granted by the Milwaukee public school system made possible full time study during the 1963-64 school year. The degree of Doctor of Philosophy was granted on January 30, 1966.
ACKNOWLEDGMENTS

The writer wishes to express her gratitude to the many persons who assisted in this research, and without whose cooperation the plan would not have moved along as well.

First of all, appreciation is gratefully extended to Mr. Carter N. Frieberg, faculty advisor, Loyola University, Chicago, Illinois, for his understanding and capable and sincere guidance which reassured the writer and gave her encouragement during the last three years. Thanks are also extended to the other members of the dissertation committee: Dr. Samuel Chidekel, Dr. Gerald Gutek, Dr. Samuel Mayo, and Dr. John Wozniak.

To the three professional art education raters: Mr. Kent Anderson, Mrs. Sharon Mida, and Mrs. Joan Schmidt, the author expresses her deepest thanks for their labor of love on behalf of the kindergarten children and the writer.

Without the reliable and interested kindergarten staff and Principal, Mr. Howard Williams, of the Forest Home Avenue School in Milwaukee, Wisconsin, this study would not have progressed. These wonderful co-workers and friends of the writer's are: Mrs. Sharon Mida, Mrs. Ann Falke and Mrs. Helen Regan.

For the many hours of assistance and services offered in writing programs and tabulating data on the IBM machines, a
large debt of gratitude is also offered to Mr. Pat Johnston and Mr. Pat Pierce of the Loyola Data Processing Center.

Finally, the kindergarten children themselves are to be complimented, for they reacted in the happily normal, childlike fashion which one enjoys observing in the five year old as he works and plays with the other children in a natural school setting, and particularly in this case, while completing easel paintings for this research.
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CHAPTER I

THE PROBLEM

Definition of the Problem

It is the purpose of this study to discover the relationship of creativity in kindergarten art expression to intelligence. Easel paintings of morning and afternoon kindergarten children, completed during the free play activity periods, will be evaluated. Relationships between samples of children's paintings and children's intelligence will be determined.

Statement and Delimitation of the Problem

During the last eighteen years the writer has been teaching and observing four and five year olds in every facet of the kindergarten program. However, the area in which the writer has observed significant differences in individual children's works of art is the one in which children appear to express their creativity through non-directed painting during the free play period.

When the child begins to paint objects that can be recognized, he is beginning to think of himself in relation to the space around him. This new trend away from egocentricity and towards becoming part of this new world outside of his home holds great potential for expression through creative art
media. While painting, the child can learn to discover himself in relation to his environment, thus giving him ample opportunity to reflect upon his thinking and the way he is interpreting himself through art.

The intelligence quotients are to be derived from the standardized test used by the Milwaukee public schools for promotion from the kindergarten. Writers in the field of education have studied art programs, the benefits children receive through art media, and creativity revealed through art expression. However, reports concerned with specific kinds of relationships, whether significant or insignificant, between art expression at the kindergarten level and intelligence are few in number.

**Significance of the Problem**

This study of the intelligence and creativity of kindergarten children at this level of the educational ladder is not performed to brand children forever, with the results specified individually as creative or intelligent, but to discover what these relationships may be at this important stage of a child's life. When one cannot yet test him with paper and pencil achievement tests involving reading, nor rely too heavily on verbal responses, the medium of art should be investigated. The child's command of his language is in the early developmental stages and he feels more at ease to react to the familiar activity of painting, to which he had been introduced immediately
upon entrance to the kindergarten.

Along with his general development, this five year old child is still forming his artistic concepts, which are fascinating to try to stabilize through a procedure such as this proposal, in which specimens of individual work are collected and evaluated, along with a measure of his intelligence.

Each one of these processes, the execution of the creative-artistic samples and the intellectual sample keep the educational door wide open for future growth which the alert kindergarten teacher knows will take place. If educators did not trust in the child's growth and change beyond kindergarten, one would not put forth all the effort as a teacher to provide future opportunities for the child's creativity and intelligence to expand throughout the grades.

Objectives of the Study

It is the task of this study to determine:

1. Relationships between intelligence and ratings achieved in creativity as demonstrated in free easel paintings.
2. Relationship between chronological ages and the paintings.
3. Relationship between sex and the paintings.

Further points to determine include:

1. Differences between the creative paintings of children in junior and senior kindergartens.
2. Differences between creative paintings collected at the
beginning and end of the experiment.

In addition it was considered desirable in this investigation to secure answers for the following points:

1. The mean art scores of individuals.
2. An analysis of art scores of the seven basic kindergarten groups.
3. Comparison of art scores by various groups during the study.
4. IQ groups correlated with mean art scores.
5. AM and PM boys and girls classified into IQ groups.
6. Comparison of mental ages and art scores.
7. An analysis of specific parts of the Pinter-Cunningham test with the art scores.

Since the raters of the paintings hold such a responsible position in a study such as this and because their judgment and decisions help build the foundation for the fullest interpretation of the results, the writer thought the data which dealt with individual raters, individual ratings, and a presentation of scores over five marking periods should be included in the findings of this research. Included are:

1. Mean scores issued by raters throughout the duration of the project.
2. Mean total for the entire period for each rater.
3. The raters' frequency in checking items from each category.
4. Correlations between intelligence, art score and each item of the evaluation sheet.

Summary

It is hoped that this research will make some contribution to better understanding of the similarities and differences found between creative art expression and intelligence. The study will use current methods of measuring the intelligence of kindergarten children and actual art work produced by five year olds.

With almost no direct instruction children gradually acquire astonishing manual dexterity as well as constructive ideas of their own in the execution of their paintings. The type of planning, support and stimulus provided to a limited extent by the adults, parents and teachers, makes a difference in the degree to which children proceed in growth of their individual efforts.

Children continue to develop in an atmosphere of acceptance, encouragement and creativity. During the semester this study was under investigation children responded actively, were stimulated by the teachers' continued interest in individuals as well as groups, and generally worked exceptionally well with their peers in other areas of the kindergarten curriculum.
CHAPTER II

THE ART PROGRAM IN RELATION TO THE TOTAL KINDERGARTEN CURRICULUM

Until recent years art in the kindergarten was little more than a rote process. Children learned to copy, to color inside lines, to work from patterns, and to draw what they were told. Today, art in the kindergarten has changed, becoming an integral part of the curriculum. It is recognized both as an important subject and as an important method of learning. Through art we can teach the process of exploring and experimenting with materials and ideas. The process may be more important than the product. It can help each child become aware of his environment, express his own thinking and ideas, adapt to new experiences, develop perceptual skills, and gain in self awareness.

Kindergarten children vary in their creative abilities. Some children are in the manipulative stage in which they experiment with art materials. They show little motor control, no conscious use of color or representation of objects. Other children may use only simple forms to represent objects. They may use color with little regard to the subject. A few children may use definite symbols and colors to represent objects and
ideas. In any kindergarten group there will be children in each of these three stages working with art media.

A good kindergarten art program is planned to meet the creative needs of children. The creative impulse in each child can be released when:

a) a variety of art materials is easily accessible to the children
b) new art materials are introduced gradually
c) many experiences are used to stimulate creative effort
d) exploration of materials is encouraged
e) creative efforts are guided - not forced or criticized
f) individual styles of art are accepted
g) art products are praised and displayed.

The writer will attempt to show ways through which the kindergarten art program as well as the entire kindergarten program is critically viewed. Art is a subject that integrates very effectively with other facets of the kindergarten program.

Over two hundred years ago, Rousseau wrote in the Emile:

I want my pupils to cultivate the art, not so much for the art itself as for the exactness of eye and dexterity of hand it produces. I will take good care therefore not to let him have a drawing master who only gives him copies to reproduce. I do not want him to have any teacher but nature, nor any models but objects. He must have the original thing before his eyes and not a paper representation. He must draw a house from a house, a tree from a tree, a man from a man, so as to get accustomed to the close observation of objects and their appearances.

Teachers' classes are often used as a reflection to see
how well the children are reacting generally to the many provisions each individual teacher has devised to watch the development of children's growth over one, two, and sometimes three semesters' enrollment in kindergarten. Although evaluation of the art program is the primary concern of this chapter, other aspects of the learning process cannot be overlooked. It is especially important to discover where art will fit in the kindergarten program:

1. Begin with a broad over-all look at the kindergarten.
2. Appraisal is somewhat difficult because in the kindergarten one does not find the usual number of achievement tests and other measures of the class's ability.
4. Children sometimes become a gauge to measure teachers.
5. Relationship of teacher and staff should be in harmony.
6. Teacher and administrator should discuss objectives.
7. Together, the above should be evaluated.
8. Cooperation should be planned for, carried out, and broadened between the primary department and the kindergarten.
9. Promotion policy from the kindergarten to the primary grades should be understood by both the teachers and the administrator.
10. Is the child happy?
11. Are the parents cooperative?
12. Toys and equipment and supplies should be chosen in
good taste and with the children's development in
mind. Teacher should have freedom and responsibility
to place orders for materials of educational value.

13. Bring the home environment and the community into the
classrooms by encouraging children's conversation and
bringing treasures from home - and inviting persons
with special hobbies, pets, unusual occupations or
travel experience into the room.

Factors to consider when regarding the kindergarten
art program:

1. Good equipment, materials and space are necessary to
carry on a wholesome, beneficial art program.

2. Are the children responding?

3. Do they show interest?

4. During a directed lesson, do most of the children at
least attempt some work?

5. When free choices are offered, how popular are the
easels, both drawing and painting, the table of odds
and ends, the paste pot, the clay?

6. Do children gravitate towards the paper work more than
the manipulative?

7. How does the teacher encourage these young minds? Stimu­
late self expression?

8. Have emotional problems been alleviated through art
when used as a projective technique?

9. Does the art program have carry-over to:
   a) illustrating stories,
   b) weather work,
   c) holidays,
   d) projects,
   e) daily and seasonal interests?

10. Is art related to units on:
    a) community helpers,
    b) transportation,
    c) good nutrition,
    d) circus,
    e) pets?

11. How are the materials handled?

12. Is the supply ample?

13. Are children taught to use what they need, but not to deliberately waste because of lack of direction?

14. Kindergarten children are capable of contributing decoration to school bulletin boards, located in strategic places throughout the school, such as:
    a) hallways,
    b) cafeterias,
    c) libraries,
    d) nurse's room,
    e) main office,
15. In order to have a vital, dynamic program of art education operating in the kindergarten, there must, of necessity, be mutual understanding on the part of these people:

a) First of all, the teacher and the administrator must present a united front.

b) The art program must not be subjugated for the benefit of the janitor.

c) Children can learn to clean up the room in a satisfactory manner. This is a valuable part of their learning experience.

d) Perhaps at a PTA meeting early in the semester, and through notes to the homes, it should be publicized that the child might get a little "dirty" at times, during the art periods. This is one of the accompaniments of the early weeks of art experimentation with the child showing steady improvement in control of materials.

Children need to be understood and treated as the individuals they are, each with his unique potentialities and rates of growth. Each child has his own background, problems to be solved, specific habits to be formed, and interests and curiosities to be satisfied. The curriculum must reflect these differences among learners. This is important if the essential
democratic value of respect for personality is to be realized. It is important if natural growth trends are to be recognized and if the educational program is to foster the learning process rather than interfere with it or set up additional conflicts for the learner.

Children and youth should be studied to discover their differences, not with the idea that these should be eliminated but with the recognition that much of the richness of living and many of society's significant achievements come from the wealth of diversity in capacity, interest and viewpoint. Those who would aid children and youth in achieving maximum development are faced with the problem of building a flexible curriculum geared to the needs and potentialities of individuals.

Basic to all other considerations is that of seeing each learner as an individual who has needs and problems not exactly like those of others in his group. Norms and averages, helpful though they may be in indicating normal expectancy for any age group, should not conceal the individuals from whom they were derived. Nor will there be an even development of various areas in any one individual. Just as there are differences in rate of growth among individuals so there are differences within the same individual. 3 These differences readily come to fruition in a well planned art program.

The statements above will be emphasized at various times throughout the chapter, for at all grade levels, from nursery school through college, and whether one likes it or not, stu-
dents become measures of teachers' abilities to make subjects vital and worthwhile.

Baruch says the fact that the learning process is never an end in itself, but is primarily an interaction of the whole personality with the total environment, is too often overlooked. Local leadership people, including teachers, face the responsibility of organizing curriculum planning to provide for maximum effective participation of classroom teachers, the general public, and the learners. Teachers and learners work in the very heart of the curriculum process: the teaching-learning situation itself.

If all concerned are to operate in harmony with the dominant aim of education in a democracy, a democratic relationship must exist between teachers and pupils. This hardly can be achieved if the relationship between staff members is undemocratic. When the faculty manifests a mutual concern in problems, then the psychological atmosphere stimulates improvement of practices and arrival at better solutions.

Because testing seldom is done until the child's last semester in kindergarten, just prior to first grade promotion, the only thorough procedure for the teachers of this pre-first grade age group to follow is the evaluation of each item in the program and note the children's reactions.

Some helps for the general program, which eventually also will benefit the art program, and may provide a solution to some
children's problems are:

1. Know what is to be evaluated.
2. Evaluate according to standards set for it alone.
3. Evaluate according to the school's philosophy of education.
4. Use objectives fostered in the community, the school, and the class.

Standards for evaluation:

1. Isolate, describe, evaluate particular problem. Set it aside.
2. What values can be found?
3. Develop criteria for studying problem. Study it.
4. Measure the value. Test it.
5. Modify standards: whether art, music, or physical education.

The public school kindergarten started as a unit which was administered separately from the elementary school. In time, however, as the educational values of the kindergarten were demonstrated, endeavors were begun to make the kindergarten a closely articulated part of the primary unit. Professional literature and curricula treating of unified kindergarten-primary work and similar training for these teachers have aided in integrating this new unit more closely as a part of the elementary school.

Curriculum and related fields are being increasingly
recognized as important areas of study for prospective and practicing educators. The central curriculum council in a school system has the responsibility for planning and coordinating the program of curriculum development. The membership may represent building units, subject-matter groups, or various professional interest groups: teachers, principals, guidance, personnel, coordinators, and others.

In 1929, Alfred North Whitehead severely criticized the curriculum, stating that "nothing" followed from most subjects then offered. Today, "sound curriculum development can be based, and is supported by a host of contemporary thinkers of whom John Dewey is the best known." Criticism of schools such as that above will undoubtedly continue. Kindergarten and its art programs must be prepared to defend its offerings.

Kindergarten is a miniature democratic society where individuals function together and children grow to respect the potentialities of each other. As the child grows older, he gradually becomes more adept physically; at the same time he is beginning to form his personality. "When one is solely responsible for children, then the learnings concerning their physical, mental, social, and emotional growth mean something." Aesthetic development, as discussed in Nolan Kearney's Elementary School Objectives, should help in highlighting the
kindergarten art program:

1. **Knowledge and understanding**

   The child becomes conscious of color, form, arrangement and design in the objects and structures about him, and of descriptive or symbolic representations of people, things, and situations. He recognizes some of the primary and secondary colors, bright and dull colors, gay and drab colors, warm and cool colors. He knows that color tones and hues can be changed by mixing or by applying one over the other. He knows the use of pencils, chalks, crayons, water colors, finger paints.

   He can distinguish pictures of various types: landscapes, portraits, storytelling, imaginary people, animals. He is able to recognize some of the world's greatest paintings. He knows the joy of using clay to express form and shape. Of course these objectives will not all be accomplished in the kindergarten, but it is here that aesthetic development is begun, and is encouraged, to prepare the child for full expression in the elementary grades.

2. **Skill and competence**

   He is able to draw and paint, with some realism and detail, but more important, with satisfaction to himself, the simple things that strike his fancy, such as trees, animals, and human figures. He uses pencils, crayons,
finger paints. He can create simple designs or reproduce them from memory. He can use margins in mountings, in written papers, and so on. He can use clay in simple pottery forms. He can weave simple mats and make simple constructions with paper, cardboard, metal.

3. **Attitude and interest**

The child enjoys attaining skill in graphic art and the crafts. He finds pleasure in color and form. He enjoys expressing himself through rhythm and through all the artistic media. He tends to be critical of his own performances at the same time that he acquires some judgment of quality and an appreciation of beauty.

4. **Action pattern**

The child tends to seek vicarious adventure through books, radio, movies, and television, and to relieve his feelings and tensions through these media as well as through art and other creative work. He tends to carry over his school aesthetic experiences into life outside school.

5. **Determining conditions**

Not all children possess the talent for artistic expression that is of importance to some, but it seems clear that creative activity may play an important role in personal development.

It is necessary that good primary education precede
secondary education. Conant reminds us, in one of his latest books, that back in 1902 Professor Elmer E. Brown of the Theory and Practice department at the University of California wrote as follows:

Primary education is the education for all; which for the sake of the general good, no citizen is permitted to do without. Beyond this is the region of difference, of divergence, and it may be added, of very great uncertainty and dispute. Occasionally one hears the prophecy that what we call secondary education will eventually be an education for all. It is now the lower stage of the education that cannot be for all, and the stage in which differentiation according to the individual's peculiar tastes and capacities, or according to both of these together, finds its beginnings.10

Certain problems in child development present themselves, and their ultimate solutions must be incorporated into the kindergarten program. It is the task of the teacher to help clarify children's needs. Matters concerning subject matter, rest, activity, group participation, traumatic as well as happy experiences, are just a few examples of situations that often arise when a teacher is working with young children. In the kindergarten environment, the foregoing experiences can effectively be carried through to the satisfaction and fulfillment of each individual student. New teachers must sometimes be reminded that kindergarten children are characteristically active. Some large muscles are already developed at four and five years of age, but finer eye and muscle coordination is now in need of conscious control.

The physical dexterity so vital to an art program has
excellent carry-over into another highly important subject. Kelley\textsuperscript{11} says, "Leading reading authorities claim that there is a definite relation between oculomotor or eye-hand control and readiness for reading. In view of this knowledge it becomes the task of the kindergarten teacher to plan readiness experiences conducive to growth in all oculomotor skills." Art, with its many and varied offerings, normally becomes one of the main links with reading.

Kindergarten also aids the child socially. Young children have the need to be wanted, accepted, and loved. They stand at the beginning of their young lives with great curiosity and a good capacity for enjoyment of their surroundings and peer personalities. During these early years the child is reaching out and experimenting socially. Children need the feeling of belonging, which can be fostered naturally through a good program, but mainly through good rapport with their fellow classmates and teachers.

In kindergarten each child should experience recognized achievement. A universal need is success; and in a class with other five year olds, the child can usually find something he can do well, thereby gaining approval from his age-mates. Some children who cannot find satisfaction from thought provoking games, in which the emphasis is mental, or from physical education, in which the emphasis is coordination, for example, will react favorably to the art program.
Further, art can provide something original and stimulating for many children to talk about in an affirmative manner. They need this. Curry\textsuperscript{12} mentions the importance of home and school in building valuable starting points and excellent backgrounds for language growth. In school the child is encouraged to talk as well as listen, to experiment creatively in a natural and casual way. Mothers should be told that (1) the well-informed parent at home should seldom allow strict grammatical rules to interfere with the child's thought when the content is meaningful to him and he should not be distracted from the topic, and (2) children should be given art materials for eye-hand experimentation.

The writer has been appraising ways in which the kindergarten, with its over-all program, plus its special art field, can be useful as well as interesting to the child of four, five and six years of age. Physical surroundings of the school room also affect the child's performance to some extent and so come under the aesthetic domain. There should be adequate provision for him to participate in activities which help him cooperate with others, as well as experiences through which he can conduct himself independently. The latter is carried out especially well in art projects.

No matter how attractive the room may be, it is not satisfactory unless each child can occasionally denote, "I did this well." Equipment and furnishings in the kindergarten pro-
vide many outlets for the child's play and experiments within a group or individually.

Professionally trained kindergarten teachers can develop a curriculum suitable to the local community. Here are some typical situations calling for growth in ability to meet needs for aesthetic expression and appreciation.13

I. Every individual has resources for creative expression
   A. Learn to secure satisfaction from the creative expression of others.
   B. Life is richer, with aesthetic expression and appreciation.
   C. Resources for aesthetic expression and appreciation lie within ourselves and are found in the world around us.
   D. Children should be taught early that creativity and aesthetic appreciation relate not only to music and art, but to all aspects of living.
   E. Children should learn to face life situations with creativity and zest for living.
   F. It is helpful to develop techniques for effective use of media.
   G. Help is also needed in developing the sensitivity and ability to judge that which makes for depth of appreciation.
   H. Emphasis with little children
1. Becoming acquainted with media, or
2. Becoming acquainted with other sources of aesthetic satisfaction.

I. Later, the technique can be extended, insights deepened; however, the creative approach should be retained, for it is basic to all aesthetic expression.

J. Learn to find satisfaction in day by day activities which have countless possibilities for creative expression.

II. Expressing the self through varied media in early childhood

A. Finding sources of aesthetic satisfactions in oneself
   1. Securing materials needed for a given activity
   2. Asking for special crayons, chalk, pencils, paint
   3. Using a blackboard
   4. Deciding what colors to use in painting
   5. Working with clay
   6. Making decisions that affect one's own art project

B. Becoming acquainted with a variety of media
   1. Experimenting with the feel of different kinds of materials
2. Exploring the use of paints, crayons, other sources of color

C. Identifying media that have special appeal
   1. Choosing which individual activity to undertake during free periods
   2. Finding ways in which expression is most satisfying
   3. Having other children express appreciation of efforts

D. Finding which satisfactions can accompany work well done
   1. Satisfied with art expression
   2. Ready to try similar project again
   3. Take the clean-up period in stride
   4. Build upon what has already been done
   5. Experiment to build confidence

Some of the necessary art equipment, such as painting and drawing easels, the clay and fingerpainting tables, and the crayon and paper areas can actually add a good deal of color to a room. Teachers can learn the utility of decoration, as well as art content, in in-service courses which foster a balanced kindergarten. Rooms may be made quite attractive and appealing to children, especially if they can use their free choice of art supplies, to complete their particular contributions.

The kindergarten teacher must remain cognizant of the
fact that the developmental art activities have genuine coordination value, among them the manipulation of brushes, crayons and scissors. "Gazing on beauty is not enough for young children; they are doers and want to be active," states Sheehy.14 Either through large muscular expression or less vigorous tasks, activity is the main source of life in the kindergarten. The aesthetics of art and music aid this activity.

All education must be the servant of the child. The school and community emphasis of recent years aims to bridge the gap between school experiences as against community experiences. The entire range of school personnel, from pupils to superintendents, are influenced in their intraschool behavior by the extra-school factors of social status and social class. Even little children need this feeling of belonging, outside of school as well as inside.

Each kindergarten child's life at home either contributes toward or partially hinders his general development. Adults in the home can assist children to find responsible and enjoyable leisure time activities, however simple, which allow the child to feel that he is part of the family group. Praise, when the child has made an effort, will add to his status. Courtesy shown to all members of the family usually reflects back to the child, and thereby he often reacts similarly through making an effort to respond in the same manner.

Through teachers' kindly persuasion, parents often
generously provide time for the kindergarten child to tell about his daily experiences in school and show various objects of his own creative expression. They should also encourage additional artistic effort undertaken in the home. It would be no task whatsoever to furnish paper, crayons, paint, paste and scissors for their children. In this manner they can enjoy the youngster's enthusiasm together, and the child will eagerly look forward to relating school events to his family, and home fun to his classmates.

Finally, after everyone concerned with the child has given liberally of his time and interest at home and school for listening to and enjoying their child's accomplishments and conversation, they have aided him in his adjustment to home as well as school. This writer feels that the little child's home is really the center of his universe, and therein lie numerous happenings through which the child may bring his home into the kindergarten.

Through the nature of the active kindergarten, one readily sees excellent pictures of the great amount of growth taking place. At this young age, it ordinarily assists the individual child if he can be in a group, living together with his peers, thus adding information that contributes to the formation of his character. Five year old kindergartens are provided to acquaint little children gradually with the various aspects of school life and to furnish equipment and materials
for physical and mental expression. Most important of all is the fact that other children also attend school. Kindergartens thus foster adequate occasions for boys and girls to adjust to their peers and stimulate good social and emotional development.

Now, after the foundation for the full kindergarten program has been laid, it is time to discuss the art program in particular. One should understand the broad kindergarten objectives as well as the specific objectives of the art program. The following remarks will attempt to reveal the kinds of work, both creative and teacher-directed, that the child participates in during the art periods in kindergarten. It is the special responsibility of the elementary administrator to apprise himself of the goals of each part of the kindergarten program - in this case, art, and also be informed about materials and equipment that teachers will need in order to carry out their full programs, which should finally arrive at fulfillment of the objectives set out at the beginning of a semester or year.

Some broad objectives of the kindergarten, as stated in The Kindergarten Curriculum by Golden,15 are the following:

a) good human relationships,

b) social imitation,

c) motor expression,

d) systematized and free play.
Detailed objectives of the art program, garnered after years of work in this area, include:

a) to manipulate materials, mental and manual tools, with increasing power, that is, with ease and skill,

b) to supply situations which will challenge children to be creative,

c) to provide free bodily activity while manipulating materials,

d) to afford opportunity for each child to pass through this manipulative stage in the use of materials, and to enjoy further use of purposeful items while so doing,

e) to teach art appreciation,

f) to develop the pupil’s ability to visualize forms of objects,

g) to develop those innate and acquired skills which will help the child to use his leisure time to good advantage and give him joy in doing it,

h) to develop those useful skills which will lay a foundation for skills that may be gained later by more extensive vocational training,

i) to teach the child creative expression and ability,

j) to develop motor control,

k) to develop self confidence,

l) to develop the ability to follow directions,

m) to develop the ability to compare and judge,
n) to carry out abstract thoughts through a concrete method,
o) to reveal personal (individual) values in art expression,
p) to give each child opportunity to become familiar with
clay as a medium, and to help him to proceed in develop­
ment so that everything he makes with clay takes on
meaning,
q) to let the child pass normally through the manipulative
stage in working with wood - hammering and sawing - and
arrive at the place where he intentionally makes things
out of wood,
r) to enable the child to use cloth, and to be able to
determine the choice of cloth as a medium of expression
for the various purposes for which it is used,
s) to encourage the child to paint frequently at the easel,
and to develop the pupil's ability to visualize and be­
come adept in painting,
t) to use effectively drawing materials and many kinds and
colors of paper.

Every kindergarten teacher realizes that children should
handle their materials for the pure joy of manipulation. She
also realizes that children should be encouraged to express
their creative thoughts with full freedom. Every kinder­
garten teacher also knows that children should not be required
to express their ideas creatively in ways that meet criteria
which apply to adult productions.
All this is fine. But what of the inevitable day when the child becomes dissatisfied with his productions? He does not like what he has made, and as yet he does not have the experiences, skills and control necessary for the making of a more satisfactory product - satisfactory to him.

At this point, the child needs help; but only as much help should be offered as will satisfy his needs. He should be helped to observe and reason. Educators should know the developmental characteristics found in creative arts and crafts.17

At the end of the kindergarten year the child may be expected to:

1. Have passed through the manipulative or explorative stages, with media he used frequently, into the symbolic or schematic stage.

2. Repeat and arrange lines and shapes with an intuitive sense of design.

3. Record what he thinks with symbols meaningful to him.

4. Use many colors usually with an emotional approach and frequently to express words.

5. Have used these media:
   a. Have had experience with a wide variety of media
      (1) Paper of various sizes
      (2) Colors
      (3) Shapes
(4) Textures

b. Paints
   (1) Opaque
   (2) Transparent
   (3) Finger

c. Crayons
   (1) Large
   (2) Wax
   (3) In many strong colors

d. For sculpturing
   (1) Sand
   (2) Mud
   (3) Snow

e. For modeling
   (1) Clay
   (2) Dough
   (3) Paper Mache

f. For construction
   Cloth of various colors
      (a) textures
      (b) weights

g. Buttons

h. Beads

i. Spools

j. Scissors
k. Paste and glue

l. Button molds and dowel rods

m. Weaving mats, wide paper strips, cloth strips

n. Heavy cords

o. Macaroni

p. Arrangements of

(1) Seeds

(2) Twigs

(3) Shells

(4) Rocks

(5) Driftwood

(6) Optional collections

q. Surplus materials

Toward the end of the year the child may further be expected to have had experiments with these many additional items. He should be able to take raw materials and change them into something he likes: bulky, shapeless, useless items are often used by the child to form a genuine art object, which holds significance for him.

Before we continue with the five-year-old's program, it is proper to discuss him in particular. Five is learning to get along well with other children and to enjoy them. He is beginning to play with, not beside, other children. He can truly recognize his own outdoor clothes and can dress himself completely with know-how. He can brush his teeth and comb his
hair with little supervision. He asks meaningful questions and waits for answers. His definitions are in terms of use: "a doll is to play with; a hat is to wear; a ball is to throw."

He knows his age, his name and his home address. He can repeat a ten word sentence. He may distinguish his right from his left hand and probably shows preference for one or the other. He can draw a man complete with all extremities and can copy a square and a triangle; he is able to trace and cut out a pumpkin or turkey, and color it approximately. He does not destroy work materials and will put his possessions away without constant urging. He can count four items and knows the difference between big and little, heavy and light and other opposites. He enjoys listening to a short story. He is able to sit quietly, giving fairly steady attention to short stories, radio and television programs.

At five years of age the child is dependable, obedient, social and can be polite and relatively truthful. His interests have widened to the environment outside his home, and he is adjusting to this fuller life.

Basic learnings and adjustment to kindergarten and to other children will run parallel to the child's growth in the art program. Together these adjustments will improve as the child goes from simple art expression to complicated procedures, involving several processes to complete a project. Now the child can draw, cut, paste and arrange; where formerly he could only draw.
Moustakas and Berson \(^\text{18}\) present two currently prevailing approaches to art experience: (1) Art materials and art experiences are sometimes used to judge the developmental level of a child and to make some interpretations regarding his adjustment. (2) Art is solely a creative experience.

There have been some attempts to standardize the content of children's drawings and paintings through the process of study and analysis. Some writers indicate that the colors a child prefers in his paintings, the form he paints and his manner of motion reveal personality configurations. Investigators have also focused on the therapeutic value of painting and modeling; to still another group of observers art is essentially a satisfying play experience.

Landreth and Read \(^\text{19}\) in *Education of the Young Child* mention that the object of graphic and plastic arts is to expose the young child to beauty of line, color and form, and to help him make selective responses to these materials. A large group of investigators agree that children paint feelings, rather than objects. However, some writers have reported that the ability to paint recognizable objects parallels improvement in adjustment.

It is obviously not the products that are important — not the block building, or clay apple, or the fact that children are playing house together or drawing — but whatever each of these activities means to the particular child. Too demand-
ing forms in the art experience make for patterned, stereotyped work and remove the joy that is experienced in creating something of one's own. Alschler\textsuperscript{20} claims that this approach tends to compress inner life and inhibit natural art expressions.

Most educators feel that adult participation and direction must be limited and that children have to be free to express whatever they think or feel. Certainly no teacher is concerned with developing artists or craftsmen in the kindergarten. Nothing is more discouraging or thwarting to creative effort than to have an adult's standard or model before the child.

Back in 1936, Ruth Andrus\textsuperscript{21} in her \textit{Curriculum Guides for Teachers of Children Three to Six Years of Age}, stated that, "If the teacher intervenes at all, it is to tell the child who has drawn the same picture over and over again to try something else. Or if the child has used only crayons she may suggest paints or clay; then, too, if the teacher sees that the child is unable to express ideas to his satisfaction, she tries to help. She might interest him, for example, in a new material."

Landreth and Read\textsuperscript{22} believe that the teacher should help the child in specific ways; she teaches the child how to use the art medium; she gives demonstrations; she makes suggestions to the child from time to time; and she gives approval of constructive and skillful uses of art media. By putting the
child's name on his work she recognizes the child's work as a product of art. Teachers should keep representative samples of each child's work to help her in guiding his progress, as well as for him to learn pride when he sees his work displayed.

A different stand is taken by Dorothy Baruch in *Parents and Children Go To School*: Teachers should never offer suggestions for workmanship. All along the children use paints, crayons, clay or blocks, and the teacher leaves them entirely alone to experiment and feel their way. She never interprets or interferes.

Other educators feel that a leading misconception is that whenever a child paints he must be copying something from the outside world. Actually, there are a number of purposes in painting: exploration and experimentation; expression of inner impulses and the release of emotional pressures which children are not able to express in words. They add that painting acts as a de-inhibitor and releases aggressions and anxieties. Questions regarding the child's work, communication with the child and noncommittal remarks are often unnecessary. The teacher's basic function in the art experience is to have materials on hand which encourage spontaneity.

The teacher's function, according to Moustakas and Berson is to make materials available which fit the immediate interests and experiences of the child:

1. Teacher must accept everything that the child makes and
give him complete freedom to express and explore available art media.

2. When he stays with only one form the teacher must accept that, too.

3. Every art expression is worthwhile, not because of content or attractiveness, but because it is an expression of the child.

4. Art experiences are not for a specific purpose such as an emotional release. They are fluid, moving, and ever changing.

5. It can never be analyzed or categorized without losing its nature.

To compare and evaluate one child's artistic expression with another's or even with his own products, distorts the child's experience. He is not the same child from painting to painting, say some authorities. Nor can the nature of the art experience be considered only in terms of the specific object or content of the product. The inner experience of art is not in the product but in the child, and since he is ever growing, he will find his experience constantly expanding and opening new vistas of thought and feeling.

It is difficult to draw a line between play and work at the five year old level, writes Moore. The "work" media are linked with individually creative ideas: What are the child's ideas and experiences? His feelings as he paints and draws,
and engages in other types of artistic endeavors? Elenora Moore comments that the teacher is interested, not in what is being produced, but rather in what happens to children during an activity — how much learning is taking place while he uses toys and materials.

In the beginning of the school year some young children will be in the scribbling stage. A little later in the school year they will use lines and their work may be more recognizable by adults. Wirick cautions teachers to allow plenty of time for this mental and motor development; maturity cannot be hurried.

Children put into their drawings ideas they cannot put into words; therefore, do not impose ideas, in eagerness to have the pictures more realistic or the picture will lose spontaneity. Also, too many techniques at this time might be very confusing to young children. Who is the creative child? He is every child in every classroom and home. Creative expression represents a form of communication with others. Lambert found the arts are equally essential to the spiritual, social, and emotional life of the child — as they are the skills of learning how to earn a living, eventually.

Children follow a developmental sequence in drawing and painting, just as they do in their physical and mental growth. Each child has his own schemes or formulas for his art expression. Sometimes they deviate from this schema when it be-
comes inadequate to express what they have in mind. Then they may exaggerate details, omit the obvious, or add something that is especially significant to them.

Children, no matter how young, says Baruch, need proof of their ability. One of man's deep seated needs is for a feeling of adequacy. The kinds of materials which best serve this end for him are those which he uses in his role as artist or artisan. With art materials he constructs, he creates, he uses them to fulfill his own purposes. He manipulates them to his own ends.

As he works with them, he finds not only achievement, but other sorts of emotional release. Through them he can project his doubts, his hatreds, his fears and his wonderings about himself, and in the process he can find his apprehensions gaining some relief. Through them he can help himself take a stronger stand and become a more complete person. Of course, the child does not diagnose himself, as teachers do, but, nevertheless through learning to take advantage of aesthetic outlets, the child becomes more full of self-assurance and more capable of facing his child-world.

Kindergarten is an artistically infectious environment and one cannot live in it and go untouched by the process of creating. Sheey, who wrote The Fives and Sixes Go To School, states, "there is as wide diversity in children's art as there is in the work of adult artists. As children and teacher learn
to accept and appreciate diversity and differences, is there not apparent a moral function of art? Can this not be one of the most important factors that help us to a more truly democratic way of living?"

In answer, Dewey\textsuperscript{30} in \textit{Art As Experience}, says "the moral function of art . . . is to remove prejudice, do away with the scales that keep the eyes from seeing, tear away the veils due to want and custom, perfect the power to perceive."

In a child-centered kindergarten, as each one should be, every attempt is made to develop the whole child socially, emotionally, physically and mentally - with the assistance of all the aids described in the foregoing pages. The many personal contacts in school at this age, with children and adults, will teach him through observation and participation how people live together for the mutual welfare of all.

Good elementary school staffs should stress this basic philosophy: children need to be accepted as individuals. Any part of the program that will benefit the child, such as art, should be thoroughly investigated and used. Moore\textsuperscript{31} states, "the first six years of a child's life are his most important, as proved by fundamental research in child behavior and development." In kindergarten, a child's feelings can be channeled into useful sources, thus benefiting him and everyone with whom he comes in contact.

The writer feels that kindergarten is the place to which
to bring children and allow them to seek opportunities for new educational interests. Through attendance in kindergarten, the way can be made more understandable for the child's entire life extending before him. Thus, if the teacher were to appraise her own situation, she could determine if she were offering her children all the many and varied experiences to which they are justly entitled.

The kindergarten, an integral part of the elementary school program, provides for the physical, mental, social and emotional development of the four to six year old child. Growth in desirable habits, attitudes, and skills needed for present and future development is stressed at this level. Readiness for the next level of the elementary school, grade one, is developed through a wide variety of carefully planned experiences, not the least of these, the art program.

The child enters kindergarten from the home, where he has been dependent on adults, and is helped through guided work, free work, and play activities to learn to adjust to a social group. Effective home and school relationships contribute to a better understanding of the child and assist him in this adjustment process.

We have seen that in the kindergarten, children are given opportunities to make decisions, choose activities, and accept responsibilities. At four, five and six years of age, children are beginning to learn about the world outside of
their home. Starting with the first associations at school, it is the chore of the teacher to initiate pupils to this new phase of life in such an easy manner that each individual child will gradually find his niche in the group. The completion of this plan shows real ability on the part of the teacher, and good supervision as well.

Training in kindergarten is not limited to the songs and poems and games children learn, nor the art media they choose for personal creative expression. Rather it is directed to varied practice in the spirit of how to participate, singly and with others, what can be voluntarily given to the group and how independent and cooperative children can become. Happy living in the kindergarten atmosphere does take place, even in the face of occasional discouragement and impatience.

Kindergarten teachers should continually emphasize the fact that the function of work in childhood is primarily developmental. In kindergarten, work and play can help provide necessary outlets for growth and development. Through the resources, such as art, offered in the kindergarten curriculum, the teacher then attempts to introduce the child to life itself. She plans activities that will help the individual child achieve the proper relationship to his environment. These are dual goals.

Parents should be informed there are wide differences among children, but certain developmental undertakings begun in
infancy are further carried out and directed by the teacher for the advancement of all children in kindergarten classes during their fourth, fifth, and sixth years. In some areas, children begin school at 4-0, 4-6, or in Milwaukee at 4-10, if their birthdays occur on or before the first of April or November, since it is a two-semester school year.

In early childhood, learning to walk, talk, take solid foods, and control elimination are developmental tasks of primary importance, writes Havighurst. Later, learning sex differences and sexual modesty, achieving physiological stability, and forming simple concepts of social and physical reality are hurdles for the young child to master, with the understanding assistance of an active teacher.

Living in the kindergarten surroundings with his own peers, the child of this age should have ample opportunities to experience incidents which allow him to experiment with learnings needed to provide outlets to relate himself emotionally with others. These happenings often promote the distinguishing of right from wrong, thereby contributing to the development of the child's personal conduct.

Good curriculum planning can help point out the important fact that "kindergarten is an integral part of any complete educational system," writes Plichta in her study of public school kindergartens. Attendance in these classes takes him from the familiar home to the unfamiliar school; here he
meets the larger social group with which he will spend much of his daily life for the next twelve to fourteen years, at least.

By attending kindergarten during these early years, the sharp break between the kindergarten and first grade can be eliminated. With good teaching ability, the kindergarten teacher should advance the child to where the first grade can take over, in a smooth operation.

Through the review of the general kindergarten program, as well as the art program, the writer has attempted to show how important the art program can be made in relation to the other phases of the program. The creative art program presents genuine challenges, but when one sees living proof of its value in emotionally stable, physically adept, and mentally stimulated children, the teacher knows her efforts were rewarded. Teachers are further reassured of the value of aesthetic endeavors when they find youngsters are active and happy in their daily contacts with their peers. This is an exceptionally good rating scale, revealing her ability as a teacher, and one which is closely noted by others.

This writer feels that in order to have made kindergarten procedures effectively understood, so they properly benefit the children at the lower end of the educational ladder, a good explanation of features that make kindergarten indispensable had to be offered. Art was presented in the natural environment in which one would normally find this important addition to the kindergarten program.
Footnotes


3Stratemeyer, p. 57.


7Grieder, p. 194.

8Barbara Rogers, "This We Know About Children Because I See Them in the Kindergarten," *Childhood Education* (October, 1958).


22. Landreth and Read, p. 69.


24. Moustakas and Berson, p. 188.

25. Elenora Moore, Fives at School (New York: G. P. Putnam's Sons, 1959), p. 120.


29. Sheey, p. 139.


31. Moore, p. 11.


What is kindergarten art expression? Why should this subject be of any importance to an educator in the early childhood education field? Primarily the answer is this: the child of kindergarten vintage, four and five years of age, must use some non-verbal means of expression, for his verbal communication system is not as refined as that of adults.

When one looks about him, he sees that only a small percentage of adults continue to find the arts a suitable source of symbolism. Lifetime careers in music and art are in the minority, while people who amuse themselves and their families with musical instruments or pallettes or easels or other forms of handwork are still less. Psychologists have written about the importance of these outward manifestations of inner frustrations as a means of coping with one's emotional stability, but many people still find it difficult to get started with a hobby of this kind.

Why do art and music fall so readily into the programs of rehabilitation and psychotherapy? It is because through these media inner drives and needs can be challenged and met.

Children of the kindergarten years do not need to wait for someone to suggest that they get rid of their tensions.
seldom does one find a child of this age suffering from a nervous breakdown. Children in kindergarten are the vital and active personalities they are, partially because they are surrounded with equipment and supplies which stimulate the non-verbal as well as the verbal means of developing their intelligence and creativity.

Authors to be discussed in this and the following chapters have found child art the fascinating subject which the writer has discovered it to be. Child art has been evaluated as an increasingly vital part of the kindergarten curriculum. Furthermore, when expanded upon, it becomes one of the most useful therapeutic tools of the psychologist and psychiatrist.

For this research child art has been developed in one of its most creative aspects and has become a partner in the study of its relationship to intelligence. Most of the writers introduced in this research paper take the stand, firmly, that art has many qualities about it which become more revealing as it is investigated and utilized.

What is Child Art?

It is strange that scarcely anything done by children has been preserved which is older than a hundred years. We have hardly anything from anonymous young children, whereas we, fortunately, possess a great number of documents of primitive art. We have in our museums examples of primitive art, some tens of thousands of years old.¹ We have in our museums exam-
ples of peasant art, executed centuries ago. Why no child art? If we recall the attitude of the average adult towards the child as recently as one or two generations ago we come to the conclusion that the child was regarded as something inferior, as a being to become grownup as soon as possible. It is clear, then, that his drawing or modeling was considered of no importance. How many of us have heard it said in our childhood: "Do make something! Don't waste your time and paper. Don't scribble!"

What we possess of child art is only a few decades old. The term "Child Art" itself is very young. Two generations ago nobody dreamed that every child is a born artist, which does not mean that every child should or could become an artist. The discovery of Child Art is parallel with, or perhaps a consequence of, the discovery of the child as a human being with his own personality and his own particular laws.

We find passages in Rousseau which show that he had a vision of the child being a personality of his own. He says: "The child is not a small grownup, he has needs of his own, and a mentality adapted to these needs." In Herbert Spencer's work on education there is a recognition of the child as an artist. In this book, written between 1854 and 1859, are words which sound almost revolutionary:

The spreading recognition of drawing and painting as elements of education is one among many signs of the more rational views on mental culture now beginning to prevail. . . . What is it that the child first tries
to represent? Things that are large, things that are attractive in color, things round which its pleasurable associations most cluster - human beings from whom it has received so many emotions; cows and dogs which interest by the many phenomena they present; houses that are hourly visible and strike by their size and contrast of parts. And which of the processes of representation gives it most delight? Coloring.

The question is not whether the child is producing good drawings. The question is, whether it is developing its faculties. During early childhood no formal drawing lessons are possible. Shall we therefore, repress or neglect to aid, these efforts at self culture? or shall we encourage and guide them as normal exercises of the perceptions and the powers of manipulations? It must happen that when the age for lessons in drawing is reached there will exist a facility that would else have been absent. From what has been said, it may readily be inferred that we condemn the practice of drawing from copies; and still more so, that formal discipline in making straight lines and curved lines and compound lines, with which it is the fashion of some teachers to begin.

This was written more than ninety years ago. One is afraid that Herbert Spencer would find to this day schools where little children are made to copy.

In 1887 the Italian, Corrado Ricci wrote a booklet, L'arte dei bambini, (The Art of Children). In this work a term relating to child art was used for the first time. In the same year Alfred Lichtwark, a German, published a book, Die Kunst in der Schule, (Art in School), in which it was stated that "the child in his representation of things simplifies according to laws which are valid for all times and all peoples, and we have recognized the relation between the first attempts of the child and those of primitive men." Eternal laws in child art and the relation between child art and primitive art show
relationship.

In 1895 James Sully, in his "Studies of Childhood," speaks for the first time of child art. He states "the art of children is a thing by itself, for the little artist is still much more of a symbolist than a naturalist." He continues, "crude, defective, self-contradictory even, as these early designs undoubtedly are, they are not wholly destitute of artistry and artistic qualities. The abstract treatment itself, in spite of its inadequacy, is after all in the direction of true art, which in its essential nature is selective and suggestive rather than literally reproduced."

Cooke, writing on "Our Art Teaching and Child Nature," read this paper before the Education Society and published it in the Journal of Education, December, 1885, and January, 1886. From his article we read: "What freedom does a lead pencil give compared with its facile colleague the brush?"

All intellectual growth results from exercise of faculty or function. Mr. Sully is not alone in saying "training a faculty means regular calling it into activity by supplying the conditions of its existence." If the faculty is not cultured when possible, one may never gain the higher forms, and may weaken others. Rousseau and Froebel held that each age had its own completeness, and that the later stages were only perfected through the perfection of the earlier.

Both Sully and Cooke were only forerunners of another man, Herbert Read. Read's introduction to the beautiful cata-
logue of the British Council's Exhibition of British Children's Drawings for North and South America, 1941-42, contains the following passage:

Though the ultimate place of art in the educational system is far from being a settled question, it has won some degree of recognition as a subject, especially in the primary stages, and this recognition has been won largely as a result of the revolutionary reform which has taken place in the conception of art teaching in Europe and America.9

The history of this movement goes back some fifty years to pioneers like Ebenezer Cooke and James Sully; but it was Professor Franz Cizek in Vienna who first demonstrated both the aesthetic and psychological advantages of releasing the creative impulse which is present in all children; and it was he who had the difficult task of vindicating the aesthetic value of the drawings thus produced by children. During the same period of fifty years a growing appreciation of primitive art and revolutionary developments in modern painting have helped bring children's art within the general range of aesthetic appreciation.

At the end of the nineteenth and the beginning of this century a few German teachers tried to reform the old methods of teaching art. One of them was the Hamburger, Gotze. He heard of an Austrian who had started practical work with children in Vienna. His name was Franz Cizek. Gotze paid him a visit and was so impressed by what he saw that he reported to the Austrian Minister of Education what an important work was being carried on in Vienna.
Cizek was a painter at first, not a teacher, although many believe that every true artist is also a teacher. Franz Cizek was born in 1865 at Leitmeritz, a small town in Bohemia, then Austria, although his name was Czech. It was a happy coincidence that Cizek was in close contact with the founders of the Secession movement, a kind of revolution of young painters and architects against the old academic art.

It was in 1897 that Cizek got the permit to open his very first juvenile art class. It was a private enterprise, but the experiment proved so successful that, in 1903, a comparatively early date, the State offered him rooms in the State "Kunstgewerbeschule," (Arts and Crafts School). This was, fortunately, the only material support he ever had from the State, and it proved a blessing, for it saved him from any interference in his work. There was no inspector, and no curriculum, no time-table, and no superior. In many countries State interference has proved to be a fatal influence on new enterprises.

This juvenile art class carried on until 1938. Forty years were spent in humble and loving observation of thousands of children whose ages ranged from four to fourteen years, including some children of two years of age. In these experiments and careful study of the children's works, which Cizek called "documents," he discovered the eternal laws which are followed unconsciously by the young creators. The normal child
wants to produce. Their paintings are conceptual, they try to render their notions of things and not what they see. Children put the accent on what concerns them most.10

*Let the Children Grow*

Generations have despised and neglected the work of the child. The work of the child! For play is to the child - also the apparently playful scribbling, drawing, painting and modeling - an honest work, more honest than the professions of many adults. What treasures have been lost because no one has appreciated and kept these revealing drawings and paintings.

A child's drawing is a marvelous and precious document. We have no right at all to measure it according to our standard, to look at it with our unclear eyes, to criticize it from our point of view or above all to correct it.11 In this study evaluations were made from an objective a view as possible. The child himself was never made to feel that he had to modify his work.

To let children grow, flourish and mature according to their innate laws of development, not haphazardly, is the quintessance of Cizek's views and method, if one may use the word "method" with discussion of Cizek. To be a gardener, that is all. He would ask whether teachers could be anything more and better than a gardener. To remove weeds, tactfully to promote trends which are useful for the growth of the child, nothing more. He stressed that no one had the right to hasten
the growth of the child, by hot-house culture. It is a crime to bend or break the children according to our wishes. The result will always be deplorable.\textsuperscript{12}

Above is also the underlying theme of the writer. Use tact, but let the child progress at his own rate. Cizek taught no technique. His pupils worked out their technique themselves and made it their own. Children find their techniques often much more easily than most teachers believe. Little children learn more rapidly from one another than from adults.

**Pioneers in Child Art**

First came Cizek and then followed the psychologists. This is important. Child art is primarily art. But it is good that psychology has proved what Cizek as an artist had intuitively said years before. Since then a long list of psychologists have occupied themselves with child art.\textsuperscript{13}

In 1904, S. Levinstein,\textsuperscript{14} Leipzig, published Unter suchungen über das Zeichnen der Kinder bis zum 14. Lebensjahre, (Inquiries About the Drawing of Children Until the 14th Year of Age). Although some of the ideas of Levinstein are antiquated, most are valid today, and certainly were decades in advance of the time when he published them. As an example: "Children have no conception of proportion." Today we would say, they have proportions different from the adult. But more important: "Signs and pictures are a language for the child. To draw and paint means describe, not represent. He draws and
paints something because he wants to say something about it."

Stern\textsuperscript{15} said at the third congress for Experimental Psychology in Frankfort-on-Main in 1908: "Every man experiences himself as the center of the space surrounding himself, but this space is only conquered by steps. In the second year with some children, even earlier, the capacity is developed to recognize objects which are pictorially represented. Already in their fourth year children begin to come out of the stage of mere scribbling." In his "Psychology of Early Childhood up to the Sixth Year of Age," William Stern made this extremely important statement, that "Scribbling is to drawing much what babbling is to speech." Later another psychologist, Buhler,\textsuperscript{16} in his book, The Mental Development of the Child, 1919, (English version, 1930), deals further with the striking parallel between language and drawing.

The Swiss child psychologist, Jean Piaget,\textsuperscript{17} stated in The Child's Conception of the World, that "in drawing, children give only the detail and neglect the synthesis." Piaget speaks of the juxtaposition in the child's drawing as well as in his thought.

Another pioneer in the field of child art was Kirstensteinsteiner,\textsuperscript{18} who was then the superintendent of the Munich schools, and published, in 1905, the book, Die Entwicklung der zeichnerischen Begabung, (The Development of the Graphic Gift), which was the result of the examination of 300,000 drawings and pic-
tures of 58,000 Munich schoolchildren. It was his idea to collect and analyze this great number of children's works, and to draw conclusions from certain features which again and again appeared. Nothing like this had been done before. His sheer overwhelming wealth of material is a certain guarantee that the observations made have weight, observations which confirmed Sully's and, to a certain extent, Levinstein's views.

The Munich pedagogue found that the child cannot represent space, the third dimension, and further, that drawing from imagination is easier for the child than drawing from nature.

How revolutionary Kirstensteininer was, is shown by this sentence in his work: "Drawing from objects or models in the class is absolutely forbidden as a rule." He pointed out the fact, surprising to most people, that the best work did not come from the children of artists, sculptors, architects, or well-to-do families and parents of high intellectual culture in general, but mostly from children of simple, even poor artisans.

On the other hand, Kirstensteininer, who was very progressive, believed that "the boys exceed the girls in all types of drawing, except certain kinds of decorative design, in which the girls do better than the boys." How far this view was due to predominant convictions of the time or simply went back to the fact that at that time boys had more opportunity in schools than girls is difficult to say. In any case, Kirstensteininer's views on boys' greater creative ability was contradicted in
Germany itself. See Summary and Conclusions for this boy-girl controversy and analysis in the present study.

Linde states in *Art and Education*:\(^{19}\) "So far, we have not succeeded in finding a difference in the drawings of boys and girls up to twelve." Much later, the American, Good-enough,\(^ {20}\) stated in her work, *Measurement of Intelligence by Drawings*, that "school statistics have almost invariably shown that girls, on the average, make more rapid progress through the grades than boys; that they are more often accelerated and less frequently retarded. . . . It is possible that the aesthetic sense develops earlier with girls than with boys, and that their higher ratings may be partly accounted for on this basis."

But apart from smaller details of this nature, Kirstensteiner's work is of great importance in the history of child art. Yet the man who was for decades a leading personality in the democratic German education had not enough influence seriously to reform German art teaching. Twenty-three years after Kirstensteiner had published his work, the German Wulff\(^ {22}\) could say in his book, *The Art of the Child*, 1928: "The task of art teaching is to educate the average talent so far as it can be educated, that is to represent reality directly from perception as it is seen and not as merely imagined." This rather unprofessional statement proves how much room was left for improving this type of philosophy.

After World War I, 1922, Hartlaub\(^ {22}\) published *Der Genius*
In Kinde, (The Genius in Children), which defended with great warmth the child's urgent necessity to create, and analyzed many aspects of child art.

There was another educator who had a clear view of child art: Britsch, who wrote *Die Theorie der Bildenen Kunst*, (The Theory of Pictorial Art), 1931. His practical influence also was not very great, and his disciple Kornmann met real opposition. Franz Cizek said repeatedly that what Britsch and Kornmann had found mostly in theory was proved in his own fifty years of practical work with children.

**Testing and Child Art**

America's contribution to Child Art is due to the tremendous opportunities given to a great many courageous women and men in the schools after the first world war. In no country besides Great Britain was the new gospel more heartily welcomed. America added a new chapter: the use of children's work for all kinds of tests.

In England names like Tomlinsen, Richardson, Gibbs, and Eccott are familiar to everybody interested in child art. The great exhibition of 1938 in the London County Hall, with its hundreds of beautiful pictures done by ordinary London school-children, will remain unforgettable to the thousands of visitors. At private exhibitions like the one at the Zwemmer Gallery, London, in 1937, children's paintings were bought for five and ten guineas apiece. (Guinea is comparable to $5.11
in American money, thus these paintings were bought for $25 to $50). "Could that have happened a generation ago?" asked viola.25

The general public slowly has begun to appreciate a child's graphic expression. The battle for child art from twelve to fourteen years of age is won, but how far does the ordinary person understand or appreciate real infantile art? Are all children, for instance, allowed and encouraged to scribble? Is there still no elementary school in any country or shall one say in English-speaking countries, where children are no longer forced to copy? There is still much to be done by those who fight for child art, and that means for the child against the so often very stupid adult.

The best way to understand child art is to study primitive art, both of races that lived tens of thousands of years ago and the art of living primitives. The most superficial observer must be struck by the similarity between the art of primitive men and Child Art.26

Neither the primitive nor the young child produces from nature. But the optical memory of primitive and child is enormous. Their eyes are better than ours. They see details which we never see, but details only, not the whole. Both produce from imagination. Neither of them wants to copy nature. They have no use for right perspective, right proportions, and so on. Experiments have proved it. When F assay, 1891,27 in dis-
cussing his Revue Philosophie: Notes sur les dessins d'enfants,
(Review of the Drawings of Children) gave small children pictures of known objects in strong perspectives, the children misunderstood the pictures. Egyptian peasants were given pictures of animals represented in a modern way faithful to nature; they did not recognize animals which were familiar to them.

Wilkinson wrote in The Manners and Customs of the Ancient Egyptians, London, 1841:

The mode of representing men and animals in profile is primitive, and characteristic of the commencement of art; the first attempts made by an uncivilized people are confined to it; and until the genius of artists bursts forth, this style continues to hold its ground. From its simplicity it is readily understood: the most inexperienced perceive the object intended to be represented, and no effort is required to comprehend it. Hence it is that though few combinations can be made under such restrictions, those few are perfectly intelligible, the eye being aware of the resemblance to the simple exterior; and the modern (written in 1841) uninstructed peasant of Egypt, who is immediately struck with and understands the painting of the Theban tombs, if shown an European drawing, is seldom able to distinguish men from animals; and no argument will induce him to tolerate foreshortening, the omission of the parts of the body concealed from his view by the perspective of the picture, or the introduction of shadows, particularly on the human flesh.28

When Chinese peasants were given modern pictures of animals, they also did not recognize them. Thus we have seen historically that some educators have always taken a studious view of this area of child art as related to primitive art.29

Art as Experience

Because the perception of relationship between what is done and what is undergone constitutes the work of intelligence,
and because the artist is controlled in the process of his work by his grasp of the connection between what he has already done and what he is to do next, the idea that the artist does not think as intently and penetratingly as a scientific inquirer is absurd.

A painter must consciously undergo the effect of his every brush stroke or he will not be aware of what he is doing and where his work is going. Moreover, he has to see each particular connection of doing and undergoing in relation to the whole that he desires to produce. To apprehend such relations is to think, and is one of the most exacting modes of thought.

The difference between the pictures of different painters is due quite as much to differences of capacity to carry on this thought as it is to differences of sensitivity to color and to differences in dexterity of execution. As respects the basic quality of pictures, difference depends indeed, more upon the quality of intelligence brought to bear upon perception of relations than upon anything else; though, of course, intelligence cannot be separated from direct sensitivity and is connected, though in a more external manner, with skill.

Any idea that ignores the necessary role of intelligence in production of art is based upon identification of thinking with use of one special kind of material, verbal signs and words. To think effectively in terms of relations of qualities is as severe in demand upon thought as to think in terms of
symbols, verbal and mathematical. Indeed, since words are easily manipulated in mechanical ways, the production of a genuine work of art probably demands more intelligence than does most of the so-called thinking that goes on among those who pride themselves on being intellectuals, states Dewey.30

Building Reality, Creativity and Intelligence in Children

Piaget points out that from the first months of life the child knows what his mother will do in the day's events: nursing, bath, and so on, but that this does not imply objectified causality. These are only images which succeed each other with regularity and make possible the formation of habits. According to Piaget, causality consists of an organization of the universe caused by the totality of relations established by action and then by representation between objects as well as between objects and subjects.31

These theories are important in an analysis of children's art for most authorities stress the imagination built up throughout the young child's few years' existence.

It is natural that many who have attempted to study creativity in the early childhood years have sought to do so through the medium of art. Conclusions from this research have varied, apparently according to the manifestations which have been admitted. Grippen,32 in 1933, recognized the following categories of creative artistic imagination in his studies of
children from three through seven:

1. Revision of a single memory image

2. Organization of the nature of a composite from several images, usually related

3. Improvisations of a theme, resembling the source of courses, from a number of images

4. Selection of various elements of aesthetic interest, to which other elements may be added, all based upon a single memorial or sensory experience

5. Compositional expressions arising as a reaction from a single memory touching some more or less strong emotional experience

6. Effective expressions appearing in appropriate compositional setting from a single vivid aspect of a larger experience residing in the child as a memorial experience

7. Fusion of compositional elements or aspects into a composition of high character, from a continuing experience over a limited time interval

Grippen's data included children's paintings and their verbalization while painting. According to Torrance,33 a variety of methods have been used in attempting to assess the creative products and processes of young children. McCarty, 1924, used drawings. Abramson, 1927, used responses to ink-bLOTS and concrete observations, for subjects enumerated objects after viewing them for over twenty minutes.
Intelligence means the use of definite ideas for the interpretation of experience, and this is as true of intelligent observation as of intelligent action. When Dewey discusses fine art he states that obviously no one of these classes of activity and products, or all of them put together, mark off anything that can be called distinctively fine art. They share their qualities and defects with many other activities and objects. But, fortunately, there may be mixed with any of them, and still more fortunately, there may occur without mixture, process and product which are characteristically excellent. This occurs when activity is productive of an object which affords continuously renewed delight. This condition requires that the object be, with its successive consequences, indefinitely instrumental to new satisfying events.

This was found to be true in the study under discussion: The relationship of intelligence and creativity in kindergarten art expression. Children continued to enjoy what they were doing, painting, thus the children produced progressively better, with only slight backward slides, and the raters continued to see these results, therefore the scores revealed how children, through "renewed delight" gave the best of their creativity.

Duchamp, in a statement published by Kepes, points out that "the creative act is not performed by the artist alone; the spectator brings the work into contact with the external world by deciphering and interpreting its inner qualifications.
and thus adds his contribution to the creative act."

In his book, *Heaven of Invention*, Boas remarks:

Objectively there are only two things which can appear in any painting, shapes and colors. These, may in themselves and in combination stimulate certain emotions, but that is beside the point here. Moreover they are never simply shapes and colors, but the shapes and colors of things and are seen with the things. The moment that a painter is convinced that he can produce only shapes and colors, and that he has no obligation to produce the shapes and colors of objective things, he will, if, like Picasso, he has some nostalgia for the natural world, abstract the shapes of natural objects and organize them on his canvas or abstract the colors and organize them, or do both on the same canvas.37

With many children it is only necessary to arouse interest and create confidence in order to introduce them to materials for artistic expression. Cizek38 states, in his writings, that he does not intend to equate primitive and child art. "I only wanted to show some striking parallels. In addition to those mentioned, both--primitive and children, draw first. Even if young children paint, it is as a rule a drawing of lines with the brush first."

The conceptions of children and of primitive peoples are not visual, as mentioned previously, but are to a high degree bound up with the self. The world is not so much perceived as an external object, but is built up from within and colored by the artists' own emotional experiences.

Griffiths,39 points out the love for vivid contrasts and direct opposites. People are very big or very little. Read40 continues that art in the stone age was a spontaneous
exercise of innate faculties, as art still is with young children and savages.

Miss Gertrude Cotton, art supervisor in the elementary grades of the Milwaukee Public Schools, has expressed the opinion that creativity is art. The child paints what he knows, not what he sees. Just as the child doesn't comprehend, even though he hears, he also does not see, even though he is looking. Miss Cotton claims that the background of familiarity and confidence in what he is doing, hearing, and seeing, is still missing for the five year old to a great extent. As the years go on, the child develops his own personal reserve of association with words that he hears, and objects that he sees.

The art itself is nature. - Froebel

Theories of Art

Plato meant exactly what he said:

That an aesthetic education is the only education that brings grace to the body and nobility to the mind, and that we must make art the basis of education because it can operate in childhood, during the sleep of reason; and when reason does come, art will have prepared a path for her, and she will be greeted as a friend whose essential lineaments have for long been familiar. Moreover, Plato did not see or offer any alternative to art as an instrument of early education--it is the only instrument that can penetrate into the recesses of the soul.

Plato's teachings on this matter were taken up in the modern world by Schiller, says Read in Education Through Art,
and in all his philosophical works, but above all in Schiller’s *Letters on the Aesthetic Education of Man*, we have again a clear and explicit statement of this doctrine of education: that until Man, in his physical and sensuous modes of being, has been accustomed to the laws of beauty, he is not capable of perceiving what is good and true—he is not capable of spiritual liberty. Many other witnesses to this truth might be called but none so unequivocal as these two, Plato and Schiller, who Read values more than any others, saying that he was content to rest in their company.

Another famous educator-philosopher had something to add concerning the function of knowledge in art. According to Lodge, Socrates discussed:

> Just what is this 'knowledge' which artists should have, but apparently do not? Everyone has an idea of what he wants, toward which he is obscurely working. You might call it 'the good,' but the idea is deplorably vague and confused. It remains obstinately in the background of our thinking. If we try to bring it out into the foreground, and make it focal; well, it is a sort of x. You can bring it out, regard it as the unknown ground, perhaps a rational ground of knowing and being. You might say it is the ratio cognoscitivis, the ratio cognoscendi, and the ratio essendi, why not? That is all doubtless true, so far as it goes.43

The above does not lend much in clarity except that the proportion, rate of knowledges, and fundamental elements of our ultimate natures may be affected through art.

Creativity is no virtue unless it is carried by the deep desire to promote human values. It is not merely enough to promote creativity, for we have witnessed during our own lives how creativity can be misused.
Unfortunately, not everybody's creativeness has been developed so that it can function properly. The functional creativeness is that part of an individual's creativeness which he uses, or which expresses itself in his work or actions.

The potential creativeness is the creativeness which an individual has but not necessarily can use. His creativeness does not function, because in the process of learning and maturation, this part of his personality may have become neglected, inhibited or buried.

In art education we try to unfold the individual's creative potentialities so that they may function as a part of him. Thus, whenever one tries to unfold the creative abilities in children, it is the goal to bring into equilibrium the functional with the potential creative abilities, for educators are not satisfied as long as not all potential creative abilities also function.\textsuperscript{44} There is a tremendous range in the creativeness of people. We must not succumb to the notion that everything that is done with a crayon, brush and paint, or other art media is necessarily creative or art, states Lowenfeld.\textsuperscript{45} We must also be aware of the fact that unless we as teachers are sensitive we cannot promote sensitivity. We have to regard it as our sacred responsibility to unfold and develop each individual's creative ability as dim as the spark may be and kindle it to whatever flame it may conceivably develop. The degree to which we try
to unfold the creative potentials in everyone regardless as to his status and capabilities, is to Lowenfeld, a gauge of the ethics of a society. Without symbolism there is no creativity to interpret through another type of representation. Because of his participation in a disciplined art program, the child is more aware of his senses, his feelings, and his life as it impinges on himself and others.46

Young children should be encouraged to think out what they are doing and why. In art, they plan constructive programs for the group: joint projects such as staging a play, painting a mural, or visiting a museum. Some of these may last for several days or weeks as their attention span lengthens.

In the lower grades, art appreciation has little of the intellectual element; this element develops gradually. First experiences in art are largely sensory, manipulative and affective. One handles things, jumps about, sings, laughs, runs, builds, looks and listens, all in rapid and irregular succession. Occasionally, one asks an intelligent question or gives an intelligent answer, especially under the guidance of the teacher.47

There is still debate among psychologists as to whether genius is the same as extremely high intelligence as measured by standardized tests. Terman has applied the term "studies of genius" to studies of children with high IQ. Others have insisted that genius, in the sense of creative originality, is
something different from high IQ.

Highly intelligent children, at least as measured by our present tests often fail to develop anything that could be called creative originality in later life. They usually become capable, successful and respected citizens, but that is not the same thing. There is not sufficient evidence to show whether persons recognized as creatively original always have high intelligence. One may concede perhaps that the very greatest always do, and yet maintain that persons of moderate intelligence sometimes do decidedly original things.

In the present study it is not maintained that children with high IQ's and high art scores will remain this way. The study measures five year old children, at their current stages of production in the fields of intelligence and creativity.

The experience of teachers would often corroborate the hypothesis that high intelligence alone is not enough, though it is one prerequisite for great achievement. Every teacher of long experience has been disappointed by the phenomenon of students who apparently have all the qualifications for notable creative work: intelligence, information, technical skill, every home and educational advantage - yet who never go on to produce such work. Sometimes they even lose the desire to do so and settle down to levels of comfortable conformity, of mediocrity, as judged by their own youthful ideals and those of their teachers.

There is a type of intelligent thinking that is effective
in dealing with problems clearly stated in advance. This type is most easily listed in our standardized intelligence test, so that those who excel in it receive high intelligence scores. But there is another kind of intelligent thinking, not so easily tested, that is likely to be impatient with artificially set problems, that prefers to set up its own problems and objectives; and that, impelled by strong inner motivations, dashes quickly to their solution. The quick, abbreviated thinking that is common in geniuses is by no means independent of discipline, technique, and ordinary step-by-step learning. But these come in advance, as necessary preparatory phases; later on, they enter as phases in detailed verification or technical construction.

The fact that intelligence keeps on developing, throughout most or all of life during the adolescent period, points rather obviously to the conclusion that the study of art on this level should involve more reflective thinking than on lower levels.

For very young children, activities related to art need not and cannot involve much systematic reasoning or planning. The spontaneous impulse to play with different materials, to feel their sensory qualities, to manipulate them this way and that, provide a dynamic strong enough to carry them through the time available for art. This curiosity and thirst for sensory experience carries them over into art appreciation, where there
is an immediate response to the stimuli of line, color, and shape. In almost every young child, there also is an easily aroused desire to set down his experiences and imaginings in the form of graphic illustration. This has been revealed vividly in the present research.

This is the theory of developmental stages in art introduced by Lowenfeld. He has often stated that none of these stages should be eliminated:

1. Scribbling: Two to four years of age; when the child is marking with various kinds of strokes
2. Pre-schematic: Four to seven years, when the child is developing his scribbles into symbolic representation
3. Schematic: Seven to nine years, when the child has developed symbols he uses over and over again to mean certain things
4. Dawning realism: Nine to eleven years, when the symbols are becoming more "realistic"
5. Pseudo-realism: Eleven to thirteen years, when the effort to achieve realism is accentuated

The term "schema" is usually used to mean a flat drawing of a symbol that represents an object, and not a picture of the "real" thing as it exists in three dimensional space. Actually all drawing is schematic; no drawing ever achieves "realism" as the eye perceives it. In dealing with children's drawings, we more specifically could call them flat schema and perspective schema, in which the symbol represents a space.
From the first scribble onwards, a large element of imitation of the adult enters into the child's drawings and paintings. He imitates, not only what the adult draws, but the muscular actions of the adult's hand and fingers play a large part in the development of a child's drawing in the direction of realism. There is evidence to show that if a child is accustomed to abstract patterns of paintings, or if the parents are themselves abstract painters, the child will develop an abstract style: it has not been proven that the normal child has an irresistible desire to make naturalistic representations of objects.51

The child's graphic activity is a specialized medium of communication with its own characteristics and laws. It is not determined by canons of objective visual realism, but by the pressure of inner subjective feeling or sensation. From the very beginning the drawings of children are wholly and spontaneously of this kind. They only change because a naturalistic attitude is gradually imposed on children, first by the necessity of coping with an external world, by the need they experience of objectifying their perceptual world so that they can measure it, assess it, deal with it, subdue it; and secondly, by the impulse to imitate the naturalistic modes of representation which they see practiced by their parents and teachers.

It is sufficient commentary on the whole conception of
intelligence tests that the Goodenough test, which used children's drawings as a basis, and which produces results which can be closely correlated to the standard intelligence tests (Stanford Binet, Army Alpha, Trabue Completion, etc.) explicitly excludes the aesthetic element. Artistic standards have been entirely disregarded, is the emphatic declaration of the deviser of the tests. An intelligent drawing is not necessarily beautiful; nor a beautiful drawing necessarily intelligent. It is a paradoxical assumption, but it is characteristic of the attitude adopted in all intelligence. The paralogism seems to be the following: science can only deal with measurable quantities; science is identical with intelligence; therefore, intelligence is limited to measurable quantities.52

Freedom of Expression

When children paint, they are entirely free to express themselves as they wish. Kindergarten children in this study took the time they needed to execute their work. Freedom is a possibility, a recurring possibility.53 Coerced by fate, by nature, by men, the opposite to such states is not to be free from fate, nature or men, but to be united with them. In order to be able to do this one must naturally be first free and independent, but independence is a path and is not a dwelling place. Compulsion in education, that implies disunitedness, disunion, humiliation, rebelliousness: but communion in education, that implies just unitedness, the capacity to be open and
to become enclosed.

Freedom also means responsibility on the part of the individual. Children learn to live in their miniature democratic society, kindergarten, in much the same way as in later life, described above. After free expression of many kinds, they gradually want to share their new found experiences while living in a group.

**Growth in Children's Paintings Over an Extended Period of Time**

There is no precise pattern of development for each age level. Not all three year olds behave alike, nor are they completely different from four year olds. There is an evident and gradual growth process that almost every child goes through, from the first tentative exploration to greater sureness in the control of material and expression.⁵⁴

Actually, when a child makes new and interesting combinations while building with blocks, or when he arranges and rearranges such things as shells, acorns, or pebbles into designs, he is developing his creative power. He is discovering that he can express his ideas and feelings with the materials at hand.

During the child's initial experience with paints, he may enjoy just putting paint on the paper or mixing colors together to make new ones. It is important to remember that this is a new adventure for him and that these seemingly random motions
are exciting discoveries. If he can manipulate brush and paint, he is ready for the experience. Each child should have his first art experience when he is ready for it. Naturally, this will not be the same for all children because no two children are alike, nor do they grow at the same rate.

Guilford identifies two kinds of fluency, expressive and associational. In art, expressive fluency is probably evident when a child delineates symbols without any great effort. Associational fluency can be seen in drawings in which the symbols are carefully related to each other. Young children, who usually do not plan their drawings with care, but have this kind of fluency, may produce pictures that show refined relationships. Japanese children apparently have highly developed associational fluency. The children notice small details and integrate them skillfully in their art work, probably because they live in a culture where subtle relationships are stressed.

One of the major objectives of art education is the development of the creative potential of children. McFee's definition of 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. A child is being creative when he delineates a different but recognizable symbol for an object, such as
a variation on the symbol of the sun or when he takes another
child's construction of building blocks and rearranges them to
represent something new.

Mental age, which varies widely from chronological age,
may be a better basis for identifying developmental stages in
art. The tests of Goodenough and the Easel Age Scale of
Lantz, California Test Bureau, 1955, Los Angeles, have re-
lated mental age to drawing ability. Neither, however, deals
with creative ability nor the effect of the immediate psycho-
logical environment, although Goodenough does recognize cul-
tural influence, as well as training and motivation. Children
who are rewarded and have continued satisfaction in art activity
will probably develop their potential more than children who
have had little satisfaction. But art products alone cannot
be the sole measure to a child's potential; some children whose
products seem poor may do superior work when their environment
improves.

Ability to see detail develops with age, with a trend
from seeing an undifferentiated whole toward handling more de-
tail. This trend is modified by intelligence; the more intelli-
gent respond to more detail. Furthermore, culture operates as
a strong director both in perceptual training and in rewarding
artistic behavior. Perceptual training, the establishment of
"sets" to see, rigidity-flexibility tendencies, habits of ori-
entation to space, all contribute to a child's development in
art.
Few of these things are directly related to a child's chronological age. Culture also directs the kind of realism the child will attempt to attain, whether an effort is made to reproduce nature or to use the cultural symbols for things, such as trees, houses, sun etc. The relationship between mental age and the amount of detail is not exclusive of other factors. For these reasons art products alone cannot be an accurate measure of a child's mental age.

When all factors are considered, only a very general concept of art growth as a series of developmental stages can be used. Probably children scribble before they invent symbols; the symbols become more definitive as they have more experiences, the symbols approach cultural realism when the motor, perceptual, and cognitive skills, as well as conditions in the environment, allow them to do so. The nature of the symbols the children invent is related to their total bio-psychological-cultural experience.59

One cannot teach art. Nobody can. No Cizek, no society, no state can produce artists. Artists are born. School has nothing to do with the education or training of artists. It is beyond its possibilities, but what school can and should do is to encourage and not to suffocate the innate creative capacity of children. That is within the scope of the school. Thus contends Viola.60

To continue with the above, Cizek stated that the most important function of the teacher in an art room, and perhaps in
every other school room also, is to create atmosphere. If he succeeds in that, half the game is won. How this creative atmosphere is produced is an almost entirely personal matter. Some will do it with a few words, perhaps with a gesture or with the question asked: "What are you interested in today?" Some will use the room itself and decorate it with highly colored pictures, if possible, by the children themselves. Much depends on the room, but not everything. The most modest art room with an excellent teacher is preferable to the best equipped room with a bad teacher.

Cizek\(^6\) said, "every young child is creative. The degree only varies. The teacher must set a less creative child a task which forces him to create forms and ever-varying forms, so that the child gets accustomed to create forms, but not to copy. This is the most difficult task. The following dialogue is presented to enhance the topic. It shows the British habit to ask questions after lectures, with Viola\(^6\) answering:

Is the creative part of art interfered with by the examination system? (Leeds Training College) Often it is. But an understanding teacher can succeed to a certain extent even with the present examination system.

If a young child is allowed to create in his own way, will be when older reach a stage of right proportions? (Leeds) Yes.

When a child has little imagination, should a subject be suggested? (Streatham Hill Training College) Yes.
Is it wrong to compare the children's drawing with the children? (Rachel MacMillan Training College) It is right.

Does a child draw entirely from his imagination? (Rachel)
The small child, yes. Later imagination gets weaker. The older child draws more from experience. The stages overlap. All growing is transitional.

From talks with Cizek:63

Child art was disregarded, ridiculed, and scoffed at. Even now people visit me who, when I show them real infantile work, only laugh. I estimate very highly those things done by small children. They are the first and purest source of artistic creation.

The child creates subconsciously. What originates from the conscious is thought out; what comes from the subconscious is touching. Everything great has originated from the subconscious. Art more and more dries up because it is supplanted by the intellect, and from the subconscious only a few produce any more. Technique can reach a very high level. But although it is an immense accomplishment, it is something different from art or another kind of art.

The most beautiful things in the creation of the child are his "mistakes." The more a child's work is full of these individual mistakes the more wonderful it is. And the more a teacher removes them from the child's work the duller, more desolate and impersonal it becomes.

Great creative energy exists in every child. This must
find an outlet in expression, or repression will result. Children should be allowed to draw what they wish, what they see in their mind's eye, not that which others think they ought to draw. Child art, is there such a thing? The child and his art, is that not a contradiction? For centuries child art was not known. The word itself is as yet not four decades old.

We speak of child art under two conditions. We must first of all agree that art has nothing to do with skill, exactitude, or even a faithful repetition and copy of nature, but art is creative, unique. The second, perhaps the more important condition: when we regard the child simply as a future adult, denying him his own personality and the right to exercise a logic of his own, which from the point of view of the child is truer than ours, and therefore from the very nature of things different from that of the adult, then it is impossible to speak of child art.

**Early Childhood Intelligence Testing**

The entire field of early childhood testing is full of contradiction, as will be seen in the discussion of results of research into creativity and intelligence. There are authorities for and against rating children of two through five years of age.

Verbal skills do not always adequately measure intelligence. A child may have a low score in the verbal part of an intelligence test, yet show high ability in the nonverbal part.
The same child may not talk freely, yet he may be able to express ideas fluently with paint. Another child may have found his verbal expression quite adequate and may not feel a need for expressing his ideas in pictorial form.

At the University of Berkeley, Bayley has conducted studies on IQ testing since 1940, Goodenough since 1932 at the University of Minnesota, and at Berkeley, Honzik, Macfarlane and Allen have continued with these investigations into validity of infant tests.

With five year olds, one usually tests for this age only, as an investigation into his developmental characteristics and measures of potential and capacity for more challenges. Insofar as validity is defined as predictive value, these infant tests are apparently invalid. The scores from them indicate little about an individual's ultimate level of intelligence.

Anderson, 1940, has reasoned that the lack of predictive capacity for the infant tests may be a matter of their behavioral content. The behavioral elements for the infant tests have little in common with those for later tests. As age increases, the proportion of elements common from one age to another increases markedly.

Thus, fixed intelligence over the course of development, while empirically untrue according to the test scores, has been defended nevertheless on the ground that the correlation between children's test scores and parental test scores increases
with the age at which children are tested, according to Honzik and Jones, 1954.68

Deciding between the assumption of fixed intelligence and the alternative assumption of plasticity calls for evidence showing whether and to what degree variations in early childhood experience of various kinds are associated with variations in intelligence at later stages when the predictive capacity of the tests has stabilized. Practical difficulties and ethical issues, however, make such studies almost unfeasible with human beings.

Gesell's69 approach has been concerned with describing what is characteristic of children at each age. It was only when tests were devised for measuring intelligence in preschool children that the idea of constancy of the IQ was challenged. Faith in the assumption of fixed intelligence is weakening. Evidence was based on the supposed validity of intelligence tests as doing a fair job of predicting school achievement. Heredity led in the estimate of determination of intelligence; environment took second place.

The tests of intelligence showed that capacity increases with age and that individual differences in capacity exist. There was a swing towards not pushing children in their intellectual development, but of helping them towards life adjustment, allowing basic natures to unfold, and of letting them be themselves. Other lines of influence, particularly that which came down from Rousseau through Pestalozzi and Froebel and that
which derived from Freud, participated in this swing of the pendulum, but the fact that intellectual capacity was supposed to unfold automatically supplied an important part of the conceptual justification. Growth was conceived as an automatic process.

Galton's tests were too largely sensory. Binet and Henri suggested instead, the measurement of more complex functions, such as memory, imagination, comprehension, and aesthetic appreciation. They set forth what have become two of the principal problems of differential psychology: (1) to determine the nature and extent of individual differences in psychological processes and, (2) to discover the interrelationships of mental processes within the individual.70

Pestalozzi and Froebel, the father of the kindergarten, introduced play into the school curriculum for younger children as an antidote for the punishing cruelty that had been necessary to motivate the learning of school skills that were made widely available to children during the Reformation. Then it was deemed important for them to be able to read the Bible for their salvation, and the notion of original sin readily justified the lack of motivation for such learning. Probably the chief basis for the lack of interest in learning among young children in these schools lay in the poor match between the material presented and the background of the children. The language of the Bible and of the sages was well beyond the ken of youngsters of six, seven, or eight years.71
What is needed is a curriculum which programs the child's progression of encounters with circumstances to maximize his potential for intellectual development. Once it is recognized that positive motivation and pleasure inhere in the learning process when there is a proper match between the situation encountered and the child's already assimilated schemata, it becomes unnecessary to worry about pushing children, for there is no grim urgency to do this.

Hunt[72] further reminds us that ours is a technological culture of ever increasing complexity. Its development continually demands an ever larger proportion of the population with intellectual capacity at the higher levels. It calls also for intellectual giants to solve the problems that become increasingly complex. The fact that it is reasonable to hope to find ways of raising the level of intellectual capacity in a majority of the population makes it a challenge to do the necessary research. It is one of the major challenges of our times. It is a challenge, moreover, where the chances are fairly good that the behavioral sciences can make a contribution of great social, as well as theoretical, significance.

The problem for the management of child development is to find out how to govern the encounters that children have with their environments to foster both an optimally rapid rate of intellectual development and a satisfying life.
Footnotes


2 Viola, Child Art, p. 8.

3 Viola, Child Art, p. 10.


5 Alfred Lichtwark, Die Kunst in der Schule (Cologne: Braun, 1887).


8 Viola, Child Art, p. 11.

9 Viola, Child Art, p. 12.

10 Viola, Child Art, p. 62.


14 S. Levinstein, Kinderzeichnungen bis zum 14 Lebensjahre (Leipzig: Voigtlander, 1905).


16 Karl Buhler, Die Geistige Entwicklung des Kindes (Jena: Fischer, 1918).


18 George Kirstensteiner, Die Entwicklung der zeichnerischen Begabung (Munich: Gerber, 1905).
19 Ernst Linde, **Art and Education** (Cologne: Steinacher, 1904).


33 Torrance, p. 25.


37 Boas, p. 349.


41 Read, p. 108.

42 Read, p. 110.


45 Lowenfeld, p. 131.


48 Munro, p. 84.

49 Munro, p. 94.

50 Lowenfeld, p. 73.

51 Read, p. 125.

52 Read, p. 253.

53 Read, p. 288.


56 McFee, p. 129.

57 McFee, p. 158.

58 McFee, p. 160.
60. Viola, Child Art, p. 35.
63. Viola, Child Art, p. 33.
64. McFee, p. 133.
70. Hunt, p. 12.
71. Hunt, p. 279.
CHAPTER IV

REVIEW OF THE VALUE OF ART EXPRESSION
IN THE KINDERGARTEN

Art is not a handicraft; it is the transmission of feeling the artist has experienced. Tolstoy

A child’s happiness depends greatly on the environment in which he grows up, and particularly on the understanding of the parents for his needs. Love alone is not enough, especially blind love. To remove all obstacles may not always be to a child’s advantage. To give the child all he wants may too often mean depriving him of important longings, the gateway for discoveries and explorations.¹

The fulfillment of all wishes takes away the initiative to search for satisfaction. It should be kept in mind that the fulfillment of a child’s outer wishes is not always connected with the satisfaction of his inner needs. A child may be restless and nervous, unable to remain occupied for any length of time. Recognizing this inability, the parents may provide him with as many changes as possible, if only to avoid the continuous whining of the child, at least for a short period. Such a child’s needs are not for more changes or toys; rather they are for increased love and understanding of the wide range of experiences of which he is capable, but which have been neglected

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in the child's past, thus inhibiting him.

To give the child more toys may only add to his restlessness, which consists of inability to sustain attention, whatever the cause may be. We usually cannot remain with one thing if our interest becomes exhausted. Yet the more we can see, feel, and apply our imagination in general experience to one thing, the more our interest will be evoked. To develop this great variety of sensitive relationships constitutes one of the main needs of the child.

When we give a restless child more with which to play, we have offered him more excitement, but nothing to help him solve his own problems. The child has a world of his own, and the sooner we help him realize it without imposing our own adult standards on him, the better he will develop.

While adults are most apt to recognize the child's physical needs, his emotional and mental needs are neglected. While his physical growth, his health, are most important, there are other components of growth equally important for the happiness of the child and also for his happiness as a future citizen. How the child uses his mind, how he uses his hands, whether he reacts sensitively toward what he sees, hears, feels, or touches, whether he develops desires to communicate with others, are all part of his happiness. Adults, parents, and teachers must develop the sensitivity which is necessary to recognize the child's needs when and where they may occur.
There is a need for better understanding of such needs through one of the child's most natural forms of expression - his art. Through understanding the child's art activities, one should gradually become provided with the ability to see in his creative powers and activities some of his major needs which otherwise would not have been discovered.

Why is it important that the child creates? asks Lowenfeld. First of all when he begins he must think of something. Often this something seems to us insignificant. For the child, however, it always means a confrontation with his own self, with his own experience. As he thinks of it, his thoughts concentrate on the experience to be painted. His thought process, the ability to think and concentrate on something, becomes stimulated. It is an important part of the initial step in creative activities.

For an example, Lowenfeld says, let us say that Mary wants to paint "how she plays with other children in the yard." It is self evident that Mary will include only those things which she knows and which are important to her. Important to her, however, are only those things which she knows and to which she has established some more or less sensitive relationship. For Mary, the apple tree in the yard may have big buds, for she was watching them grow. Johnny was using the tree only for climbing; buds had no meaning for him and were therefore not included in his painting. Johnny was interested in Mary's dress.
He liked Mary. His painting indicates more details on Mary than elsewhere. From that it becomes quite clear that his painting is not an objective representation. On the contrary, it expresses his likes and dislikes, his emotional relationships to his own world and the world which surrounds him. It then combines two very important factors: his knowledge of things and his own individual relationship toward them.

Everything the child does and to which he is exposed has some influence upon him. If the child in his creative work continuously attempts to relate all his experiences, such as thinking, feeling, perceiving, seeing, touching, and so on, to one another, it must also have a unifying effect on his personality.

To discover and explore what different art materials can do, to learn their behavior, is also one of the very desirable trends which the child develops through creative activities. The ability to think independently and creatively as fostered by art, however, does not remain solely with art. It is a faculty that is used wherever men have an opportunity to strive for better and higher achievements. It is one of the outstanding characteristics of democratic living.

Why is it important for your child to create? Lowenfeld says it is important for the child to be happy and free like Mary, and not as tense and inhibited like many children; children's thinking and feeling can become less restricted and develop into a well-balanced human being who uses equally well
her thinking, feeling, and perceiving. She should continue to enjoy discovering and exploring the world while gradually becoming an individual who stands on her own feet fearlessly, a happy human being.

The creative art of children has existed since the creation but not until some fifty years ago was its existence recognized. Professor Cizek of Vienna was the pioneer, the discoverer of this creative ability, the birthright of children of every nationality.

For many years he had to fight against both criticism and ridicule. He did so with courage and conviction, until the true value of his teaching became fully appreciated by educators the world over, a success few pioneers have enjoyed during their lifetime.

Professor Cizek believes that each child is a law unto himself and should be allowed to develop his own technique; he cannot therefore be subjected to a rigid course of technical training. The child's innate tendencies, he contends, must be developed; the ideas and methods of expression of others must not, therefore, be imposed upon him.

Fundamental principles discovered by this pioneer in child art:

1. Great creative energy exists in every child. This must find an outlet in expression, or regression will result. Children should be allowed to draw what they wish, what
they see in their mind's eye, not that which others think they ought to draw.

2. Criticism should always be constructive and sympathetic. Children's efforts should never be subjected to ridicule.

3. The praising of mere skill, is however, dangerous. Art is not skill but creation. Anything which is produced that is the result of inner experience is more worthy than the cleverest copy of the work of others.

4. Children should not be left entirely to their own resources; they should be provided with a suitable environment, should be given suitable material and should be helped and guided by sympathy and understanding.

5. Teachers should also beware of the sophisticated, for even what is childlike, as well as the work of adults, can be imitated.

6. Children should be taught, before they leave school, to represent what they see with the physical eye, for although accurate representation cannot be called art, it is an international language, the value of which cannot be denied.

7. When children's drawings are spontaneous efforts, they can and must speak for themselves.

The idealistic concept of the child as an innate artist who has simply to get material and nothing else in order to create has done as much harm to art education as the neglect of the child's
creative impulses. The child's general growth is tied up with his creative development and vice versa. Creative expression is as differentiated as are individuals. This is clearly evident in the minds of artists as it is in the minds of educators and psychologists. However, the child's creative expression during specific stages in his mental and emotional growth can only be understood and appreciated if the general causal interdependence between creation and growth is understood. 7

On the elementary education levels, the meaning of the final product is treated in a subordinated way according to its nature. The discussion of methods of approach and the general effect of art education upon the mental growth of the child is primarily the problem during this important initial period. The reason why so many children lose their creative abilities when they approach adolescence has been discussed and analyzed. During adolescence, skills become increasingly important, and the creative approach changes from an unconscious creation to one done with critical awareness.

**Easel Painting - Imaginative**

An easel painting is an intimate expression of emotions, ideas or experience in nature. It reveals the artist's direct relationship to his world of sensations. An easel painting, therefore, usually is not illustrative like a mural, which tells a story or event, but is more the artist's direct approach to the world of experiences, his experiences. It is the most sub-
jective approach in painting techniques.

Depending on personality, subject matter, and method of approach, different techniques will lead easiest to the desired expressive qualities. It devolves upon the teacher to recognize and guide his students into the kind of techniques that are most adequate to their desire for expression.

Some students need models for visual inspiration. Other students are hampered by what they see, since they use means different from visual stimuli as starting points for their creative experiences. Their world is bound up with the imaginative experiences which can basically be visual or haptic, the world of appearances or the world of subjective expressions. For both groups, however, different techniques will lead to their aim.

In general, for imaginative paintings, paintings that are not done from nature, but purely from imagination, techniques must be chosen that lend themselves to a building-up process, to the possibility of going over the painting again and again without technically tearing the picture into uneven, heterogeneous parts. There are different techniques that can be carefully planned, layer by layer, and techniques that are not built up gradually, but are applied emotionally. Very little children, at the kindergarten level do not have enough interest in this much repetition.

Techniques that are applied emotionally, without planning or contemplation are technically the easiest to use. The aim of such a technique is to preserve the paint stroke in its
original quality. Such pictures are usually painted alla prima, that is, all in one sitting, or standing, at the easel. Painting alla prima aims from the very start at the final effect of the finished picture, and attempts to arrive at that effect in the shortest and most direct way. Kindergarten children in this research painted alla prima, for they completed their easel paintings in one operation at their own rate of speed.

The teaching of art to the young generation can best be accomplished by teaching them to work with their hands. Subconsciously ideas are born, and an appreciation of color and form is taught without the child's realization that a lesson is being learned. Parents and teachers alike know how much depends upon directing the child's footsteps upon the right road.

McLeish⁹ reminds adults how quickly children forsake one task for another. They are naturally imaginative and adept at devising games and amusements, and are never happier than during the art period when they are developing mind, eye and character, in making things for themselves.

The Academically Talented Child

Most academically talented students are characterized by superior development and abundant energy.¹⁰ Their intellectual abilities include, in varying degrees, the following qualities:

1. Speed of learning

2. Retentive memory and excellent powers of recall
3. The power to generalize and to think abstractly
4. To recognize likenesses and differences
5. To grasp the whole as well as parts
6. To have insight into problems
7. To do problem solving

**The Retarded Child**

A retarded individual usually is one who has not attained the mental capacity of normal individuals of the same age level, and involves no other abnormal condition. Gaitsekell in *Art Education for Slow Learners* says that mental retardation indicates only a negative discrepancy between mental and chronological age. In creative activity one might find an eight year old child still scribbling and therefore still concerned with his motor activity. Instead, he should already relate his drawings to environment.

**The Art Process**

Within the academically talented group will be found highly diverse abilities, both potential and developed, as well as varied interests. Certain values in the visual arts derive clearly from process, from the activity itself. Inasmuch as the visual arts draw upon one's experiences, the individual is required to confront himself, to choose, to reorganize, to integrate.

Inventiveness, imagination, creativity, all are essential to the successful art experience. These are fortunately ap-
parent in the art process because the range of acceptable and right solutions is infinite; for example, there is no right way to depict the human figure. It has been depicted in hundreds of cultures and by tens of thousands of artists and always found to be different. It is, therefore, a subject of interest to the preschool child, the adolescent, and the adult; at each level, and within each level, it is depicted differently.12

The visual arts, furthermore, provide for direct emotional direction, intellectual guidance, and manipulative skill. There is a directness of relationship between one's efforts and one's results, a degree and kind of control that are unique.

**The Art Product**

Art is a productive activity; a product results from the experience. Successful art produces art characterized by integrity and sincerity; these are the factors of evaluation along with aesthetic order and craftsmanship. Under effective art instruction, the work of every student is unique and, in this age of threatening conformity, few outcomes can be more highly prized.

Because of the nature of the involvement of every student, there is something of himself in what he produces; this is responsible for the intense satisfaction which results and the sense of pride and accomplishment which accrues, states Ziegfeld.13

In both process and product, the creator is sensitized
to the values inherent in the art products of others. Therefore, art is also a widening process, for the child gradually begins to judge the world about him and his relationship to this world.

A gifted child wants to be physically and mentally active. Physical and intellectual activities are interrelated. Children learn a great deal from play, activity carried out for its own sake. The earliest form of play is the delight in the practice of newly acquired abilities, such as using crayons or cutting with scissors.

The child's play is purposeful; it is the source of much of his learning during the preschool years. One should always try to preserve the play element in the work that one expects of children, for this element causes children to put forth effort consistently and enthusiastically. One important aspect of play is that it is self initiated; it is the child's idea; he wants to do it; he has in mind a definite goal. In the performance of art expression, he only produces what he has the potential to materialize.

Intellectual ability, as measured by various intelligence and achievement tests, is the aspect of giftedness most commonly recognized in the setting up of school programs. This practice is justified by the fact that good things tend to go together. High scores on intelligence tests indicate generally high scholastic aptitude. Strang¹⁴ says they are likely to
forecast success in high school and college.

There are, of course, exceptions to this general rule for intelligence is only one ingredient in achievement. Home background is especially significant. Some children who come from impoverished homes, where they lack companionship and things to play with and explore, may not show their real ability on standardized tests. It may take six years or more of schooling to compensate for some of these deficiencies in early environment. It is easier to identify the able and ambitious student than to recognize the child who is potentially able but unassuming. The prominent position art plays in the curricula of most school systems is an indication of its role in providing another resource for children with problems of adjustment. Art can easily be integrated with play, thus fulfilling a multi-role in the stimulation of intellectual, creative, and physical expression.

**Creative Expression of Young Children**

Creative art expression, and later, the ability to understand the aesthetic bases of the arts, appear to be as natural to the young child as eating, sleeping, and walking. In his creative work, the young child freely, effectively, and happily expresses his thoughts and attitudes: he plays constructively, and he begins to learn the meaning of great works of art of the past and present.

Most children are ready to paint and model by the time
they are twelve to fifteen months old, and they are ready for introductory learning experiences through the observation of professional art works by the time they are three years old, but most young children are denied both opportunities for one or more of the following reasons says Conant:15

1. Only a small percentage of children attend nursery schools where creative expression is usually fostered by well-trained teachers.

2. Many parents are unwilling to expend the effort in the securing of materials, preparation, and cleanup which most creative art activities necessitate.

3. Some of the few parents who do provide clay, paint, and other art materials for their children offer the wrong kind of guidance or fail to provide other conditions which are conducive to creative art expression: instruction, stimuli, environment.

4. Many parents and relatives provide children with coloring books and other stereotyped materials which impede creative expression.

5. Very few homes or nursery schools contain original art works, or even reproductions of high aesthetic quality which might even indirectly contribute to young children's art knowledge.

At home and school the young child should readily be able to paint, model, construct or draw, and he should receive
creative guidance at appropriate times. There should be a
table of proper height where he can work at times of his choice,
with materials and clay, with tempera and finger paint, with
crayons and paper ready for use. There should be an adult
nearby who will give him creative guidance as needed and help
him with unmanageable materials.

The young child should not be shown or told how to draw,
copy, or trace houses, persons, animals, and various objects.
He should be effectively encouraged to think and talk about the
appearance and other qualities of these things, to look at and
discuss actual objects or pictures of them, and thus to enrich
the concepts from which art expression emanates. He can be
taught to recognize, choose, mix, paint over, and apply various
colors. He can be introduced to new art materials; he can be
shown how to achieve strokes of various widths, with a crayon
or brush. He can be shown how to press clay pieces together
so they will stick. He can profit greatly by appropriate
stimuli, and he can gain confidence and increased ease of ex-
pression through proper comments on the work he produces and the
ways in which he produces them.

The child of two or three may merely play with paints
or modeling materials, making scribbles, swirls, or informal
squeezed shapes which appear meaningless. Yet to the child
these experiences are important; they are believed to be ex-
pressions of his innermost feelings. Play is as serious to the
young child as work is to the adult; he often applies himself to it with total interest and great effort. The adult may ask, "Would you like to tell me about what you are doing?" but he probably should not ask, "What is it supposed to be?" or "Why did you use so much red?" The young child is deeply stimulated by many elements of his environment. He needs and wants to express his reactions to these stimuli, but the guidance he seeks and receives should be subtle, skillful, well-timed and conducive to creative expression.

Under ideal conditions the child should neither be pressed for time nor expected to continue working beyond the limits of his interest span. He should be able to work as long as he wishes, to make as many pictures or models as he wants, and to resume or discontinue working whenever he likes.

Among the stimuli which parents and nursery school teachers can provide are "looking walks;" trips to farms, zoos, and other places of interest; films and slides; poetry and story readings; group discussions of rainy, windy, snowy, or sunny days; careful observation and discussion of pets; guessing what is in a box which rattles; and art materials, such as finger paints or modeling dough, which the children have not previously used.

A number of media and activities are well-suited for encouraging the creative art expression of young children; among them are dough, paper pulp, and moist clay--plasticene is less satisfactory; tempera paint with long-bristle brushes of varying
widths, and large sheets of heavy paper, 12 x 15 inches at least; large unwrapped sticks of chalk or crayon; chalk drawing and water painting on blackboards. Also recommended are vegetable and stick printing--flat-cut carrot, potato, stick, or block surfaces are covered with paint or pressed onto paper or cloth; wood and cardboard building blocks which can be used to create three dimensional designs, augmented by larger, re-sealed cardboard boxes; finger paint on water proof surfaces or large butcher trays which are often used for "warm-up" painting before glazed finger paint or shelf paper is provided; and a wide variety of collage materials and adhesives, such as colored paper, round-tipped scissors, feathers, bits of cellophane and cardboard, sandpaper, cloth, soda straws, paste, glue, cellophane tape, and a stapler.

The nature of the young child's creative work as well as the conceptual understandings, attitudes, motor skills and other factors which it often reveals and upon which it is usually based varies greatly from one or two to four or five years of age. The nature of the art of one, two, three, and sometimes four year olds depends to a considerable extent upon the amount and kind of their previous art experiences, but it is usually characterized by scribbles and irregular shapes. At the earli-est stages of his artistic development, the child tends not to title his works and he rarely attempts to draw or model persons or objects; but he sometimes playacts through art media, interpreting various rhythmic movements or gestures which he may
consciously or unconsciously accompany with related sounds or facial expressions. During periods of creative art expression, the young child is often deeply absorbed. Though proof is not yet available, it is believed that such moments of deep interest and concentration coincide with conceptual enrichment and artistic growth.

At three or four years of age, a few children will begin to use pictorial symbols in their art work, some of which may be recognizable by adults. The use of expressive symbols is especially characteristic of children who have been given frequent opportunities for creative art expression during their earliest years and have progressed from the level of play to a level of more specific intent and more highly developed conceptual and expressive ability. Some of the art symbols used by young children are unquestionably imitative of those they have seen in the works of other children, adults, or artists who make illustrations for books, magazines, television, and animated pictures, but most are original. Their resemblance to symbols used by other children at similar developmental levels is regarded as a coincidence.

Certainly the frequent appearance in a young child's work of an elliptical shape for a head, horizontal lines for a mouth, with arms and sometimes legs, but seldom a body, connected directly to the head, is an expression of his personal concept of the human figure rather than an imitation of someone
else's work. So, too, many other symbols which appear in the young child's art work are believed to be expressions of his inner concepts of persons and objects rather than results of his attempts to portray their actual appearance. The aim in contributing to the development of the young child's art expression should, therefore, be one of conceptual enrichment rather than instruction on how to draw or model subjects in specific ways. Such enrichment appears to be best fostered indirectly by providing appropriate stimuli and art experiences through which the child's conceptual development, expressive skills, and overall interest in creative work seem to evolve naturally.

One remarkable characteristic of the art work of most very young children is its extremely high aesthetic quality. The child appears to have an inherent sense of color, shape, line, and texture which often achieves an overall aesthetic level of professional quality. Part of this phenomena appears attributable to the aesthetic beauty of the human body and its normal patterns. The curved line created by a pencil held in one's fingers as the hand is moved from a bent-back to a bent-forward position is aesthetically pleasing. So are the lines created by other natural finger, wrist, arm, shoulder and body movement.

Part of this high aesthetic quality is believed to result from the young child's inherent sense of design and the
tendency of his early concepts to reduce various subjects to their structural and ideological essence. Einstein believed children have an inherent ability to understand advanced mathematical concepts; this inherent ability is likely to art concepts and expressive abilities as well.

The problem which vexes art teachers, as it must teachers of mathematics, is how to maintain and build upon this high level of conceptualization and expression. More than a few professional artists have striven, some with success, to recapture in their own art work the beauty of childlike, natural body movements and unfettered conceptual processes.

The Why of Child Art

Professor Cizek found that children from the poorer sections of the city were generally more original and more creative than the children of wealthy parents. A richer environment is as a rule destructive to what is creative in the child. Too many books, pictures, visits, theaters, and so forth are bad for the child.

The child is so strong and rich in his own imaginative world that he needs little else. A child not yet spoiled by grownups once asked him, "What does a meadow look like?" Cizek answered, "Lie down in it, shut your eyes and live the meadow!"

Art can only come out of creativeness. Then it is strong and elementary, otherwise it is not art. The child who is not influenced by grownups has this strong type of art. Therefore
the child from three to nine years of age should be encouraged to make what he feels he must bring out of himself. When the child begins to copy, and then only according to Cizek, the task of the teacher begins. The children who continue to create should be allowed to go on creating.

The child chooses strong colors because he is strong himself and not complicated. Cizek felt that art is more important than other school subjects; but he is much more than a reformer of education in art. He was the first artist who insisted on the creative capacity of the child as a basis of art instruction. He felt that the significance of his work rested in the fact that for the first time children in his classes were allowed to be creative. (1885)

Cizek stated that his juvenile art classes were not playing and he did not wish, as some people thought, that his object was to provide children only with some happy, sunny hours. He reminded them that art is often desperately serious work. He did admit that children found happy, sunny hours of uninterrupted struggle for form and expression, hours in which they were allowed to do that which as a rule may be made difficult, to work, to be active, and to create during the art classes.

**Evaluating the Arts**

The art of painting, lacking the obvious practicality of architecture or the inherent three-dimensionality of sculpture,
makes a special appeal to the appreciation and sensitivity of its audience. This appeal is quite different from that of architecture, where the mundane function of a building, its spaciousness and other factors are easily observed; and it is different from sculpture which may interest us through its mass.

Myers\textsuperscript{21} states that in our enjoyment of the object of art as visual history, we have brought to bear our rational faculties; we have tried to discern one kind of associative meaning in the work of art. The building, sculpture, or painting itself also offers an intellectual experience in the analytical sense when we set out to discover the formal or compositional elements that hold it together. In the attempt to calculate the system behind its construction or the relationship of various parts, we are going through a reasoning process, a challenge of the mind that yields not only deeper understanding but also a certain form of planning.

**Intellectual Growth as Seen in the Child's Creative Growth**

A child of four who is still concerned with uncontrolled motions is below average development. This does not mean that the child may not catch up in his achievement in a short time. Lowenfeld\textsuperscript{22} has seen six year old children still scribbling and not only advancing up to the average level of development in a short period, but even going beyond it. It should, therefore,
be clearly pointed out that the results obtained by an evaluation chart such as the score sheet in this study are only indicative of the child's present status and do in no way predict the child's future growth.

When there is discrepancy between chronological age and its respective creative expression, it appears that the child's intellectual growth is of average quality. For example, if the child had been four years of age and still concerned with uncontrolled motions, it would have been a clear indication that the child's mentality has not grown beyond thinking in terms of motions. It would also indicate that the child had not even progressed to the level of mastering his motions, an important intellectual achievement. The scribbling stage should extend from two to four years of age.

Intellectual growth is usually seen in the child's growing awareness of himself and his environment. In children's drawings and paintings the details which the adult can see are indicative of the child's intellectual awareness. The knowledge which is actively at the child's disposal when he draws may account for his intellectual level. This knowledge changes with the chronological age of the child. Yet, even in children of the same age, a great variety of active knowledge can be seen. This difference usually indicates the difference in intellectual comprehension.

Goodenough, in the "Draw a Man Test" says that a child
five years who, when drawing a man, can think only of head and legs is intellectually inferior to a child who also includes the body and features. Nevertheless one must not make the mistake of thinking that lack of details of any sort in the creative expression of children always means low mentality. Very often restrictions block the development of the child's intellectual abilities; or also, the child's tendency for too much reasoning and intellectualizing of his experiences may restrict his emotional freedom. In both cases the child's creative expression may suffer. It is for this reason that we often hear of children who are very good in drawing and seemingly poor intellectually, and others who are apparently poor in drawing and intellectually superior.25

For the development of a healthy, childlike personality it is of utmost significance that a proper balance be kept between emotional and intellectual growth. If a child is found to be restricted in his creative expression and yet high on his intellectual level, he must be given more art motivation in order to achieve the mentioned balance. If a child is found to be rich in art expression but otherwise seemingly below his intellectual standard, he must be given help and confidence in his desire for intellectual achievements. Our present educational system suffers greatly from an overemphasis of intellectual growth, says Lowenfeld.26 Learning, the acquisition of knowledge, almost exclusively stands in the focus of education.
It is just as important for the child to gain freedom in expression as it is for him to get more knowledge. In fact, knowledge will remain unused, frozen, unless the child develops the urge and freedom to use it.

**Teaching Art to Children**

The introduction of art to the younger generation can best be accomplished by teaching them to work with their hands. Subconsciously ideas are born, and an appreciation of color and form is taught without the child's realization that a lesson is being learned. Parents and teachers alike know how much depends upon directing the child's footsteps upon the right road. Children are naturally imaginative and inventive. They are adept at devising games and amusements, and are never happier than when they are developing mind, eye and character.

Art does not lead. It reveals, it requires us to look and learn. Let us, says McLeish, if the word "art" seems outdone, use "looking, learning and doing." Those who look and learn, and do for themselves will not be easily deceived.

A child's artistic expression is one of the many ways by which he expresses his reaction to his living experiences. Many adults do not realize that children's artistic expression is an important part of this play experience. Healthy, uninhibited children participate eagerly in all forms of artistic expression.

They sing, dance, draw, paint, model, build and write
naturally and unself-consciously. What adults call children's creative expression is, as far as the child is concerned, merely playing with paints, crayons, clay, or other media.

If a child hesitates about expressing himself with paint, crayons or clay, it is because some adult has done something to inhibit his free participation in these forms of play. The correct way to paint or draw is strange to the child for it usually becomes a pattern to follow instead of a means of expression.28

While it is widely accepted today that artistic expression through paint and clay is as normal an attribute of childhood as expression through words, and though there is also an increased understanding of children's art work, there are still many pressures that inhibit the free expression of children in our homes and schools. Mendelowitz,29 in Children are Artists, states that the most common inhibiting influences are attitudes which result from a lack of familiarity with the nature of children's art work. When adults do not understand the various levels through which a child's art expression evolves, there is a tendency to evaluate the work according to adult standards and techniques.

Inadvertently, one may say or do something which makes a child feel that he cannot paint or draw or build or make things with clay. When this happens the child ceases to participate wholeheartedly in a certain form of artistic ex-
pression and emotional blocks are set up which inhibit expression. As time passes, this negative attitude solidifies into what is known as a lack of ability or talent.

The main principal is: let every child do his work as well and as beautifully as he can, but do it joyfully. In this way self-expression gradually becomes a lasting intellectual possession, says Rusk and the process of these intellectual victories is the training for all creative work.

Only after years will the child want purely intellectual pursuits, which can then be treated in conversations and discussion, thus furthering development of personal experience and resulting in abstract conclusions which lead to a formulation of general axioms. A child, however, should always be free to create a work of art for the pure joy of creating and for no other reason.

Success in art work with young children depends upon sympathy with children and a knowledge of supplies and their uses. The art teacher must first encourage absolute understanding between himself and the child so that the child feels free to accept, consider, and either adopt or discard any suggestion made by the teacher while creating his work of art.

Art expression is learning experience which should be included in every kindergarten curriculum to help each child find appropriate pastimes now, and learn to desire and seek wholesome recreation as he grows older. It may be difficult
for adults to see how adult problems and concepts relate to
the kindergarten age, but the child is also affected by all
that transpires in the adult world, even though he has nothing
to do with actually contributing to the direction it will take:
except in the capacity of an onlooker.

Through his observation of his environment, we know that
the child is gradually becoming more and more of an active agent
in his own progressive social improvement. This does not mean
that the purpose of the kindergarten is primarily to serve
future needs. This would deny all that has been written in
these chapters about how this learning takes place. It does
express the idea, however, that democratic behavior does not
appear full-blown at the age of twenty-one. It is the logical
culmination of a lifetime of experiences, often begun in the
kindergarten, through which the child learns to find satis-
faction in socially approved behavior. 31

Art expression helps to give the child basic feelings
of security and social approval which free him psychologically
for further acceptable social behavior. At this formative
stage, the child develops self-reliance, initiative, and a
creative approach to the solution of his kindergarten problems
which later he will apply with greater confidence to the solu-
tion of more complex problems. Through art experiences and
completed products, many children receive recognition from
their peers and begin to feel that they belong and are ac-
cepted by the group.

To acquaint young children with the tools of painting, brushes of various sizes and bristles, sponges and other absorbent materials are introduced and their use encouraged at first by applying water on the chalkboard. Young children will need to be shown how to hold their brushes. The grip of a brush is similar to holding a spoon, with the fingers slightly straighter and more relaxed.\textsuperscript{32}

When ready, let the children work with paint on their brushes. Sometimes other colors are discovered when more than one color is on their brush. Therefore the children do not need to be extremely careful about cleaning their tools every time at first. However, a jar half filled with water is desirable so that they can rinse their brushes whenever they want, as well as clean them when finished. The boys and girls can be shown how to roll the bristles of the round pointed brushes in the palm of their hand to form a point.

For painting pictures, a paint similar to a consistency of heavy white sauce is good. Young children seem to find thick paint easier to handle and to clean up. Soap powder or detergent, added to the mixed paint, helps to eliminate paint from flaking off when dry.

If the fluidity of paint seems to bother the children, perhaps for a while a more static medium such as chalk, crayon or cut paper would satisfy them more. For the beginner, two
colors of paint are adequate; for example, a bright one and a dark one.

When children are ready to handle more colors, provide red, yellow, blue, black and white paint. With these basic colors, children sometime mix colors as they work:

- blue and yellow = green
- yellow and black = green
- yellow and red = orange
- blue and red = violet
- red and yellow and blue = gray
- orange and black or blue = brown

To lighten a color add white

In this research children painted with calcimine powder paint which was mixed quite thickly and had liquid detergent added to it to keep the finished product smoother to the touch.

According to Knudsen and Christensen these are the

**basic supplies for painting pictures:**

**Brushes and other tools such as shaving brushes, sponges, forks and broom corn**

To apply paint

**Containers, plastic, metal or waxed cardboard**

To hold paint and to distribute and collect paint jars

**Easel, chalkboard, or table and floor surfaces**

To permit children to paint on firm upright and horizontal surfaces

**Linoleum, thin gauge**

To protect the floor surfaces under the easels or chalkboard from paint
Nails or curtain rod hooks inserted into easels .... To secure paper to the easel or chalkboard

Paint, powder (calcimine) mixed with water to a thick consistency .... To minimize the paint drips

Paper, newsprint, 18x24 inches, printed or unprinted .... To paint on

Shirts, discarded or aprons .... To protect children's clothes

Sponges or damp cloths .... To remove paint drips

Sticks .... To stir paint

Water .... To clean brushes and to mix paint

All of the items listed above were also employed in carrying out the research under discussion in this paper. Each one of these materials lends its aid to the completion of these artistically playful painting sessions which are also heavily weighted with learnings.

DeFrancesco, 34 in Art Education discusses some features which are vital to the teaching of art. Large crayons, wax or hard pressed, permit the child to experiment in manipulative exercise and the development of muscular control. Crayons are flexible insofar as their use is concerned because children may use the point, the side, and the end with as much pressure as is required in order to achieve whatever they wish. Large areas of flat color as well as details are possible.

Powder paint is sometimes referred to as cold water paint. It may be mixed in various consistencies depending on
the purpose, which ranges from ordinary painting activities to finger painting. With this medium it is possible for children to paint in outline on solid areas, or to obtain interesting minglings. Long handled brushes and a fairly thick consistency are generally advisable.

The period of early childhood, from one to seven years of age, approximates the stages of manipulation and presymbolic creative development. Creative impulses are almost entirely associated with motor activity. As the child becomes adult, he may do creative work without any accompanying motor activity. The young child, however, thinks and creates with movements.

As the child grows, the kinesthetic enjoyment undoubtedly continues in some form. But from the creative point of view, it is the visual realization of what he has scribbled that interests him. He moves from uncontrolled scribbles to purposive scribbles; up and down, circular, and mixed line movements. In due time the child will make known his purpose by naming his work.

An interesting study, which involved nearly 9,000 children of kindergarten age, was made in the Province of Ontario, Canada, by Gaitskell, as reported in Art Education in the Kindergarten. They refer to the level of "naming what the child draws" as that of the manipulation stage. The duration of this stage varies for individual children. Some children have fairly complete symbols for "me" or "ball" or "boy". This naming
implies various implications in the study of the growth of the child who is creating and specifying his work.

Drawing, painting, modeling and other forms of expression produced during the early creative stages of development begin to acquire meaning. They are meaningful to the child in the sense that clear purposes may be observed. It is paramount that teachers and parents recognize such purposes. Having developed a graphic, although still diagrammatic, mode of expression, the child at this point is likely to use it often. He does so for the satisfaction he experiences at the accomplishment, as well as for further mastery. But Goodenough,36 in discussing her "Children's Drawings" found that children at this stage actually have a wide variety of symbols. This fact should indicate to teachers that individuality and inventiveness are beginning to show forth and should be encouraged.

Lowenfeld,37 in Creative and Mental Growth, calls attention to the deviations from the newly discovered symbols and points out that these deviations are significant, particularly the exaggeration of parts, omission of unimportant parts, and changes of symbols for the expression of emotionally important parts. These changes are meaningful because they may suggest experiences of a profound character; a fact not too common at this age level. A further meaning is that the changes suggest emotional influences which intimately identify the child with his personal attempt at full expression.

The changes or omissions referred to are indications of
deep feeling or concern. They reinforce the idea that children will draw or paint when they feel themselves in the situation. However, it is more common at this level for children to realize that inert symbols cannot tell what they feel. Children retain an individual way of characterizing and of expressing feelings, of direction and position in space.

Lowenfeld has suggested some "Topics for Painting". At the age level from four through seven years, these topics are centered around "I" and "my":

I and my Mother (sizes)
I and my house (sizes)
I am brushing my teeth (teeth)
I am drinking my milk (mouth)
I am blowing my nose (nose)
I am eating my breakfast (mouth)
I am searching for a coin I lost (hand, eyes)
I am playing ball (arms, hands)
I am hurting my knee (knee)
I am playing tag (arms, legs)
I am sitting on the swing (body)
I am at the dentist (teeth)
I am listening to the radio (ears)
I am reaching for an apple (hand)
I am picking flowers (hand, arms)
I am eating with a spoon and a fork (mouth)
I am swimming (legs, arms)
I am getting a ring (fingers)
My birthday present (emotional relationship)
My doll (emotional relationship)
My party (emotional relationship)
I am tired (yawning, mouth)
I am led by a policeman across the street (emotional relationship)

Whereas easel painting is an intimate expression of emotions, ideas, or impressions, separated from its surrounding by a frame which intimately closes it off from its environment, a mural is part of another whole, architecture. No restrictions whatsoever are related to an easel painting with regard to size, technique and subject matter. An easel painting can be removed from a wall whenever desired. It is something in itself, existing for no other purpose than for its creation.

One day the child will start to tell stories while going through his motions of scribbling. He may say, "this is a train, this is smoke," or, "this is mother going shopping," although neither train nor smoke nor mother can be recognized. The naming of scribbling however is of the highest significance for the further development of the child, being an indication that the child's thinking has completely changed. Until now the child was perfectly satisfied with the motions themselves, but henceforth the child connects with his motions imaginative experiences. He has changed from a kinesthetic thinking in terms of motions, to an imaginative thinking in terms of pictures.
This decisive change can only be appreciated, if one considers that most thinking during a life span is concerned with thinking in terms of pictures. Mention of every noun, action, association of past experiences is usually connected with imaginative thinking. Surely, when such great steps occur in the mental growth of the child, one expects teachers to give confidence and encouragement in this new kind of thinking.

Because of its importance, the writer would like to stress again that it is quite obvious that the experience during scribbling is mainly connected with motor activity. In the beginning, the important experience was derived from the satisfaction of motor activity, later from the attained mastery and visual control of the lines. Color plays a decidedly subordinate role in scribbling. It does without saying, however, that the child enjoys the use of color, but the use of colors divert the child in the important experiences needed in establishing motor co-ordination.

The child too much attracted by the use of color frequently stops his scribbling and begins splashing paint on the paper. While this may be a release from tensions, and this may be important for the child, it may become a habit if done too often. If scribbling is interfered with, it is the same kind of interruption as forcing a right handed child to scribble with the left hand; which may result in some neurotic behavior.

Larger motions are better for the development of freedom
and should be encouraged by furnishing proper materials. However important motions are, during the "naming of scribbling" stage a great change in the child's thinking is taking place, so the direction of this thinking should be stimulated. For example, above, when the child says, "this is mother going shopping," the correct stimulation would be, "show me where mother goes shopping." Or, "what does she shop for? Are you going with her? Show me where you are. Are you helping her carry the basket? Where is the basket you carry?" The child will respond to each of these questions by making new motions with his brush and paint, or crayons and paper. The purpose here is more the encouragement of the new imaginative thinking than the stimulation to draw recognizable objects. Educators are perfectly satisfied with the strokes and configurations the child is making while being stimulated in his thinking. Gradually he relates this scribbling to the world of representation.

Many works of art satisfy their creators, yet fail to satisfy anyone else. They are good for the one who made them, they express his desire for fulfillment; but they lack the "je ne sais quoi," (I know not what) that would make them effective in satisfying the needs of a large number of observers. This is not traumatic for the kindergarteners, for in their own way they do show a real concern and curiosity for their peers' paintings and other efforts. Therefore when Ogden states that "all stand in need of art, whether as creators or as
appreciative witnesses," children lay this foundation during
the wholesome art periods begun in the kindergarten.

Certainly the art expression of child and adult can
start in the same way, but the aims are widely different. The
urge to draw in young children is called the artistic process
and its forms are universal among children of all races and
among all primitive peoples. Each child is simply going
through the same stages of development as early man, and the
growth of self expression by pictures develops in several
stages.41

The drawings and paintings of young children are not
art as the adult practices it or understands it. Instead it
is the emotional forms invented by the child to record his
personal ideas. For the natural development of the child there
must be regular and frequent opportunities to draw, paint or
model, and the choice of as many media as possible.

In the new education art identifies itself with life;
art is no longer considered an intruder on life, but a real
part of every phase of school experience, says Payant.42
Every normal person wants to do constructive things; he wants
to turn his hands and intelligence to some kind of work which
satisfied his creative instinct. All healthy children at an
eyear age show marked evidence of the creative impulse.

"People make a great mistake in thinking of child art
merely as a step to adult art. It is a thing in itself," says
Gizek.43 "quite shut off and isolated, following its own laws.
and not the laws of grownup people. Once its blossoming is over it will never come again." Dewey\textsuperscript{44} says that "art is the living and concrete proof that man is capable of restoring consciously and thus on the plane of meaning, the union of sense, need, impulse and action characteristic of the live creature."

Painting should be thought of as a personal language expressed directly in terms of color, paint, and brush. A knowledge of rule, theories and principles does not help the beginner, but on the contrary if emphasized too much may confuse him. Many experiences and confidence in the use of materials would do more than anything else to simplify painting and aid the artist in the expression he wishes to make, but most of all he must have a strong urge to say something about what he feels.

Conant\textsuperscript{45} found certain elements of quality in the art experience are similar to those believed to exist in the works of art which are the tangible products of such experience. The most important elements in an art experience would appear to be those which tend to separate or differentiate it from experiences which are ordinary, meaningless or negative. These elements include:

- Selectiveness - Isolating that which is essential and significant

- Transcendence - Going beyond what is, or appears to be seen, heard, felt, believed
Truthfulness - Striving for honesty, sincerity and artistic worth

Profoundness - Seeking insight without loss of breadth; penetrating beneath surface qualities

Intensity - Sharpening focus on essentials; desiring involvement in what is seen or felt

Gracefulness - Seeking freedom from awkwardness, shrillness, or overinsistence; preferring subtlety and interpretation to mere portrayal, desiring to be free of strain, artistically beautiful, moving, even poignant

Emphasis - Stressing aspects which appear artistically important

Balance - Countering one aspect with another, although seldom on an equivalent basis

Proportion - Giving unequal but well related emphasis to various elements

Rhythm - Sensing, reacting, and expressing in periodic sequences

Consistency - Striving for relatedness without succumbing to excessive organization or overattention to detail

Comprehensiveness - Giving attention to coverage without compulsive thoroughness

Unity - Seeking order and harmony without loss of variety

The following are Conant's list of personal characteristics which he believes contribute to artistic creativity:
Heredity - Artistic potential

Talent - Aesthetic insight

Aesthetic awareness - Sees artistic form in films, literature, drama, music, dance, as well as in the particular area in which he works

Perceptiveness - Keen visual awareness

Inventiveness - Forward looking, an innovator

Flexibility - Adjusts his reactions to endless changes

Fluency - His work is laden with meaning and details

Intelligence - In its broadest meaning, intelligence contributes to the characteristics which are believed to contribute to significance in the art experience. In the narrower definition of intelligence, once believed to be measurable by paper and pencil tests - even in the definition of intelligence as a mental or fact gathering capacity - there is no evidence to prove its positive correlation with an individual's artistic or aesthetic potential.

Conant has an explanation of his last definition above, concerning intelligence. Most artistically and aesthetically gifted adolescents and adults are intelligent; they are bright, thoughtful, reflective, analytic, and able to synthesize data. They usually have good memories, more often for broad concepts than for minor details, which, in artistic matters, function as data-processing machines. Intelligence would seem to contribute to the art experience, but research to date has not indicated in what ways these human attributes are related.
Aptitudes, including those most crucial to creative thinking, are thought to be determined both by heredity and by learning. Although heredity may set the ceiling above which the individual cannot develop under the most favorable circumstances of life, it can be safely said that rarely does any individual reach his ceiling.

Measurement of Creativity

Much attention has been given recently to the measurement of creativity, largely as a result of the wide dissemination of investigations reported in two 1962 publications, Creativity and Intelligence: Explorations with Gifted Students by Jacob W. Getzels and Philip W. Jackson,48 and Guiding Creative Talent by E. Paul Torrance.49

These two books, also discussed elsewhere in this paper, have inspired much discussion and debate. In a recent article by Witty,50 he reviews Robert L. Thorndike's opinions on this subject. All of these investigators assert with some vehemence that creativity is different and distinct from the type of abstract intelligence that is measured by our established intelligence and scholastic aptitude tests. In support of this they point to the quite modest correlations that they obtain between conventional intelligence tests and tests they have designed to measure aspects of creativity. Correlations cited have typically ranged from near zero to as high as perhaps .40.

Although Getzels and Jackson are emphatic in pointing
out the low correlations of their tests with IQ, they say nothing at all about the equally low correlations among the "creativity" tests themselves.

Witty\textsuperscript{52} says another critic, Cyril Burt, has also stressed the failure of the authors of the tests of creativity to provide information concerning their reliability and validity and has questioned the assumption of a general creativity function. The extension of our appraisal instruments to aspects of divergent and productive thinking is an exciting, promising field for investigation.

**Measurement of Intelligence**

Individuals differ in intellectual ability, McNemar\textsuperscript{53} cites two distinct conceptions: (1) Galton-Cattell idea that intellectual ability manifests itself in simple, discriminative functioning, and (2) the Binet notion that cognitive ability reflects itself in more complex functioning.

In recent years Spearman's factor of general intelligence idea has been disappearing because of the following controversial subjects:\textsuperscript{52}

- IQ constancy was false? Was true?
- Prediction failures in individual cases
- IQ tests reflect middle class values
- IQ standings foster undesirable expectations regarding school achievement
- Too great stress on general intelligence caused educators
to ignore other possible abilities.

General intelligence has not been lost in the trend to test more and more abilities; it was merely misplaced by a more misplaced emphasis. Has general intelligence had any relevance in creativity? The definition of creativity is confounded by the diversity of subareas within the field, the criterion problems are far from licked, and so little is known about the creative process that measuring instruments are sometimes chosen on a trial and error basis. McNemar presumes that the role, if any, of general intelligence in creativity would increase as we pass from art to music, to architecture, to literature, and drama to science.

In 1950 Guilford\textsuperscript{55} stated that we would have to look well beyond the boundaries of the IQ if we are to fathom the domain of creativity. Later he stated that creative talent cannot be accounted for in terms of high intelligence or IQ. These criteria are inadequate and have been largely responsible for the lack of progress in the understanding of creative people.

Adding to this debate, Witty\textsuperscript{56} reiterates that general intelligence has a role as a source of variance in creativity lists or factors derived therefrom. His three statements concern themselves closely with the topic of this research paper. In a later chapter these points are discussed as they concern the present study.
1. At the high IQ levels there will be a very wide range of creativity, whereas as we go down to average IQ, and on down to lower levels, the scatter for creativity will be less and less.

2. Having a high IQ is not a guarantee of being creative; having a low IQ means creating is impossible.

3. It remains to be seen whether or not the so-called creativity tests and/or factors derived therefrom have appreciable value as predictors of actual creative performance.

Educators are being told that it is important to identify creative talent early in life, hence one need not be surprised that the search goes down to the kindergarten level with claims of successful identification. Creativity tests are presumed to be better for this purpose than the IQ tests because of the debates concerning the constancy of the IQ. Critics of this viewpoint stress that absolutely nothing is known about the stability of standings on creativity tests. The IQ tests, known to be imperfectly valid as predictors of outstanding achievement in life, are struggling not to be replaced by the creativity tests, known to be of unknown validity as predictors. Progress, defined by some as change, is in the offing, as evidenced by numerous documentaries, which consider intelligence and creativity equally challenging.

With so much serious attention being given to artistic expression and its relationship to creativity and intelligence,
one hopes there need be no further fear and concern, as voiced
by Osborn\textsuperscript{57} that art might continue to get the tag end of Friday
afternoons!
Footnotes


2. Lowenfeld, *Your Child and His Art*, p. 4.


6. Viola, p. 11.


11. Lowenfeld, *Creative and Mental Growth*, p. 484.


18. Viola, p. 34.


21 Myers, p. 159.

22 Lowenfeld, Creative and Mental Growth, p. 97.

23 Lowenfeld, Creative and Mental Growth, p. 53.


25 Lowenfeld, Creative and Mental Growth, p. 53.

26 Lowenfeld, Creative and Mental Growth, p. 54.

27 McLeish, p. 2.


29 Mendelowitz, p. 23.


33 Knudsen, p. 161.


37 Lowenfeld, Creative and Mental Growth, p. 110.

38 Lowenfeld, Creative and Mental Growth, p. 118.

39 Lowenfeld, Creative and Mental Growth, p. 90.

40 Lowenfeld, Creative and Mental Growth, p. 93.


43. Payant, p. 5.

44. Payant, p. 13.

45. Conant, p. 5.

46. Conant, p. 6.

47. Conant, p. 8.


50. Paul A. Witty, "Recent Publications Concerning the Gifted and Creative Student," *Phi Delta Kappan*, XLVI, No. 5.

51. Witty, p. 222.

52. Witty, p. 223.


54. McNemar, p. 872.


56. McNemar, p. 880.

CHAPTER V

INTELLIGENCE AND CREATIVITY

IN THE KINDERGARTEN

All the great revolutions in men's lives are made in thought. When a change takes place in man's thought action follows the direction of thought as a ship follows the direction given by its rudder. - Tolstoy

Background of the Problem

When the child enters kindergarten he finds himself away from his familiar family environment for the first time in his life. In this new atmosphere he is immediately confronted with a new series of adjustments. This new way of life differs from the social life he found himself in up to now. Heretofore he visited grandma's, his aunts, mingled with cousins, and perhaps attended Sunday School. Now he is going to live in close daily contact with thirty other five year olds who also are facing this variety of challenging conditions.

Included in this series of adjustments, the child meets this brand new adult in his life who will be his teacher. Her personality is usually quite adjustable by this time, for over the years she has interacted with numerous personality variations. But to the child, this grownup will be the source of disciplines and standards, plus freedoms and happiness for the kindergarten year.
Child to child relationships will be next on the youngster's agenda of adjustments. Surely up to now the child has played with others in his neighborhood and home. These contacts have been good for background experiences and provide a little backlog of reserve. Now, however, the child will meet an entire roomful of children, homogeneous in size and age, and very similar in nationality and parent occupations, but heterogeneous in intelligence and character traits.

Not only will this new relationship be one to one, but it will be one to thirty-plus. Here is where we find good demonstrations of intelligence which can be observed by the teacher in many ways. Certainly instinct, emotion, motivation and numerous stimuli influence the child's behavior also, but each of these reactions is also tied to his intelligence. For example, the teacher does not merely observe extroverts and introverts; rather, she looks for the many fine qualities which blend together with the intellect and give some measure of direction to his actions. Because of limited social amenities up to this time, the teacher frequently assists the child with these functions.

By the age of five, most children have outgrown the confines of their homes and enter into this new social life quite willingly. Social discourse needs little encouragement; but social politeness, sharing, listening and togetherness need further interpretation by the teacher. Thus we see that kindergarten children are presented with a totally new way of life;
the kindergarten classroom and all of its inhabitants, and except for a few children with more serious adjustment difficulties, the majority meet these new personalities and strange surroundings quite well.

This explanation of adaptability as a good measure of intelligence and an innate willingness to ready themselves for their new daily living with other fives in kindergarten, applies to all newcomers and beginning kindergarteners. Certainly each child has individual, quick, on the spot reactions to his new room, his teacher, and at least thirty other boys and girls who also have all the needs, desires and capabilities he has developed up to this time.

Evidence of Intelligence

The new approach to intelligence and intelligence testing is one in which we no longer take the results of testing as the only foundation upon which to judge a child or an adult.¹ Rather, the final conclusion should be checked against the results of other psychological tests, and be compared with a psychiatric or social service evaluation of the child's history and current complaints. We must also watch and weigh the quality of this response against those which the subject gives to other questions on the same test. Fromm² believes that his emotional stability at the time he is taking a test can well be an influence in his performance.

Because kindergarten utilizes achievement and intelli-
Intelligence tests, besides evaluating the intellectual facets of the personality, test: perception, goal-directed motivation, reality awareness, and reality mastery, language development, flexibility, fantasy, ego-ideal, object directed anxiety, insight, meticulousness and repetition compulsion. These are factors that have to do with the integrative and defensive powers of the personality, that is, with ego-development. Furthermore, intelligence tests tap such variables as moral judgment, social habit formation, the abilities to delay impulsive action and to follow commands.

In *Intelligence: A Dynamic Approach* Fromm frequently states and reenforces her findings that the IQ does not remain constant. She believes that our intelligence is vastly dependent on our personality, that it is interdependent with emotions, environment and educational factors, and that it is not a separate
entity.

One child may be better endowed from the outset to grasp what is going on around him than another, and to deal with it intelligently. It is not believed however, that basic intellectual abilities are inborn and stay constant and unaltered throughout life. Intelligence is a function of the total personality, not an isolated ability or conglomeration of isolated inborn abilities. Here we can readily see that the kindergarten teacher has her work well defined: it is to bring out these abilities and have them flourish for the benefit of the child.

It is not necessary to dissect a human being anatomically or mentally in order to understand him - the living human being can and must be understood in his alive, pulsating totality. Clinical psychologists have learned, too, that it is just as scientifically valid for research to study a single individual in his totality as it is to pursue statistical studies of groups of persons in a particular population.

The Kindergarten Program

Is there a relationship between intelligence, general expression in the classroom and creative art expression? In the majority of observations there has seemed to be a relationship. Where there is no accord between good outward physical and mental expression in the kindergarten it is the precise duty of the teacher to take definite steps to remedy this situation through
the use of her knowledge of child psychology and development, and with the aid of the many teaching helps found in the kindergarten.

Several years ago the writer conducted research into the play preferences of kindergarten boys and girls. The children were classified according to mental ages and they were observed in their personal choices of active or passive play. Both the teacher in school and the parent in the home recorded the kind of play activity in which the child participated. After the completion of the survey it was concluded that children of lower mental ages generally preferred play with physical outlets, while the upper mental ages chose activities that required some intellectualization.

Merely from living in one's limited environment, the kindergarten classroom, a good amount of valuable information is revealed if one is attentive and attuned to these vital human relationships, junior size. When children are engrossed in art creativity it is helpful to analyze some of the features involved in these processes. Of primary importance is the emotional stability derived from participation in art expression. Secondly is the pure enjoyment derived from expressing one's thoughts from within, purely voluntary. Thirdly, artistic pursuits, especially drawing and painting become fine ways for children to tell a story of their mental development, reasoning power, intellectual and perceptual grasp of the aesthetics.

As far as kindergarten teachers are concerned the intel-
ligence of many children seem to be reflected in what they produce artistically. As behavior is influenced to a large extent by intelligence, thus most parts of the program reveal better cooperation, participation, fuller interpretation and a keener interest on the part of most intellectually normal and superior children.

Even if the intellectually less endowed children were not pointed out to us, we could follow their movements and activities in class, for the trained observer does not need to have five year olds differentiated. The experienced teacher of the lower elementary grades has certain proven standards for measuring those with whom she lives in a daily meeting of the minds, and the child who is capable, interested, and willing to forge ahead will have fun while he learns.

The sincere teacher also will keep the children uppermost in mind who up to the present time have not reacted in a positive way to the program. It was just brought to the attention of the reader that the IQ may not be constant, according to Fromm. This writer is inclined to agree and has seen evidence in her classes of an awakening on the part of certain children, after they have been subjected to an active, challenging program which also allowed ample time for self expression in artistic pursuits, such as drawing and painting, as well as freedom to examine books, work puzzles, ask questions, and conduct simple experiments.

In kindergarten the first major interplay of group relationships is presented to the five year old, for here the chil-
Children will be learning to live together and be introduced to attitudes which they have as yet not been summoned to use. There will be many inhibitions to adjustment, but the greater number of children will take this in their stride.

The cooperation of the home is an asset in stabilizing the school image. As the writer mentioned above most children do not manifest outward expression for every phase of their development, but they all need assuring reinforcements just the same. Love, security, and understanding at home and school help to bridge the strangeness of meeting new physical environs that are already teeming with human motivation.

Some evidences of the effect of intelligence on behavior are the acceptance of teacher directions and peer decisions. Cooperation in group activities, and willingness to be a leader as well as a follower, is a measure of a realistic approach. The kindergarten program should encourage broad horizons. Through conversation, music, stories and games the teacher introduces the child to life. The kindergarten is one of the finest laboratories, easily available, to watch the growth of intelligence in regard to the developmental quotient.

The kindergarten teacher will admit that perfection in performance is not attained for everyone, for some children have problems which require considerable time and analysis. However, when a child of adequate physical and mental maturation meets obstacles and opportunities, it is fascinating to observe his handling of the situations.
Coupled with the new "living together" atmosphere, it is the primary responsibility of the kindergarten teacher to know when she is needed to lend moral or physical assistance, and just as important when she should let nature take its course.

The optimum standards of behavior and self expression are introduced in the class, in the hope that these niceties - effort, courtesy, cooperation, dependability, and good rapport with adults and children - will help them to get along in the world outside of kindergarten, where these traits are especially essential.

Being able to listen to and participate in conversation, music, free play and demonstrate artistically are further measurements of intelligence. The writer considers intelligence as one outward measure of the way children react to people and things. We have all heard adults' comments on children: such as, "My smart niece," "Oh, my granddaughter is so bright!" "Certainly my son's little boy can tell you all about jets," and "Today's children talk-talk-talk!" These are all ways in which our fellow adults and children as well, are forever assessing the new generation.

It is not easy for the teacher to sit back and let a child get bruised emotionally but the growth thus derived is usually rewarding. The teacher should not try to be a psychiatrist. She should understand the child's needs for emotional and mental health, however, and should be able to recognize the danger
signals. The teacher should understand the emotional life of
the child and should realize that all of her procedures in
class either help the child gain greater security or give him
a feeling of insecurity. All procedures either build frustra-
tions or relieve tensions.  

The teacher must remember that by the same procedure
she may give security to the brighter children and undermine
the security of the less able children. Although mental illness
is rarely the responsibility of the school alone, the school can
contribute to a tendency which has been established at home.

When we consider intelligence, one of its measures is
behavior in the classroom. Discipline is an important factor
in learning. The following statements show us how class size
often determines how much opportunity the child gets to exer-
cise this intelligence. Educational opportunity is improved
if class size is controlled. Conant7 in his book, Slums and
Suburbs, concludes that thirty should be the limited enrollment.
As of today, data supplied by the NEA research division reveals
that only 28% of urban schools have enrollments of 31-35, while
27% of our city classrooms are over-crowded with thirty-six
children and more.

The communication processes tend to break down when
classes increase in size. It becomes virtually impossible to
hold attention, focus observation, guide thinking and encourage
learning. Behavior problems become more of a challenge among
larger classes. "When class size reached 40, the number of
trouble makers is doubled. Unfavorable conditions do relate with trouble," states Hubbard.8

In a large class, the teacher can detect the danger signals leading to misbehavior less easily, and therefore is unable to employ preventive measures as readily as in a normal size class where deviation from normal behavior could be readily noted. Large numbers depress and frustrate some teachers, especially newcomers to the field of teaching, who have many other conditions to become familiar with. If too much time is spent on discipline, less time is left for instruction and the teacher feels inadequate and let down.

In kindergarten we find the problem of overcrowding most vital. Authorities in the field suggest kindergartens of twenty-five, while large city schools often carry thirty-five four and five year olds. This is not fair to the child, for he needs the teacher's attention to cope with individual differences which can be channeled into fine intellectual pursuits.

General intelligence is highly significant in relation to any form of conduct by which personality may be manifested for it provides the background against which other characteristics develop and in the light of which they must be evaluated. In regard to integration and adjustment, moreover, intelligence cannot properly be disregarded. An individual is said to be well adjusted when his other capacities - his sociability, energy, cheerfulness, emotionality and the direction of his interests are balanced and developed in keeping with his mental ability as
displayed in his everyday activities. Hence the measurement of intelligence comprises an important aspect of personality study. 9

Intelligence was the first, and to date, it remains the only trait for which anything approaching a really adequate objective test has been devised. As a general factor, intelligence is of such a nature as to pervade in greater or less degree, all one’s activities. Consequently, situations calculated to elicit intelligent behavior may be standardized and presented, as on an intelligence examination. Such tests are objective in the sense that overt reactions are measured and it is possible to present the results in more or less exact quantitative terms. Intelligence, or the lack of it, is displayed in the actual testing situation and so may be observed and measured.

The case is different with other personality traits. They are not so generally manifested, being observable as a rule only under circumstances which it is difficult or impossible to reproduce in the psychological laboratory. 10

Creativity and Intelligence

"An outgrowth of most intelligence is creativity." It has long been recognized that creativity is a distinguishing characteristic of outstanding individuals in almost every field. "It has been generally conceded that the possession of high intelligence, special talent and technical skills is not enough for
outstanding success. It has also been recognized that creativity is important in scientific discovery, inventions and the arts," says E. Paul Torrance, in his book, Guiding Creative Talent.

Torrance further states that decrements in creative thinking ability and in creative production may occur at about ages five, nine, and twelve - all transitional periods in educational careers in our society. His investigations into age and peak productivity lead him to believe that typical age level characteristics aid or hinder the child. During his periods of great potential, creativity should be accelerated under adult guidance.

Confidence can be developed during this kindergarten period through creative arts, new experiences, and word games. The creations of the four to sixes should not always be evaluated entirely by adult standards. This is vital for the kindergarten teacher to digest. Children may need help in gathering things to play store, hospital, school or the like. Their dress-ups, store shelves and such need only be suggestive.

Parents and teachers should permit children at this stage to exercise their intelligence and contribute their ideas in planning. Their ideas should be used at times, even though they may not be as good as the adults'. Persistence should be rewarded and praise bestowed when children use their imagination to care for themselves or play alone.

It is important that children's questions at this age be
acknowledged by simple but direct and honest answers. This is especially beneficial to the kindergarten program, for the fives accept a straightforward answer exceedingly well. The search for truth should never be inhibited by shame or guilt. Parents should share their child's discovery of new things and help him in his search for truth by explaining the meanings of words. During the kindergarten year, the teacher finds the children at a receptive age to encourage imagination in creative surprises for his family and friends. Impulsiveness can be guided by teacher plans which include the introduction and exploration of thoughtful acts.

Highly creative individuals usually have very strong creative needs. They are attracted to the mysterious, to the unknown, and to the unexplained. They have a strong need to question, to explain, to test ideas, and to communicate the results of this testing. Creative individuals, however, need outside encouragement, to keep up their efforts. Society in general does not supply this encouragement, but teachers and counselors are in a position to furnish much of this support.

It should be recognized that the goal of child guidance in the kindergarten is not just to promote individuality and creativity but to encourage health, kinds of individuality, creativity and conformity. Creativity and conformity can gradually enhance one another. This is a challenging task for teachers at all levels of education, because the creative personality does not emerge suddenly and dramatically. It must be nurtured
through many crises from kindergarten through graduate school.

Creative growth has rarely been recognized as an objective of secondary education even though it blossoms there, ready to be observed by the alert teacher. Of the many manifestations of creativity among children during the elementary school period, greatest attention has been given to writing and art. Here and there children's art exhibitions have achieved unexpected success and exchange exhibits with other countries have attracted considerable attention.

In Guiding Creative Talent, Torrance 15 reminds us that, "The creative individual is unable to stop working because he can't stop thinking. To him, there is nothing more enjoyable than work in which he can use his creative powers." When one finds such a child in the kindergarten it is the specific responsibility of the teacher to accept him and his unusual drive, and make provisions for his individuality.

Heinz, 16 in Growing and Learning in the Kindergarten has some valuable suggestions on how to understand children and comprehend their level of intelligence.

1. Through listening to them as they work and play.
2. Through observing their behavior. Behavior is the language that tells how the child feels. The one starved for attention may present difficulties when he wants to talk incessantly and is always anxious to do errands. Perhaps he is telling his needs. The too quiet child speaks to us, too. He does not demand attention, with the result that he is frequently
neglected.

3. Through observing them as they work creatively: In their creative activities children frequently reveal what is disturbing them, what they think, what ideas need clarifying, and what feelings need to come out.

4. Through visiting in the home.

5. Through watching many children.

6. By being friends with many children.

7. Through study of health records.

8. Through keeping and studying anecdotal records of what children do and say: Do be careful about jumping to conclusions. Labeling a child, even in our minds, as good, bad, unkind, indifferent, slow, gifted, and the like, blocks rather than helps efforts to meet his needs. It takes much observation and careful analysis to give us answers.


10. By studying pictures of children in order to develop an eye for sensitivity when one looks at a child.

The following is a practical demonstration of one use of children's intellectual development. Harris attempted to discover the responsiveness of kindergarten children to the behavior of their fellows. Since good communication with others is a sign of good general intelligence, it was felt that this study offered an insight into the reactions of children to the behavior and personality traits of their playmates.

Twenty-four children from the Institute of Child Welfare
kindergarten at the University of Minnesota were subjects. Two
sets of pictures were used. The first contained twelve pictures,
the second set eighteen. Pictures ranged from boys and girls
climbing, playing, hitting one another, throwing toys - to
children helping each other or the teacher, to various facial
expressions, painting and getting dressed.

The children used their verbal creativity in talking
freely about the pictures they were familiar with, according to
activities they had participated in during class. For children
who could not verbalize as well, the tester asked questions,
which required reasoning for an answer, and one-third of the
group could at least respond this way. Two-thirds of the group
told many features of the pictures they viewed.

Friendship with children, and social stimulation in
similar kindergarten activities made some children actually
create "made-up" names for the characters in the test pictures.
It was the conclusion of the researcher that children do (1)
differ in individual social responsiveness, (2) that they are
most interested in themselves, (3) that they have an increas-
ingly growing awareness of their playmates, and (4) that at five
they already have a well developed interest in their own posses-
sions. These are all evidences of outward manifestations of
children's intelligence and their ability to make immediate re-
evaluations of their interactions.

The findings of the study, "On the Growth of Intelli-
gence," by Nancy Bayley\textsuperscript{18} indicate there is little hope of ever
being able to measure stable intellectual factors in the very young, and this is vital to the study of kindergarten children's evidences of intellectual development. On the basis of his behavior very early in life, at six, nine, and twelve months, it thus does not seem possible, according to Bayley's research, to predict a person's later intelligence.

Furthermore, contrary to the usually accepted viewpoint there is some evidence that the IQ may not be constant as investigated by some authors but rather that it continues increasing possibly even up to the age of fifty or more. This study employed the longitudinal approach, a method that entails the study of the same individuals at different periods of time, throughout their preschool and succeeding school years. Although this type of study is difficult to conduct, it yields especially valuable data on such developmental processes as intelligence.

For purposes of comparison with later achievement, it is often desirable to compare an infancy IQ with school work and the like; however, since the IQ is now recognized by some educators as changing, one must remember not to brand the child with an IQ score computed at an early age.

Art Creativity and Intelligence

As an outgrowth of intelligence, art activities are encouraged in kindergarten to provide an avenue of expansion -- as well as an avenue of expression -- not to produce a population
of artists. The kindergarten child has only partially mastered language as a way to express ideas and feelings when he comes to school.

He has only partially mastered the use of art media, and he has been using these materials almost as long as he has been using language. The kindergarten teacher provides art media, such as paint, crayons and paper as a means of expressing thought and feelings.

Many years ago, Goodenough, 1926, developed the "Draw a Man Test" of mental development. The child's mental age was roughly computed by the extent of detail he included in his drawing. Today, psychologists of art are able to judge the child's intellectual, social, emotional, perceptual and physical growth by studying his drawings and paintings.

These psychologists must see several products of the child's art work in order to discover his pattern of expression. The child is able to develop through normal stages of art expression and to discover himself and his relation to his environment, thus aiming for the greatest potential.

Art plays a strong part in the child's intellectual development. The effort to interpret a three dimensional object in two dimensional lines or shapes involves challenging problems of the flexibility of his intellectual abilities. The child's thinking is reflected in his concentration on the art problem and the way he deals with it.

When the child begins to paint or draw subject matter
that others find recognizable, he is revealing that he now sees himself in relation to other objects and people. This explains the strip of blue sky at the top of a page, and the huge reproduction of himself. As he becomes less conscious of himself and more conscious of others, this trend away from egocentricity will parallel the same trend in language and play.24

In the early stages of art expression, the child does not associate color with objects to which they belong. He begins to notice and use colors, but he uses them to express feelings. He is likely to paint a man with a green face and an orange body. As he matures he begins to realize that certain things are associated with certain colors; color then takes on meaning and the child begins to use color realistically.

The teacher should not try to change the child's approach, but rather show sincere interest and encouragement. It is one task of the teacher to stimulate children with challenging experiences, arouse interest through discussions and give time to experiment - then leave them alone.

Kindergarten teachers are not dictatorial but they usually want everyone to enjoy and tackle the art media, not just a chosen few who show special talent. These activities encourage experimentation and the end products are of far less consequence than the satisfaction derived through unimpeded manipulation of the materials.

The teacher's task is to set the stage in such a way that children will be eager to try, will feel free to develop
their own techniques, and will have the fun of discovery for themselves. This necessitates an attitude which encourages the inhibited as well as the uninhibited, the unskilled as well as the skilled.

With almost no direct instruction children learn extremely well how to handle materials and experiment with constructive ideas. It is wise to limit the number of art media provided at one time in the beginning, and to vary them from day to day. Fortunate is the child who has in his parent or teacher an ally in inventiveness, one who takes delight in experimentation and who can usually recognize and envision the play possibilities of many things not usually accepted as toys for children.

The provision of proper tools and assorted work materials is the adult's primary responsibility, but to these basic ingredients should be added the spice of enthusiasm. The varied skills which children acquire play a vital part in building self esteem and confidence. In addition, there is the thrill of creation which everyone should have a chance to experience.

Here are Heffernan's 25 teacher helps in "Art Expression." Through art activities the teacher helps the child attain the following goals:

1. Develop intelligence, through increased visual awareness by being motivated to observe, to feel, and to look for detail

2. Maintain and develop curiosity and creativeness by having a variety of materials available for use
3. Learn different ways of looking by being encouraged to express his ideas and feelings.

4. Use visual language as an important means of expression to show what he knows and feels.

5. Create independently and feel free to be creative in other areas of curriculum.

6. Make aesthetic judgments by working in a permissive environment.

The opportunities provided for the attainment of these goals involve exploration and manipulation. The creative art experiences of kindergarten children are largely exploratory in nature. Five year olds have strong desires and real needs to satisfy their sensory urges, to be able to look, to touch and feel, to listen, to stamp, jump, punch, pull and to whisper and shout. All of these acts are attempts to become a part of their environments. Their curiosity is unsatiable. Therefore, teachers must provide endless opportunities for exploration and examination of a wide range of materials.

Work areas with adequate tables, easels, and clean-up facilities are essential for creative art experience. The tables should have smooth, washable tops and be of a comfortable back height. Two sinks or spaces for buckets of water will facilitate the clean-up process. Sponges should be cut to fit five year old hands. Plastic aprons should be provided to help keep the children's clothes clean.
The following materials and equipment are suggested for use in the kindergarten art program:

1. Tempera painting:
   a) mix tempera paint. (Magenta, red, yellow, turquoise, ultra marine blue, black and white) will mix to produce interesting shades and tints of color
   b) quart jars with lids
   c) large easel brushes
   d) plastic squeeze bottles (mustard or catsup containers)
   e) paper cups, small milk cartons with tops removed, or juice cans
   f) 18"x24" newsprint paper, natural and colored

2. Sponge painting:
   a) the same materials as those listed for tempera paint except that sponges approximately 1-1/2 x 1-1/2 x 3" are used in place of brushes.
   b) small foil baking dishes or paper cartons, 4" opening, in which to put the paint for individual use

3. Vegetable and gadget painting:
   a) the same material as those listed for tempera painting.
   b) paint is kept thick
   c) cut carrots, potatoes, cabbage, and bell peppers, onions (cut in half) prepared the day before they are to be used; citrus fruits cut in half; bottle tops, nail heads, screw heads, corrugated paper, match boxes, metal or cardboard tubes, metal washers, corks, metal nuts and bolts, blocks of wood and many other items which children can bring.
   d) large brushes with which to apply the paint to printing edges of vegetables or gadgets
   e) children can print designs on paper or material, different textures, including unbleached muslin and plain colored cottons
4. Finger painting:
   a) mixed tempera paint
   b) prepared starch
   c) slick paper, 16x22" finger paint paper or shelf paper
   d) finger paint boards, or washable tops

5. Clay modeling:
   a) large plastic cannister with air-tight lid
   b) mixed red or natural clay
   c) 14" square of heavy canvas or oilcloth
   d) thick cardboard square (approximately 12x22") for removing finished pieces

6. Collage:
   a) natural items collected by children from out of doors, rocks, sand, branches, leaves, grasses; cloth, braid, buttons, and string, sandpaper, sticky paper, colored pictures cut from magazines, scraps of colored, corrugated, textured and metallic papers
   b) squeeze bottle of glue or liquid starch
   c) varnish brush or large easel brush for starch, scissors

7. Weaving:
   a) colored strips of paper, colored roving, jute, yarn, string, discarded bamboo mats which can be torn apart; shredded pampas grass, coarse long bladed grasses, natural and colored rafia
   b) cut-paper looms and wooden looms strung with string

Wax crayons sometimes limit and inhibit free expression. If they are to be used, they should be large and unwrapped. They should be placed in large plastic bowls or empty cigar
boxes to be easily accessible.

As the teacher works with children she recognizes a sequence of growth in art expression. Manipulation gives way to basic symbols. Later, these symbols become highly differentiated and increasingly comprehensible to the viewer. At no time in the kindergarten, however, does the children's work normally resemble that of an adult.

The process of development cannot successfully be hurried, nor should an adult substitute other forms or symbols for those created by the children. Restrictive devices, such as coloring books and mimeographed pictures should not be used because they force adult standards upon children and inhibit creativity.

Children select subjects to paint and materials to work with that are of interest to them and have been a part of their experiences. Some children are motivated by a story well told or a verse effectively read by the teacher. Dictatorial methods of motivation in which the children are restricted in their thinking and in the art forms which they may use retard children's normal development. The teacher should always remember that domination over ideas, work habits, or designs will destroy the educational values inherent in the program of art education.

After the teacher has helped the children to know how to handle selected tools and materials, she can place the materials in an art center where small groups of children can experiment freely. The art centers should be changed frequently
Children's interests change, and as new materials are important in all work centers.

A teacher must understand the stages of development in art expression. She should be able to interpret with considerable sensitivity and insight the various forms of expression that children adopt. She must be able to appreciate the aesthetic qualities that appear in all children's work. She will plan the physical setting and choose the materials for art activities with the greatest care.

In the following experiment, "The Reactions of Middle and Lower Class Children to Finger Paints as a Function of Class Differences in Child Training Practices" by Alper, 28 nursery children, four years old, from lower and middle class socio-economic groups, were chosen to perform two art work projects, in an effort to see how the two groups differed in performance and cleanliness training.

The two groups of children in finger painting and crayon drawing experiments, were measured as to whether they used both hands, one hand, fingertips, got dirty, and cleaned up readily - and this was correlated with toilet training for these groups.

The investigators found that middle class parents were too permissive in toilet training and that lower class parents trained them earlier. Middle class children had more reluctance to participate wholeheartedly because the finger painting was messy; whereas the sloppiness of the project did not inhibit the lower class group. This carelessness on the part of the
lower class group was opposite to their toilet training, and
the poor toilet training for the middle group was reversed when
this group did resent the messiness of the art project. This
study showed the marked child-training differences between the
lower and middle class groups.

In the second experiment, when crayons were used, the
performance of the middle class nursery children was superior,
because they could remain cleaner while drawing with crayons.
The middle class children began to draw more freely and accepted
the assigned task more readily than the lower class. They used
the whole drawing sheet to better advantage and they revealed
more intermingling of colors.

When "getting dirty" was involved, children with middle
class upbringing were more frustrated and accepted the task
less well. An interesting outcome of the finger painting ex-
periment however was that 90% of the middle class children
wanted to take their paintings home, compared to only 10% of the
lower group, who exhibited little or no interest in their pro-
ductions.

This study is a good illustration of the early age at
which the lower class child is placed on his own. His parents
expect him to be toilet trained early, but once he is self suf-
ficient in personal care, the adults show little interest in his
school projects - this is substantiated by the fact that so few
- only 10% of the lower class children had any urge to take
their art work home. With the middle class children in this
study, their parents did not insist on strict toilet training at four, and these children did not enjoy getting messy with paint; however, parent concern about their child is more evident with these middle class youngsters, for almost all, 90%, wanted to take their art "treasures" home, because, it would appear the parents were interested in children's productions.

"How much we enjoy a work of art is an indication of our intellectual ability to see," says Lowry, in his book, The Visual Experience. The more our visual experiences expand, the greater becomes the amount of pleasure we receive from the visual form that the artist has created. This pleasure should not be confused however, with the response aroused in us by the idea that the artist is expressing. A painting that is a plea against the state of destructive warfare may appeal to us because we share the same sentiments, or a painting of a certain type of country-side may cause us to think wistfully of our childhood surroundings. A particular statue may give us pleasure because it calls to mind the virtues of a favorite hero from history or a novel.

At a very young age, children begin to respond with a natural reaction to a work of art. Grownups, however, must be sufficiently alert and honest to recognize when our enjoyment results simply from a personal reaction to the idea without regard for the form in which the artist has clothed the idea.

Gradually children and adults are stimulated by their reactions to art and concepts are formed. When one is in agree-
ment with the art form one is viewing, one notes pleasure; and
annoyance is detected when one does not like a particular
painting, drawing, or sculpture. From the time a child is
able to perceive, he builds upon these concepts.

Drawing lines is one means used to record the appearance
of objects in nature. A linear record of the object's appear-
ance helps one become familiar with the object itself, a purpose
especially served by childhood drawings. Some children draw
principally to satisfy a need for characterizing and classifying
the increasing number of objects they encounter. Such a quest
seems to underlie drawings by four and five year old children
who often record the appearance of their family. By these
linear records, children are assisted in comprehending the
world about them.

With a linear shorthand, children draw and paint basic
elements as they appear to them. The five year old child dis-
tinguishes between masculine and feminine figures through simple
outline shapes representing clothing. A skirt can be represented
by a few lines making a simple shape because quite frequently
the first step in our perception of an object consists of an im-
pression of its outline shape.

Children use color and color combinations in a most fas-
cinating manner. The perception of color is the single most
strongly emotional part of the visual process. Our reactions to
color are often strong and immediate, and often the most diverse
experiences and emotions are associated with colors. Blue.
for example, is a color that can cause us to feel wistful, sad, or lonely. It also has the ability to make us feel cool. Red, on the other hand, can give us the feeling of heat, also violence and destruction.

The kindergarten teacher should be cognizant of the status of color in the art program, and how very important color is to many children. Delightful use of color has been achieved by numerous children, while a persistent choice of black or brown, for example, would indicate further probing.

Because the number of colors or hues is infinite, and the possible variations and combinations of these colors endless, the range of impressions that the artist is able to create through the use of color is equally vast. It is often difficult to describe precisely how children and adults see and experience color. Experiments with the perception of color have been made which have led to the establishment of systems in which the various qualities of color, and the relationships that are perceived among the hues, are expressed in certain diagrammatic patterns; but the knowledge of the nature of color and of adults' and children's perception of it has not passed far beyond the stage of collecting observations on their reactions.

Since the beginning of the present century children's drawings have furnished material for many different types of psychological investigations. Drawing, as done by the young child is a very different psychological performance from drawing as the adult usually conceives it. "The child knows what he
draws, rather than what he sees" remarks Goodenough, in her article revealing studies into the psychology of children's drawings.

Even with the presence of a model to draw from, children perceive its nature differently. Psychologists have collected drawings done by the same child from earliest attempts to draw at ten months, up to eight years of age. Child art studies have dealt with (1) general developmental features as shown by a comparison of the drawings made during each successive year of life, (2) special aspects of the drawings, such as perspective, sense of proportions, expression of movement, color, and ornamentation, (3) and a comparison of children's drawings with those made by primitive man.

Mental development related to art has been studied through statistical treatment of the performances of children at different ages. Goodenough developed comprehensive scales for the measurement of the intellectual factor in children's drawings. Gesell introduced several drawing lists for preschoolers in his Mental Growth of the Preschool Child.

Burt in Mental and Scholastic Tests, a report of the London County Council in 1921, presented a scale for the measurement of drawing ability and intellectual factors. He stressed qualitative differences in the drawings of normal and backward children. Without a survey of the work already done in this field, it would not be possible to make a proper study of intelligence and creativity of kindergarten age children. These
early psychologists and educators have made a noteworthy contribution to the field of children's creativeness.

"Drawings made by young children have an intellectual rather than an aesthetic origin," states Goodenough, an authority in the field of child psychology, in her book, Measurement of Intelligence. The non-verbal nature of drawing tests also makes them particularly suitable for studying the mentality of children from foreign lands and deaf children.

Terman, another famous child psychologist, says that Goodenough has contributed to psychometrics and the study of child development. Differences in the drawings of old and young children have long been evident; but Goodenough shows how the analysis of small differences can be carried so much farther, as to offer a serviceable measure of the general level of mental development.

The Goodenough Intelligence Scale is founded upon the empirical analysis of thousands of performances by children of both sexes and of every stage of mental development, from two to fifteen years. This test utilizes nothing but the child's single drawing of a man. It is accordingly non-verbal, and requires only ten minutes for testing the entire class, plus two minutes per child for scoring. The Goodenough test is used chiefly with children whose MA's are 4-10.

Comparisons often used by investigators in spontaneous children's drawings include: (1) sense of proportion, equal weight for each criterion, (2) imaginative conception and...
(3) technical and artistic value. In spontaneous drawings by little children houses and the human figure rank first and second interchangesably, while miscellaneous objects rank third.

In Munich in 1903-5, Kirstensteiner\(^{37}\) spent two years collecting 100,000 children's drawings and reorganizing the course of study in drawing for the folk schools of Munich. He noted the differences between drawings made by feeble-minded and normal children, with the feeble-minded more primitive and their drawings showed a definite trend of Zusammenhanglosigkeit, literally translated from the German, the latter word means, "together hangs looseness," or, unassociated items appear in the same picture, but there is no relationship or theme. This was the style in which these feeble-minded children were creative.

Creativity should be viewed, not as a special gift to some people only, but rather, as a capacity possessed in some degree by all human beings.\(^{38}\) Creativity exists in the transaction or relationship between the characteristics of a product and someone's judgment of it. When children are creative, privately, they are outside of human judgment, hence are unobserved, and no one knows it.

The child can have many creative experiences, but for him to be judged "creative" his (1) performance must be public, (2) it must be judged as novel, tenable, and useful or satisfying to some group at some point in time and, (3) creativity can be elicited through certain test situations and the responses to
these test situations should be measured.

In 1950, Guilford,\textsuperscript{39} psychologist from the University of Southern California spoke of the appalling neglect of creativity by psychologists, and outlined a research program to investigate it. Thus he promoted the ideas of divergent and convergent thinking. Divergent thinking took off from creativity already in progress, while convergent thinking converged upon what was happening. If a discussion were going on, divergent trends would be to broaden the topic, while convergent creativity would be to delve further into the immediate subject.

These research tools of Guilford were employed by Getzels and Jackson in their study of creative adolescents, which appeared in 1962, under the title, \textit{Creativity and Intelligence}. Getzels and Jackson\textsuperscript{40} found that the highly creative child was seldom highly intelligent, according to the present modes of measurement, and that he differed in numerous ways. The highly creative child valued a sense of humor more deeply than a high IQ. He had wide aspirations, had a richer phantasy life, and he considered his personal values and those of his teachers to be somewhat opposite. These results dealt with adolescents and not five year olds as in the present study.

Getzels and Jackson found that intelligence was not a reliable predictor of creativity in their study and, being highly intelligent does not insure high creativity and vice versa at the adolescent level. In the past years the tendency to link creativity to intelligence was quite common, says Eisserer.\textsuperscript{41}
The person thought to be highly creative was the person with the high IQ. The very concept of giftedness itself was most often concerned with IQ terms.

With the Getzels-Jackson study and with work by other investigators, this tendency has been sharply reduced almost to the point where some conceive of these behaviors as being mutually exclusive. If we conceived intelligence not merely as what intelligence tests but as the efficient and effective utilization of means to achieve desired ends, then the need for a separate concept of creativity disappears.

Eisner suggests that the reason creativity and intelligence seem to be unrelated is that we have been using in our research a restricted conception and measure of intelligence. Perhaps there is a relationship which is yet untested and therefore holds little value until new standards are found.

Usually the artist's work, regardless of the field - music, art, drama - is measured by comparing it with one on a similar level or quality which seems better. Instead of comparing a student's product to the content of the group, why not compare his products to the content of his own work? If it is true that novelty is one of the defining characteristics of creativity when an individual copes with a new problem, when he generates answers or solutions that were personally novel, in short, any time he uses his intelligence to create personally new answers to problematic situations, he is functioning creatively in some degree.
Nursery school children often produce exquisite pieces of artwork precisely because they pay little or no attention to technical precisions or representational accuracy. When a child becomes primarily concerned with technique, and at some point he must, it often becomes difficult for him to again capture the spontaneity that he displayed at a younger age.

Eisner continues to state that the distinction between creativity and intelligence is artificial as of now, but without creative thinking in intelligence, man could not survive.

Through his own research, Eisner found that children who display one type of creativity in art do not always display another definite type. Even with the visual arts, children who are highly creative with one medium, like clay, may not be highly creative in another, like painting or drawing.

The present researcher poses this question: If differences in creative performance exist within the qualities in one area, what should we expect about the carryover of creativity from subject to subject? Some children have highly creative ideas in drawing and painting, but not highly creative artistic-aesthetic methods in carrying out the ideas.

If we look carefully enough we would find that almost every child is highly creative in one way or another, if not in some area of the curriculum, at least in some area of life. It is a mistake to look for "the" creative child. A person highly creative in all fields is rare.
The Kindergarten Teacher in Relation to the Creative Kindergarten Program

In order to have all of the child's intellectual faculties function in good order, the kindergarten teacher must concern herself with the emotional tone of each child. The state of California has recognized the schools' responsibility for the healthy emotional development of children. The physically and intellectually handicapped have long been given assistance in most school systems. Now a new program is to be undertaken to cope with the emotional health which the child brings to school. This factor influences the growth of creativity and intelligence alike.

In his planning, gross maladjustment, such as mental illness, would be uncovered, but would not be treated in the classroom, for the teacher would not be classified as a clinical psychologist or psychiatrist. However, teachers do use various methods of supporting the child's emotional health. Since the development of children's personalities take roots in the home environment, the family must be informed that the school cannot undo families' failures entirely.

The area in which schools can work is the one of providing guidelines that support the boundaries in which children know they can operate. The child will need help in identifying himself, in being listened to as an individual, and in expressing his opinions and feelings. Respect for others, says Tallman, is as important as respect for oneself. To gain the ability to
interact successfully with others is a demand of our culture. The teacher is particularly effective when she helps students mature and learn to tolerate others' lapses into unacceptable behavior.

The teacher's attitude sets the emotional climate of the class. If the teacher expects behavior and performance commensurate with age, children of any age, from kindergarten through high school, can respond well. Children like to know the limits and the standards of a classroom and the school, in general. Indefinite rules, careless directions and assignments, and a high level of frustration because of not knowing where he stands, do not comprise the atmosphere in which creativity and intelligence will flourish in the child.

Children are most creative when they are very young, and this spontaneous creativity too often is suppressed or erased because adults do not remember this period of their own lives. People whose creativity is permitted to remain free have a quality that is exciting and infectious.

Obviously the educational process cannot be held responsible for all that happens, especially for what happens to creativity, anymore than it can be held responsible for emotional disturbances that begin in the home or that are acquired elsewhere outside the school. Nevertheless, the school is responsible for doing what it can to protect and develop the creativity and spontaneity of its charges. If the school does well at this task, it will make a significant contribution to the
future of mankind. If children can leave school with these inherent characteristics reasonably unimpaired, then they have a fair chance of withstanding the suppressive routines of life.

The kindergarten teacher holds a unique position as the first person outside of the home who will direct school activities in order to promote the firm foundations upon which creativity and intelligence are built. Of course, educators realize that children have been developing in intelligence and creativity from birth but the specific business of the teacher is to put this past development into the school routine and add to the child's accumulated wealth of experience that he brings with him into the kindergarten. In order to explain what this person does in the classroom, Heffernan's 45 report, The Kindergarten Teacher, is included in the Appendix.

Value of Early Training: Promotion and Retention of Intelligence

The purpose of the entire May, 1963 issue of the California Journal of Elementary Education 46 was to define the kindergarten program and to identify and describe the activities that promote growth and learning in four and five year old children. A committee of educators interested and experienced in kindergarten curriculum was selected to plan the issue. Wide use was made of materials from many places, and the committee was responsible for the articles.

Characteristics of kindergarten children was the first
item discussed in the magazine, stressing that, despite the fact that over 300,000 boys and girls four years, nine months up to six years, three months, attend these kindergartens, each child has traits that are uniquely his own. He advances at his own rate in developmental tasks and personality perception, but he grows generally with other children, as in height and weight gain, and a usual growing grasp of familiarity with the surroundings and new children he finds in his kindergarten atmosphere.

Social studies, complete with stories, art work, and dramatic play, are described. Field trips to dairy, farm, and ranches, for example, are suggested. The significance of play, as a natural outlet for children is described in the following phases:

1. Solitary play - plays alone, no attention to others.
2. Parallel play - plays independently, alongside others, but not with them, little conversation.
3. Associate play - sharing some ideas and materials, as in doll house. Each carries out own interest. For example: feed baby, set table, answer telephone.

In this magazine's discussion of artistic efforts, such as painting, some children react much in the manner above, sometimes wishing to be alone, and sometimes gathering in groups around the easels. Informal projects in science and number ex-
periences are encouraged. An awareness of trees, nuts, birds, flowers is part of a good kindergarten program; along with the distinction of numbers in work with clocks, TV programs, thermometers, and such elementary experiments as how many boys are here, or this cup is full of water.

The pressure to push academic learnings to lower levels of maturity may result in over-emphasizing subject matter in kindergarten. Too early emphasis on mastery can dull the imagination and create an unfavorable attitude.

It is the ideal of the kindergarten to make provision for many experiences, with observations of many tools of learning, such as books, materials, and scientific samples, and then with patience in answering questions preserve the interest and enthusiasm with which the children come to kindergarten and extend this zest for learning into the grades. An attitude of this kind can help in the development of creativity and intelligence.

In 1936 McCollom\textsuperscript{47} investigated the \textit{Influence of Kindergarten Training on the Subsequent Class Work in the Primary Grades}. The need for study: author wanted to investigate the benefits of kindergarten and whether it is an absolute necessity in the elementary school. The purpose: to form a foundation of the value of a year's kindergarten training in relation to first and following grade achievement. The methods: the writer delved into the history of kindergartens and contemporary writers in the field who substantiated her personal theory.

(1) Mary D. Bradford, Superintendent of Schools, Kenosha,
Wisconsin, found that the majority of kindergarten children moved through school at less cost than non-kindergarten children, because the latter needed costly remedial help in the grades.

(2) Paul Rankin, Superintendent in Detroit, Michigan, found that average ability children profited to a more measurable degree than did low or superior children.

(3) Edward W. Goetch of the University of Iowa studied "Kindergarten as a Factor in Elementary School Progress and Achievement." He found that when first grade entrance came sooner, better scholarship marks resulted into the third, fourth, and fifth grades. Kindergarten children performed better on intelligence and achievement tests. This would be an important item to consider when the issue of kindergarten retention is confronted.

The above research was carried on in six Chicago schools, but work was concentrated in one. Good productivity in the grades following kindergarten could indicate natural application of the child's intellectual training while in kindergarten. This thesis further reveals that children who have attended kindergarten are expected to work to their maximum in the grades.

On the basis of intelligence tests, the kindergarten children in the study above were mentally superior to the non-kindergarten children. From results on Stanford Achievement, the kindergarten pupils appeared superior to the non-kindergarten pupils in reading and arithmetic, but inferior in spelling. On the basis of the results reported, it would appear that the
kindergarten children were slightly superior to those never attending kindergarten. However, the case for the certain superiority of the kindergarten is not conclusively proven, for many factors are not capable of measurement, but have a wide and far reaching benefit for the individuals involved in the broad field of education at every level of the school ladder.

**Schooling and Intelligence**

In *Differential Psychology*, Anastasi and Foley contribute to the further investigation of "Schooling and Intelligence" in the chapter bearing that title. Many studies have been conducted through the years in an effort to determine whether intelligence test scores are influenced by the number of years of schooling. This controversy rages at most institutions of educational research, and has been specifically tested at every level. The experiments range from the nursery through college to try to evaluate schooling and the IQ.

A group of studies dealing with the effects of nursery school attendance upon the IQ is at the very core of the controversy. The largest number of investigations have been done at this preschool level. The effect of special education techniques is also utilized by investigators working with the mentally deficient. The United States Army is also active in this research. In either case, whether normal or dull, the theme of the special training involved is to try to raise the IQ of subjects so that they can be more fruitful in their output and
contributions, whatever their status.

To present the several sides of this controversial question various authors have already been introduced in this paper. Research done by Schmidt, who alleged in 1954 to have raised the intellectual behavior of children originally classified as feebleminded through a special three year training program is presented. Results do not come at once; also, follow-ups are desirable to insure the proof that this increase in the IQ was a valid one and of a long range nature. In Schmidt's study 254 boys and girls between the ages of twelve and fourteen were reportedly trained and tested with the researcher's claim of a raise of 30-40 IQ points, plus the fact that in the subsequent five year followup, the IQ's continued to show gain. This work has been criticized severely by others.

During World War II the Army conducted intensive twelve week courses of instruction with men who had been classified as illiterate. At the end of this course it was reported that approximately 85% of these men were brought to the fourth grade level in reading, language and arithmetic.

These two studies are an attempt to suggest that special training may exert considerable influence upon intellectual development. The reverse was true on two other studies conducted upon dull-normal and normal subjects. The Standard Binet was given before and after an experience curriculum was offered to 111 dull-normal children. The published results of this program were that the pupil interest was very high and truancy was
virtually eliminated, but the mean change in IQ was only very slight.

Normal children in the fourth grade of a demonstration school were tested with the Stanford Binet in an experiment conducted by Lamson and reported in the *Journal of Educational Psychology*. In these results, about one-third of the children had a loss of 1.53 IQ points, and within a three year period half of these original 141 children revealed a gain of 1.48 in their IQ score. Thus we can see that in this study none of these differences in IQ gains and losses is statistically significant.

In the Schmidt as well as the Army Training Unit studies discussed above, the investigators claim it is observable behavior that is affected, and the breadth of behavior so influenced may be empirically determined for each type of training. Applying the same analysis to the two studies which yielded negative results, it has been proven that such training procedures as are subsumed under the experience curricula of progressive education seem not to affect appreciably the IQ of most normal or borderline children.

Often when children are left to their own interests individual initiative, and what they consider practical applications, these procedures are not oriented toward improving the type of behavior functions which are predominately sampled by most intelligence tests. In the two experiments where the IQ was reported improving, the attention given to the development of
effective work and study habits and to the attainment of minimum levels of performance in reading and language usage may account in part for the continuance of improvement after the termination of the experimental period.

The nature of training should suit the nature of the individual who is in need of raising his own intellectual level of performance. Some people respond to one stimulus and some to another, or a combination of many stimuli. Anastasi and Foley conclude with the impression that everyone can benefit to some degree by personal attention and suitable training. In cases where there is no improvement perhaps the proper motivation has not yet been discovered.

Within the last twenty years over fifty experiments have been conducted to determine what effect, if any, preschool attendance at a kindergarten or nursery school has upon the child's IQ. The most direct analysis of the effect of nursery school and kindergarten attendance is based upon the intelligence test scores of a nursery school or kindergarten group before and after a period of preschool attendance.

Most investigators have aligned themselves definitely on one side or the other of the controversy. Some lay great emphasis upon the differences which have been found in favor of these groups. Others stress the smallness of such differences and their complete absence in some of the groups.

After summarizing fifty studies on nursery school children by different investigators, Wellman,53 in the Journal of
Psychology reports the results obtained with several intelligence tests. From Binet scales used with 1537 children in twenty-two nursery groups, the mean gain was reported at 5.4 IQ points, while the mean gain by 597 control, non-nursery children in 14 groups was 0.5. After some schooling mean gains were reported of over six points for 50% of the nursery groups and 14% of the non-nursery groups.

At the University of Iowa in 1940, Wellman gave the Stanford Binet or the Kuhlman Binet to 652 children from eighteen to seventy-seven months (1-1/2 years to 6 years, 5 months) in either nursery or kindergarten classes. The mean difference between fall and spring tests during the first year of attendance was a gain of 6.61 IQ points; the changes ranged from a gain of over 40 to a loss of over 30 IQ points. Slightly over half of the children showed a change of eight or more points.

No relationship was found between amount of change in IQ among the nursery school children and the occupational or educational level of their parents. It should be noted, however, that the group as a whole came from superior occupational or educational levels. Had the spread of parental characteristics and of home environments been wider, some relationship might have been found between these characteristics and the gain in IQ.

In the Journal of Experimental Education Wellman had compared preschool with non-preschool subjects during the high school period. The intelligence test scores yielded a negligible and insignificant difference in favor of the preschool
One can only conclude from studies such as these that no prolonged effects of nursery school attendance upon either intelligence test performances or school achievement have been satisfactorily demonstrated.

This does not preclude the fact, however, that there are no benefits from early school. This testing merely points out that in these particular tests the results were as presented. Many advantages and growth features in any number of fields are as yet unable to be detected, but continue to project themselves just the same.

At the Child Welfare Station at the University of Iowa, orphanage children of preschool age were studied over a three year period. The experimental group attended kindergarten, while the control group did not. Children in the group attending preschool revealed a rise in IQ points, while the children who did not receive this additional attention, which to the children resembled extra love and affection, showed a drop. Thus it would seem that encouraging children in a nursery or kindergarten atmosphere would tend to bring out greater effort to achieve.

The influence of nursery school attendance was investigated by Goodenough and Maurer at the University of Minnesota. Here 147 children in the experimental group were compared to 260 children who had not attended nursery. All of these children came from intellectually superior homes, and the children were students in the university training school. Children were
tested with Stanford Binet at five and one-half, six and one-half, eight and one-half, ten and one-half and twelve and one-half years. Although both groups tended to improve in the later tests, the improvement did not favor the nursery group. In fact, many of the comparisons showed a significant advantage in favor of the non-nursery group.

The fact that so many of the groups studied came from superior home environments would tend to obscure the influence of the nursery school and kindergarten, and may account for the lack of difference found in some investigations. In many cases parental occupation and enriched home surroundings seemed to be two of the factors for groups of that nature to correlate well with a rise in IQ, whether the children composed the group which attended some form of preschool, or if they did not.

To summarize: IQ's obtained in early infancy and early childhood are relatively unstable, in light of the results reported above. Anastasi and Foley state that an individual IQ obtained prior to the age of six years must be interpreted with discretion. A huge area which is in drastic need of more study is the relationship between intelligence tests and intelligence. Much confusion has resulted and conflicting assertions have been made because of unrecognized assumptions regarding this relationship.

In these disagreements, some writers blame the tests, stating that if the IQ is shown to be inconstant and subject to modification, then the tests must be unreliable or unsuitable
to measure intelligence. If intelligence tests prove to be susceptible to environmental changes, they must be heavily loaded with experience factors and ought to be revised. Obviously this latter statement also assumes that intelligence is not susceptible to environmental influences.

On the other side, some propose that since intelligence is susceptible to environmentally determined change, less emphasis should henceforth be placed upon mental testing in the schools.

The psychologist is concerned with prognosis and has tools for making judgments, but the difficulties of accurately predicting mental capacities for twenty years hence make this procedure unrealistic. Extreme views do not help to put this issue in its proper place. These last authors contend that the intelligence test is only a sample of behavior, that some children learn better test techniques, that some are better adjusted to taking tests, and that the test often reveals his present state of development only, but leaves the child to grow towards his potential. The heights of intelligence, or this high ceiling which is rarely reached can be something to strive for. This is the child or the adult's unexplored potentiality.
Footnotes


2. Fromm, p. 46.


4. Fromm, p. 49.

5. Fromm, p. 21.


13. Torrance, p. 89.


15. Torrance, p. 120.


24. Heinz, p. 446.


41 Eisner, p. 375.

42 Eisner, p. 376.


44 Tallman, p. 20.

45 Heffernan, The Kindergarten Teacher.

46 Heffernan, "Art Expression," p. 244.


48 McCollum, p. 78.


CHAPTER VI

THE DESIGN OF THE STUDY

Locale

This study took place in the Forest Home Avenue public school in the city of Milwaukee. The writer is a kindergarten teacher in this school. Four teachers - three with double sections of kindergarten, referring to both morning and afternoon sessions, and the fourth teacher with one section, a morning session only - were involved in this study.

One hundred and eighty-two children were subjects in this experiment, with 108 children in the morning, senior kindergartens, and seventy-four in the afternoon, or junior kindergartens. These children ranged in age from five years, three months, to seven years, two months. There were ninety-two boys and ninety girls.

For the majority of the afternoon groups this was their first experience in a school environment. For the majority of the morning groups they were children who had spent at least one semester in kindergarten.

The Forest Home Avenue school district comprises about fifty-six city blocks. Over 900 children are enrolled in the school. It is located one block from the beginning of the largest and oldest shopping center on the south side. Although
most of the children reside in one family cottages or two or three family flats, there are a good number who live in apartment dwellings, some of which have been remodeled from former large flats or store buildings in the area.

A fire station and post office are located in the immediate neighborhood while a new library is currently under construction just across the street from the school. One senior and one junior high school are located within three and seven blocks, respectively. Two Lutheran and three Catholic elementary schools are in close proximity. Taverns are in abundance, with as many as ten taverns in a linear stretch of four blocks. The other businesses include large department stores, restaurants, bowling alleys, real estate offices, beauty shops, used car lots, large furniture stores, and a numerous variety of smaller shops such as florists, photographers, floor covering and typewriter stores.

Despite this profusion of commercial interests in the immediate vicinity pleasant residences do abound. Home owners pride themselves on keeping their dwellings and yards in good condition. Many residents also are justly proud of the gardens in which they raise vegetables and flowers.

The neighborhood is over eighty-five years old, with several of the churches bearing cornerstones engraved with the late 1870's and early 1880's in evidence. Some descendents of original owners still continue to live in the family residences. Children of Polish and German derivation comprise about 38% each
of the classes, with the German having just a few less in representation. Before the turn of the century this neighborhood was predominantly German in background. Concerning the make-up of nationality groups in the present study, the next group in size is the English-Irish-Scotch population representing about 18% of the kindergarteners. The Italian-Mexican-Puerto Rican children number about 3% of this total group. The children of Greece are in the minority, where approximately 2% appear.

**Subjects**

The majority of these four and five year olds come from homes of the working class. Most of the parents graduated from grade school, a somewhat larger number from high school, and only one graduated from college. However, some of these parents had further technical training in the fields of stenography, TV repair, upholstery, and car repair and mechanical training of various kinds.

**Milwaukee's Unique Kindergarten Program**

Since 1881, Milwaukee has had facilities available for the education of four year olds as part of the regular educational ladder. However, when overcrowding became prevalent about 1957, the four year old kindergarten was forced to disband.

Up to this time, for over seventy-five years, children could enter school on their fourth birthday. Thus, many children remained in the kindergarten environment for four semesters.
many for three, and some for less. It was in this very school under study at the present time, that one of the first three kindergarten classes was opened in the city of Milwaukee, introducing the program for four year olds in 1881.

Despite the closing of the four year old kindergartens due to lack of space, there recently has been renewed interest in the entire field of early childhood education, including the fours. In February, 1965, with the assistance of the Federal Government, through the provisions of the Educational Opportunity Act the four year old kindergarten was re-introduced in areas designated "economically depressed and culturally deprived." As an experiment, three full-time and ten Saturday pre-kindergarten classes were opened on the above date.

Because of increasing national recognition of the importance of this age level combined with the anti-poverty program of the administration, a program for pre-schoolers, HEADSTART, was introduced, beginning in June and extending throughout most of the Summer of 1965. Numerous centers for children two through six years of age were opened throughout the United States.

**Cases**

This research was conducted over a period of one semester. In the city of Milwaukee this covers about five months, 95 school days, extending from the beginning of February through June. Each child included in the sample of 182 kindergarteners
was given a Pintner-Cunningham primary test, Form A, to determine his intelligence quotient. This is the test recognized and used by the Milwaukee public schools for promotion from kindergarten. In order to be of most value for this research, these tests were administered June 1st, near the end of the study, when four samples of children's paintings had already been collected and the last was just about due. Each of the four teachers administered the tests to her own groups, in keeping with the procedure followed by the local school system.

The chronological age and the mental age of each child were recorded. Mental ages were derived from the Pintner-Cunningham test. This information plus the intelligence quotient and sex of the child were included in the data for this research.

In order that the raw data would be readily transferable and usable at the end of the study, a coding system was devised. Kindergarten children received individual student code numbers; teachers' classes were designated by letter; the sex and AM/PM classes were recorded; the age classification system was developed; and the raters were numbered.

The Numbering System

Each child included in these seven classes was given a number. The children in room A were numbered in the 100 series, with AM boys first, followed by AM girls; next in immediate order the PM boys appeared, with the PM girls listed last.
All of these names were first arranged in alphabetical order. B's children were given the 200 series, with C's, the 300's and D's classes the 400 series. Thus, each group could be identified readily by the writer for interpretation. Boys and girls in room C comprised one AM class only, while the other three kindergarten teachers were responsible for two classes each, an AM and a PM group:

<table>
<thead>
<tr>
<th>Group</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>101-130</td>
</tr>
<tr>
<td>II</td>
<td>131-153</td>
</tr>
<tr>
<td>III</td>
<td>201-227</td>
</tr>
<tr>
<td>IV</td>
<td>228-257</td>
</tr>
<tr>
<td>V</td>
<td>301-324</td>
</tr>
<tr>
<td>VI</td>
<td>401-427</td>
</tr>
<tr>
<td>VII</td>
<td>428-457</td>
</tr>
</tbody>
</table>

Further, the child numbered 101 would have a 1, 2, 3, 4 or 5 placed behind his number, designating the month in which he painted a picture:

<table>
<thead>
<tr>
<th>Month</th>
<th>101-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>101-1</td>
</tr>
<tr>
<td>March</td>
<td>101-2</td>
</tr>
<tr>
<td>April</td>
<td>101-3</td>
</tr>
<tr>
<td>May</td>
<td>101-4</td>
</tr>
<tr>
<td>June</td>
<td>101-5</td>
</tr>
</tbody>
</table>

**The Paintings**

Each month, from February through June, one easel painting was collected from each child. These paintings were executed on newsprint, 18x24 inches, using bright-colored calcimine paint. Even though children paint whenever they wish during the daily free play period, the writer set one day aside, usually preceding the fifteenth of the month, on which day all seven
classes would join in on the free play activities. Four classes in the morning and three classes in the afternoon would then proceed to paint, one child at a time, when space was available, as others finished work at the easels.

Before the start of the experiment five easels, with room for ten children at a time, were readied and placed about the room. With space for ten painters available, children moved along at a steady pace. They were, nevertheless, encouraged to finish their pictures, taking as much time as they needed to pictorially portray their personal ideas.

Colors of paint were the following: red, blue, yellow, orange, green, purple, and brown. Calcimine paint is a commercial powder paint to which water is added. The consistency should be thick enough to mix and handle easily, and bright enough, not too watered down, to retain its vivid color. About one capful of liquid detergent was added to each paint jar for binding the paint and creating a smoother appearance and touch, thus preventing excess flaking-off of the paint and contributing to more pleasant handling.

Each teacher was most cooperative in arranging for the children's completion of the paintings. Children were merely told to "paint a nice surprise for us today." From the background gained in varied experiences, children knew what they wanted to paint, and were encouraged to paint anything of interest to them. It will be noted, however, upon examination of the paintings in the Appendix, that seasons and holidays did influ-
ence their subject matter to some extent: for example, in the paintings collected during early spring, birds and flowers are predominant. The themes of Easter also are pronounced, with eggs and rabbits greatly in the forefront. It will be noted, in addition, that children did express their personal feelings, placing their independent thought and decor into each individual painting.

**The Pintner-Cunningham Test**

This test for kindergarten, Grade I, and the first half of Grade II is published in three equivalent forms: Form A, Form B and Form C. It is composed entirely of pictures, which are marked by the pupils according to the examiner's verbal directions. It contains seven different subtests covering as many different aspects of general mental ability: They include:

- Test 1. Common observation
- Test 2. Aesthetic differences
- Test 3. Associated objects
- Test 4. Discrimination of size
- Test 5. Picture parts
- Test 6. Picture completion
- Test 7. Dot drawing

Dougherty found in correlations with the Stanford-Binet, validity is evidenced at .80. Pintner's studies indicated validity of .73 and .88, depending upon the groups. Correlations in terms of reliability of the Pintner-Cunningham when measured against other forms of the same test are recorded as .88, .89, .83 and .94. The first three correlations compare Form B with grades kindergarten, one, and two respectively,
while .94 is the correlation between the original form and all the above grades combined including kindergarten through two.

The Score Sheet

Evaluation Sheet for Kindergarten Paintings

The design of the score sheet, with its twelve classifications for determining objective evaluations of the paintings and the method of actual rating were decided upon after consultations with professional artists, teachers of art, and a thorough review of the literature encompassing the field of child art.

Each of the twelve terms and its corresponding descriptive phrase has its base in actual documented writings or are the exact impressions of one or several of the authorities consulted in this study. The ratings were evolved as following, for these descriptions actually seemed most pertinent to children's paintings.

The description was vividly present in painting:

To a high degree (weighted 3 points) - painting reveals clear, strong, lively presentation of this particular appraisal.

To a moderate degree (weighted 2 points) - this interpretation is present, but is not stressed nor as intense.

To a slight degree (weighted 1 point) - there is some small indication to be seen, but is not outstanding.
Unobservable (no weight) - this feature cannot be determined.

Because a numerical score was necessary to utilize in statistical calculations to be made at the end of the research project, this method was devised. Since each painting was rated by three raters, the highest possible score for one month could equal 9 for each of the 12 categories or 108 points.

The highest total score for the entire five-month period could possibly be 540, or the value of $36 \times 5 \text{ months} \times 3 \text{ raters}$. The score achievement will be called the art score.

The above classifications were accepted after detailed discussions with each of the three prospective raters and the research advisor. Possible alternatives were considered, but there was unanimous agreement among the above that they would prefer to work with these guidelines. This explanation further serves as an explanation of the approval procedure undergone for the acceptance of actual descriptive classifications of categories of the art scale itself. After examination and some revision, the Evaluation Sheet for Kindergarten Paintings proved readily functional for the raters to use in their actual observations and final evaluations.

Every month 182 paintings collected from the four kindergartens were taken by the author to the raters. The writer provided a different colored rating sheet for each month. This color differentiation later helped in separating the data. The Evaluation Sheet for Kindergarten Paintings remained in exactly
### Evaluation Sheets for Kindergarten Paintings

<table>
<thead>
<tr>
<th>1. Inventiveness</th>
<th>Evidence of individuality, imagination, originality.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Perceptiveness</td>
<td>Attention to details.</td>
</tr>
<tr>
<td>3. Skill</td>
<td>Uniqueness in constructive ideas.</td>
</tr>
<tr>
<td>4. Pictorialization</td>
<td>Subject (design, symbol, study, experiment) expresses child interest. Reaching the level of symbolism or recognizable forms.</td>
</tr>
<tr>
<td>5. Spatial Awareness</td>
<td>Cognizant of effective use of space.</td>
</tr>
<tr>
<td>7. Flexibility</td>
<td>Easy, natural organization of printing. Opposite of rigidity and resistance.</td>
</tr>
<tr>
<td>8. Fluency</td>
<td>Unity of a theme (togetherness) The frequency with which ideas or symbols can be expressed.</td>
</tr>
<tr>
<td>12. Manipulation</td>
<td>Aptitude in working with paint.</td>
</tr>
</tbody>
</table>
the same form for each month, as the same stencil was used for memeeographing all rating sheets. Yellow was selected for February, White for March, Blue for April, buff for May and green for June. See Appendix A. Every month the writer would place the child's identification number and a rater's number on the three sheets, one for each rater. Subsequently they would be attached with a paper clip to the corresponding painting, and then delivered to a rater for evaluation. When the pack of paintings was returned to the writer, the rating sheets would be removed and the set of rating sheets for the next rater, be it rater 1, rater 2, or rater 3 were attached and delivered.

The terms, listed as items one through twelve, have been authenticated by the three professional art advisors: Professor Joan Schmidt, Mr. Kent Anderson, and Mrs. Sharon Mida, each of whose background appears in the section titled "The Raters." Furthermore, these terms are employed numerous times by noted authors from the field of early childhood art education.

Although various authors use these terms in their discussions of children's drawings and paintings, here follow some specific references to the actual terms used on the evaluation sheet. The complete identification of sources appear in the bibliography.

1. Inventiveness - p. 342, Creative and Mental Growth, Lowenfeld
   - p. 28, p. 45, Child Art, Viola
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 2. Perceptiveness   | - p. 24, Child Art and Franz Cizek, Viola  
                        - p. 35, Education Through Art, Read |
| 3. Skill   | - p. 33, Child Art, Viola  
                        - p. 37, Child Art and Franz Cizek, Viola |
| 4. Pictorialization   | - Specifically requested by Mr. Gordon Borchardt, Director of the Art Department, Milwaukee Public Schools  
                        - p. 30, p. 34, Child Art and Franz Cizek, Viola  
| 5. Spatial Awareness   | - Requested by Mrs. Sharon Mida that this be listed.  
                        - p. 33, Child Art and Franz Cizek, Viola |
| 6. Color Distinction   | - p. 56, Child Art and Franz Cizek, Viola |
| 7. Flexibility   | - p. 135, Preparation for Art, McFee  
                        - p. 40, Child Art and Franz Cizek, Viola  
                        - p. 443, Growing and Learning in
8. Fluency

For the request of Professor Schmidt.

- p. 132, Preparation for Art, McFee

9. Sensitivity

Request of Professor Schmidt.

10. Expression

- p. 33, Art of the Young Child, Bland

11. Security

Professor Schmidt asked that the words "self confidence" be included in the description

- p. 34, Art of the Young Child, Bland

- p. 36, p. 37, Child Art, Viola

12. Manipulation

- p. 7, Art Education, Conant

- pp. 25-29, Child Art, Viola

- p. 31, California Journal of Education, (May, 1963), Heffernan

The Raters

Each painting was appraised on an individual basis according to the Evaluation Sheet for Kindergarten Paintings. The ratings were made each month on special score sheets mimeographed for this purpose. Each rater handled, judged, and scored 182 paintings each month during this five month period.

Ratings were made by three knowledgeable educators working actively in the field of art education. They are Professor Joan Christopherson Schmidt, of the University of Wisconsin,
Milwaukee and the Milwaukee Art Center. Mrs. Schmidt teaches in the four and five year old kindergartens at the University, where her specialty is art, and she also assists in training prospective kindergarten-primary teachers. On Saturdays she conducts art classes for the kindergarten age child at the Milwaukee Art Center. Besides these responsibilities, she also appears weekly on a children's television show on a local station, during which time she tells stories and presents art work and crafts to the listening audience.

Mr. Kent Anderson is an art supervisor in the elementary schools of the city of Milwaukee's public school system. He also has a regular program of several classes in art instruction for the elementary grades, via the city's educational television station.

Mrs. Sharon Mida is an art minor who teaches kindergarten at the Forest Home Avenue School. She is a graduate of the University of Wisconsin at Platteville.

Pre-approval of these raters was gained from both the administration of the Milwaukee School Board and advisors at Loyola University.

**Set-up for Tabulation of Data**

Before the research could be undertaken, plans had to be made and approved concerning the methods of collecting, tabulating and interpreting the data. It was first determined that the Pintner-Cunningham Achievement test would produce an IQ and
an MA for each child. The CA, chronological age, would also be recorded.

The next item of importance was the art score, which was the result of the computations of three authoritative raters. Each child's painting for a particular month would be rated by all three art specialists. The composite of three raters' scores for each of the five months became what is referred to here as the art score.

Besides the total art score, a breakdown was needed for further analysis of each child's creativity, intelligence, and progress throughout the period of one semester in the kindergarten. Therefore, each child's individual rating by each rater for each month also was recorded.

Each child's paintings would be further evaluated through various groupings and comparisons of the variables. All of the paintings, 910 in number, would be analyzed through correlations, means, standard deviations and other measures of significant value.

Appearing in the records would be the child's identification number, his age and class, whether AM or PM, and his sex. The class placement and sex became a coded number, for future professional investigation. Children were assigned a 1, 2, 3, 4 according to the following arrangement:

1. Male - AM Kindergarten
2. Male - PM Kindergarten
3. Female - AM Kindergarten
4. Female - PM Kindergarten
This is the scheme which corresponds to the entries on the Fortran Coding Form:

<table>
<thead>
<tr>
<th>Column Number</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rater</td>
</tr>
<tr>
<td>2-4</td>
<td>Pupil code number</td>
</tr>
<tr>
<td>5</td>
<td>Sex-Class code</td>
</tr>
<tr>
<td>6-7</td>
<td>CA</td>
</tr>
<tr>
<td>8-10</td>
<td>IQ</td>
</tr>
<tr>
<td>11-80</td>
<td>Rater's individual and total estimates</td>
</tr>
</tbody>
</table>

**Raters**

I. - Mr. Anderson  
II. - Mrs. Mida  
III. - Mrs. Schmidt

**Pupil code numbers**

<table>
<thead>
<tr>
<th>Series</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Class A</td>
</tr>
<tr>
<td>200</td>
<td>Class B</td>
</tr>
<tr>
<td>300</td>
<td>Class C</td>
</tr>
<tr>
<td>400</td>
<td>Class D</td>
</tr>
</tbody>
</table>
The following chronological age coding system was devised to include the child's birthday in the particular month and year to the right of the number:

<table>
<thead>
<tr>
<th>Chronological Age - Code</th>
<th>For birthdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4-58</td>
</tr>
<tr>
<td>2</td>
<td>5-58</td>
</tr>
<tr>
<td>3</td>
<td>6-58</td>
</tr>
<tr>
<td>4</td>
<td>7-58</td>
</tr>
<tr>
<td>5</td>
<td>8-58</td>
</tr>
<tr>
<td>6</td>
<td>9-58</td>
</tr>
<tr>
<td>7</td>
<td>10-58</td>
</tr>
<tr>
<td>8</td>
<td>11-58</td>
</tr>
<tr>
<td>9</td>
<td>12-58</td>
</tr>
<tr>
<td>10</td>
<td>1-59</td>
</tr>
<tr>
<td>11</td>
<td>2-59</td>
</tr>
<tr>
<td>12</td>
<td>3-59</td>
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<tr>
<td>13</td>
<td>4-59</td>
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<td>14</td>
<td>5-59</td>
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<tr>
<td>15</td>
<td>6-59</td>
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<td>16</td>
<td>7-59</td>
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<td>17</td>
<td>8-59</td>
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<tr>
<td>18</td>
<td>9-59</td>
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<tr>
<td>19</td>
<td>10-59</td>
</tr>
<tr>
<td>20</td>
<td>11-59</td>
</tr>
<tr>
<td>21</td>
<td>12-59</td>
</tr>
<tr>
<td>22</td>
<td>1-60</td>
</tr>
<tr>
<td>23</td>
<td>2-60</td>
</tr>
<tr>
<td>24</td>
<td>3-60</td>
</tr>
</tbody>
</table>

Tabulation of Data for the IBM Machines

Early in the planning stages of this study it was decided that the statistical material would be handled in such a manner as to make use of the IBM 1401 Computer for processing of data. Through this device, if statistical objectives were drawn into one's plans, the graduate student would have available assistance from personnel in Loyola University's Data Processing Center. With these goals in mind, the writer started to plan
the procedure for the detailed handling of results of data collection.

According to the organization of this research there were to be these variables which would figure prominently in actual measurement of subjects: art scores, chronological ages, mental ages, intelligence quotients, the sex-class category, the pupil's identification numbers, and the different raters' numbers and scores themselves. Some of these criteria also would be broken down further for a fuller appraisal, such as the art scores and the ages and intelligence data on specific groups of children.

In the original plans it already appeared that there would be four punch cards for each child. Each of the first three cards would carry all of the identifying information such as the pupil code number, age, the sex, class, numbers telling which rater's material was being recorded, and the IQ. The fourth key punch card would carry the total of five months' scores for each rater, the total of five months' individual scores for raters I, II and III and the total score for each of the twelve items as indicated by the individual scoring of raters I, II and III.

Fortunately it developed that the basic data took up ten spaces on the Fortran Coding Form on which the raw scores taken from the Evaluation Sheet for Kindergarten Paintings, are also recorded. In the eleventh through eightieth spaces, these five
months' individual scores and final scores of each rater were registered.
CHAPTER VII

THE RESULTS OF THE STUDY

The first objective of this research was to determine the relationship between IQ and the art score ratings achieved on the evaluation sheets for kindergarten easel paintings. With the aid of the IBM Computer 1401 the correlation was determined as .879. This correlation helps substantiate the relationship between the IQ of the five-year-old children in this study and their corresponding art scores. To reduce the error of the estimate 50% one must have a correlation of approximately .87. This correlation has thus revealed that adequate closeness of relationship exists.

Between the chronological ages and art scores the correlation is not significant, .102. The correlation between chronological age and IQ, however, is .331.

The majority of scores in the IQ distribution in each of the seven groups ranged from mid-nineties to mid 120's, with some representation in the 130's and about 10% in the eighties and below, showing there were samples in every ten point classification from forty to 140 on the IQ scale.

Table One indicates the mean IQ of each large sex-class category of children. The AM girls have the highest mean IQ of 110.71, with the PM girls following second with 109.06. The
third group in order of mean IQ's are the AM boys, with 102.53, while the PM boys, as a group have the lowest mean IQ in this study, 99.79.

**TABLE 1**

**MEAN IQ OF ALL KINDERGARTEN CHILDREN**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean IQ</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Boys</td>
<td>102.53</td>
<td>53</td>
</tr>
<tr>
<td>PM Boys</td>
<td>99.79</td>
<td>39</td>
</tr>
<tr>
<td>AM Girls</td>
<td>110.71</td>
<td>55</td>
</tr>
<tr>
<td>PM Girls</td>
<td>109.06</td>
<td>35</td>
</tr>
</tbody>
</table>

Ages ranged from coded values of one through twenty-four, which substituted for chronological ages of five years, two months, through seven years, one month, a span of two years. The mean age of 17.225 points out that the average age of the kindergarten children in the study is five years, nine months, chronologically.

Intelligence quotients, representing 182 children, begin at 40 IQ and extend through 136 IQ. The mean IQ of this group as a whole, established by the IBM computers, is registered as 105.671 IQ.
Art scores were the results of the ratings of three professionally qualified art instructors from the kindergarten, elementary school and the college levels. Their individual methods of marking will be evaluated at the end of this chapter. Before an explanation of the derivation of the art scores, attention should be centered on the mean art score of 203.121, seen in Table 2, which is the average score of all boys and girls included in this research. Children's individual final scores are the result of five months' evaluations by three trained raters every month, which range from a low of forty-five through 391.

The highest possible score could have been 540 points. This is procured by multiplying the twelve items on the score sheet by the figure three, the highest attainable grade to be given, which then equals thirty-six. When multiplying a score of thirty-six for each painting, times three raters the product is 108. These 108 points per month, when multiplied by five

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17.225</td>
<td>4.567</td>
<td>182</td>
</tr>
<tr>
<td>IQ Number</td>
<td>105.671</td>
<td>14.869</td>
<td>182</td>
</tr>
<tr>
<td>Art Score</td>
<td>203.121</td>
<td>82.261</td>
<td>182</td>
</tr>
</tbody>
</table>

The table above shows the means of the total group concerning age, IQ's and art scores.
months equals 540, which could feasibly have become the highest score.

After the IQ's and art scores were computed for each child in this research into the relationship of intelligence and creativity in the art expression of kindergarten children through the media of their easel painting, Table 3 discloses the correlation of .879 between the two variables, IQ scores and art scores. According to the interpretation of the writer, this would signify a marked relationship between intelligence and creativity. The instrument used for testing the intelligence of children was the Pintner-Cunningham Primary test, used for promotion to the first grade, by the Milwaukee Public Schools.

The foundation for the art scores is the evaluation sheet for kindergarten easel paintings, designed by the writer, after documentation according to the writings of well-known and greatly respected artists and art teachers in the United States and abroad. The score sheet was further authenticated by the three specialists in the field of art education, all closely familiar with kindergarten children's capabilities and potentials and presently working at various levels of the teaching profession, but remaining in direct contact with kindergarten age children.

As was expected, there is no appreciable correlation between age and intelligence, nor between age and the art score, as exhibited in Table 3. It is engaging, nevertheless, within this chapter, to review the IQ scores of children of different
age groups, but the significance of correlating the age with the IQ is merely .331.

TABLE 3
CORRELATIONS BETWEEN AGE AND IQ, AGE AND ART SCORE, AND IQ AND ART SCORE

<table>
<thead>
<tr>
<th>Variable X</th>
<th>Variable Y</th>
<th>r</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>IQ Number</td>
<td>0.331</td>
<td>182</td>
</tr>
<tr>
<td>Age</td>
<td>Art Score</td>
<td>0.102</td>
<td>182</td>
</tr>
<tr>
<td>IQ Number</td>
<td>Art Score</td>
<td>0.879</td>
<td>182</td>
</tr>
</tbody>
</table>

Along this same line of interpretation, the ages and art scores have almost no relationship. Again it is enlightening, in spite of this low correlation, to see just what art scores children at certain chronological age levels do achieve. This will be expanded upon in this chapter, although the actual correlation between age and art scores is only .102.

It was found to be educationally significant in this study to attempt to discover the means of the three most repeated variables upon which this research is founded. They are the children's ages, IQ scores, and art scores. The seven groups under discussion comprise this entire sample. They are the senior and junior kindergartens of three teachers and the senior kindergarten of a fourth teacher.

Upon examination, as revealed in Tables 4 through 8, it will be noted that the same explanation applies here, as was
just mentioned above: that the correlations between age and IQ's and age and art scores are low, but that the correlations between IQ's and art scores are always more outstanding, although each is of prime significance, and that the means tell a story of differences.

**TABLE 4**

**A COMPARISON OF AGE, IQ AND ART SCORE MEANS OF SEVEN GROUPS**

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>Stud. Code</th>
<th>N</th>
<th>M Age</th>
<th>M IQ</th>
<th>M Art Score</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>101-130</td>
<td>30</td>
<td>16.10</td>
<td>111.06</td>
<td>252.56</td>
<td>AM</td>
</tr>
<tr>
<td>Group II</td>
<td>131-153</td>
<td>23</td>
<td>21.34</td>
<td>111.95</td>
<td>218.17</td>
<td>PM</td>
</tr>
<tr>
<td>Group III</td>
<td>201-227</td>
<td>27</td>
<td>17.07</td>
<td>107.63</td>
<td>206.00</td>
<td>AM</td>
</tr>
<tr>
<td>Group IV</td>
<td>228-257</td>
<td>24</td>
<td>22.79</td>
<td>104.54</td>
<td>174.08</td>
<td>PM</td>
</tr>
<tr>
<td>Group V</td>
<td>301-324</td>
<td>24</td>
<td>14.13</td>
<td>107.58</td>
<td>213.33</td>
<td>AM</td>
</tr>
<tr>
<td>Group VI</td>
<td>401-427</td>
<td>27</td>
<td>11.63</td>
<td>100.11</td>
<td>191.63</td>
<td>AM</td>
</tr>
<tr>
<td>Group VII</td>
<td>428-454</td>
<td>27</td>
<td>18.51</td>
<td>97.22</td>
<td>160.70</td>
<td>PM</td>
</tr>
</tbody>
</table>

Clearly shown in Table 4, the means of all seven groups concerned with age, IQ and the art scores are disclosed for detailed observation. Classes are quite alike with number of children enrolled, with a disparity of only three children among four classes. Two classes have six less than the largest class, while the largest class is seven children greater than the smallest with twenty-three enrolled.

According to the age code, ages range from an average
high of 11.63, six years, four months chronologically, to an average low of 22.79, or five years, five months, a difference of almost one year.

The mean IQ's range from 97.22 to a high of 111.95, with junior kindergartens representing both extremes, although one senior class is .89 below the junior mean IQ.

Ranges of art scores are by far more widespread with a low of 160.70 mean and a high of 252.56 mean. Here we plainly see a mean range of 91.86, while the actual range is 346 points, possible because of one low art score of 45 and one high art score of 391, with the greater number of scores in the 94 through 294 range, as seen in a later table.

### TABLE 5

**SENIOR AND JUNIOR KINDERGARTENS' MEAN ART SCORE DIFFERENCES**

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>M Art Score</th>
<th>Class</th>
<th>Differences between AM/PM M Scores from same room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>252.56</td>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td>218.17</td>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td>206.00</td>
<td>Senior</td>
<td>33.39</td>
</tr>
<tr>
<td>Group IV</td>
<td>174.08</td>
<td>Junior</td>
<td>31.92</td>
</tr>
<tr>
<td>Group V</td>
<td>213.33</td>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Group VI</td>
<td>191.63</td>
<td>Senior</td>
<td>30.93</td>
</tr>
<tr>
<td>Group VII</td>
<td>160.70</td>
<td>Junior</td>
<td></td>
</tr>
</tbody>
</table>

In looking at Table 5 we see the mean art scores of seven individual groups and the differences between AM and PM
classes taught by the same teacher.

It is worth while to note in Table 5 that the differences between the art scores' means of all pairs of senior and junior class groups are over thirty points. This confers the grading of the raters, in that they noted general painting characteristics of the senior children which differed from the junior groups, and to whom they attributed a definitive scoring method.

Group V had no junior counterpart from its own room, each with the same teacher, as the others did. However, in comparing Group V's art mean of 213.33 with the three junior kindergartens, whose art means are 218.17, 174.08 and 160.70, the differences are 4.84, 39.25, and 52.63, respectively, which are strikingly different than the thirties in Table 5.

These results are most unusual for they show that (1) a relationship exists between art scores of senior and junior kindergartens when both groups have the same room and the same teacher, and that (2) the differences between Group V and all junior kindergartens are greatly different than the trend of the three pair of classes above, and (3) this feature introduces the question of similar environment and similar teacher and their influence on classes who occupy the same room but have a different time schedule.

In Table 6 one finds Group VI with the highest correlation, .779, between age and IQ. The next highest group is VII, with .533. When we examine the mean ages for all seven groups
it is brought to our attention that both groups under discussion, Groups VI and VII, are each the oldest for senior and junior kindergartens. The mean coded age of Group VI is 11.63 and for Group VII it is 18.51, as indicated in Table 4.

TABLE 6

SEVEN GROUPS' CORRELATION BETWEEN AGE AND IQ

<table>
<thead>
<tr>
<th>Group</th>
<th>$r$ Between Age and IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>.349</td>
</tr>
<tr>
<td>Group II</td>
<td>-.006</td>
</tr>
<tr>
<td>Group III</td>
<td>.313</td>
</tr>
<tr>
<td>Group IV</td>
<td>.364</td>
</tr>
<tr>
<td>Group V</td>
<td>.168</td>
</tr>
<tr>
<td>Group VI</td>
<td>.779</td>
</tr>
<tr>
<td>Group VII</td>
<td>.533</td>
</tr>
</tbody>
</table>

Although the correlation for the entire group between age and art scores is only .102, the two oldest groups in the study, representing senior and junior kindergartens produce the highest correlations, namely .577 for seniors and .378 for juniors, in Groups VI and VII respectively, as exhibited in Table 7.
TABLE 7
SEVEN GROUPS' CORRELATION BETWEEN AGE AND ART SCORE

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>r Between Age and IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>.199</td>
</tr>
<tr>
<td>Group II</td>
<td>-.047</td>
</tr>
<tr>
<td>Group III</td>
<td>.247</td>
</tr>
<tr>
<td>Group IV</td>
<td>.114</td>
</tr>
<tr>
<td>Group V</td>
<td>.199</td>
</tr>
<tr>
<td>Group VI</td>
<td>.577</td>
</tr>
<tr>
<td>Group VII</td>
<td>.378</td>
</tr>
</tbody>
</table>

It is interesting to note that Tables 6 and 7 reveal Groups VI and VII with the highest correlations between age and IQ, and age and art score. However, in a consideration of correlation between IQ and art score, which was .879 for the total group in this research, the two groups, VI and VII, which represent the oldest children from both the senior and junior kindergartens, are now at the bottom of the correlations.

The first five groups in Table 8, including three senior and two junior kindergartens, have correlations of .9, while Groups VI and VII have correlations of .823 and .898, respectively. It is worthy to record the fact that Groups VI and VII
TABLE 8

SEVEN GROUPS' CORRELATION BETWEEN IQ SCORE AND ART SCORE

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>r Between IQ and Art Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>.919</td>
</tr>
<tr>
<td>Group II</td>
<td>.954</td>
</tr>
<tr>
<td>Group III</td>
<td>.903</td>
</tr>
<tr>
<td>Group IV</td>
<td>.913</td>
</tr>
<tr>
<td>Group V</td>
<td>.959</td>
</tr>
<tr>
<td>Group VI</td>
<td>.823</td>
</tr>
<tr>
<td>Group VII</td>
<td>.898</td>
</tr>
</tbody>
</table>

have the lowest mean IQ's for each large classification of children, the senior and junior kindergartens, with 100.11 and 97.22, as manifested in Table 4. It appears that the lower IQ's and the higher ages have a genuine relationship in this study.

TABLE 9

THE MEANS OF AM (SENIOR) KINDERGARTEN GROUPS

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>M Age</th>
<th>M IQ</th>
<th>M Art Score</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>16.10</td>
<td>111.06</td>
<td>252.56</td>
<td>30</td>
</tr>
<tr>
<td>Group III</td>
<td>17.07</td>
<td>107.63</td>
<td>206.00</td>
<td>27</td>
</tr>
<tr>
<td>Group V</td>
<td>14.12</td>
<td>107.58</td>
<td>203.33</td>
<td>24</td>
</tr>
<tr>
<td>Group VI</td>
<td>11.63</td>
<td>100.11</td>
<td>191.53</td>
<td>27</td>
</tr>
<tr>
<td>General M:</td>
<td>14.73</td>
<td>106.59</td>
<td>215.88</td>
<td>108</td>
</tr>
</tbody>
</table>
The mean of these mean ages equals 14.73, which is representative of a chronological age of six years, one month, while the mean age for the entire study is 17.22, or five years, nine months. The mean of the IQ's in Table 9 is 106.59, while the mean of 182 children is 105.67. The mean of the art scores above is 215.88, compared to the mean of the total group, which is 203.12. Here we clearly find each variable mean of this senior body to be larger than the means of age, IQ and art score for the entire study.

**TABLE 10**

**THE MEANS OF PM (JUNIOR) KINDERGARTEN GROUPS**

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>M Age</th>
<th>M IQ</th>
<th>M Art Score</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group II</td>
<td>21.34</td>
<td>111.95</td>
<td>218.17</td>
<td>23</td>
</tr>
<tr>
<td>Group IV</td>
<td>22.79</td>
<td>104.54</td>
<td>174.08</td>
<td>24</td>
</tr>
<tr>
<td>Group VII</td>
<td>18.51</td>
<td>97.22</td>
<td>160.70</td>
<td>27</td>
</tr>
<tr>
<td>General M:</td>
<td>20.88</td>
<td>104.44</td>
<td>184.32</td>
<td>74</td>
</tr>
</tbody>
</table>

Table 10 gives the exact opposite picture from Table 9. Evidence shows the AM groups to excel the total means in all variables, while the PM groups each fall below the means for the total groups. These two distinct differences add to the study of kindergarten children's relationship between creativity in children's art expression to intelligence. These youngsters are separated by one semester's attendance, and are also categorized
because of age. The AM and PM kindergarten groups are unlike in respect to each other regarding age, IQ and art scores.

The mean of these mean ages equals 20.88, which is representative of a chronological age of five years, six months, while the mean for the entire study is 17.22, or five years, nine months. The mean of the IQ's in Table 10 is 104.44, while the mean of 182 children is 105.67. The mean of the art scores above is 184.32, compared to the mean of the total group, which is 203.12. Here we clearly find each variable mean of this junior body to be smaller than the means of age, IQ and art score for the entire study.

In Table 10 the highest mean art score, 218.17, belongs to the highest mean IQ group, who had a mean IQ of 111.95. After examining all seven groups in Tables 9 and 10, it is noteworthy to remark that junior Group IV, with a mean IQ of 104.44, most closely approximates the mean IQ of the entire group, 105.67.

Before the summary of data progresses any further, the list of IQ's with corresponding coded ages will be registered in Table 12. This coded designation of ages and the birthdays they represent are offered first in Table 11, which will then facilitate the interpretation of Table 12.

IQ's ranged from forty through 136, a spread of ninety-six points distributed among 182 kindergarten children. In Table 12, IQ's are listed in rank order with their corresponding age code.
<table>
<thead>
<tr>
<th>CA Age Code</th>
<th>For Birthdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
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<td>2</td>
<td>5-58</td>
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<td>3</td>
<td>6-58</td>
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<td>4</td>
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<td>10-58</td>
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<td>20</td>
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<td>14</td>
<td>119</td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In examining the means of the various descriptive categories of the evaluation sheet, raters found inventiveness most evident in children's paintings, with the highest mean, 21.209. This fact helps substantiate the creativity scale, for the majority of authors investigated by this writer list inventiveness, imagination and individually as the leading criteria of creative art expression in children as well as adults. See Chapters II through VI.

TABLE 13

ART SCORE MEANS OF ITEMS ON EVALUATION SHEETS

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inventiveness</td>
<td>182</td>
<td>21.209</td>
</tr>
<tr>
<td>2. Perceptiveness</td>
<td>182</td>
<td>16.127</td>
</tr>
<tr>
<td>3. Skill</td>
<td>182</td>
<td>16.550</td>
</tr>
<tr>
<td>4. Pictorialization</td>
<td>182</td>
<td>18.550</td>
</tr>
<tr>
<td>5. Spatial awareness</td>
<td>182</td>
<td>19.011</td>
</tr>
<tr>
<td>6. Color distinction</td>
<td>182</td>
<td>18.324</td>
</tr>
<tr>
<td>7. Flexibility</td>
<td>182</td>
<td>16.170</td>
</tr>
<tr>
<td>8. Fluency</td>
<td>182</td>
<td>16.170</td>
</tr>
<tr>
<td>10. Expression</td>
<td>182</td>
<td>17.154</td>
</tr>
<tr>
<td>11. Security</td>
<td>182</td>
<td>13.500</td>
</tr>
<tr>
<td>12. Manipulation</td>
<td>182</td>
<td>14.747</td>
</tr>
</tbody>
</table>
It would appear obvious from Table 13 that this list of descriptive evaluation criteria contains a difference in means. Table 14 will objectively disclose that six items appear in top rank. They are: inventiveness, 21.20, spatial awareness, 19.01, pictorialization, 18.55, color distinction, 18.32, expression, 17.15, and flexibility, 16.84; while the next six traits fall in descending rank: skill, 16.55, fluency, 16.17, perceptiveness, 16.12, sensitivity, 14.95, and manipulation, 14.74, while security is 13.50.

**TABLE 14**

**RANKED ART SCORE MEANS OF TOTAL GROUPS ACCORDING TO RATINGS BY PROFESSIONAL RATERS**

<table>
<thead>
<tr>
<th>Number and category</th>
<th>M</th>
<th>Art Score Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inventiveness</td>
<td>21.20</td>
<td>1.</td>
</tr>
<tr>
<td>5. Spatial awareness</td>
<td>19.01</td>
<td>2.</td>
</tr>
<tr>
<td>10. Expression</td>
<td>17.15</td>
<td>5.</td>
</tr>
<tr>
<td>7. Flexibility</td>
<td>16.84</td>
<td>6.</td>
</tr>
</tbody>
</table>
Security must have been rather challenging to grade as evidenced by its last rank of twelve, and a mean of 13.50.

Spatial awareness, rank two, pictorialization, rank three, color distinction, rank four, and expression, rank five make up the visual foundation of the painting, with flexibility and fluency, ranks six and eight, assisting in setting the mood.

The ranks seven, nine and ten: skill, perceptiveness and sensitivity of the child-artist need an expert eye to discern whether the particular child produced with a high, moderate, or slight degree of creativity; or possibly that these traits could not be readily observed to any extent.

**TABLE 15**

**AGE IN CORRELATION WITH ALL CATEGORIES OF EVALUATION SHEET**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Art Category</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Art Score</td>
<td>0.102</td>
</tr>
<tr>
<td>Age</td>
<td>1. Inventiveness</td>
<td>0.069</td>
</tr>
<tr>
<td>Age</td>
<td>2. Perceptiveness</td>
<td>0.047</td>
</tr>
<tr>
<td>Age</td>
<td>3. Skill</td>
<td>0.046</td>
</tr>
<tr>
<td>Age</td>
<td>4. Pictorialization</td>
<td>0.043</td>
</tr>
<tr>
<td>Age</td>
<td>5. Spatial awareness</td>
<td>0.093</td>
</tr>
<tr>
<td>Age</td>
<td>6. Color distinction</td>
<td>0.089</td>
</tr>
<tr>
<td>Age</td>
<td>7. Flexibility</td>
<td>0.168</td>
</tr>
<tr>
<td>Age</td>
<td>8. Fluency</td>
<td>0.119</td>
</tr>
<tr>
<td>Age</td>
<td>9. Sensitivity</td>
<td>0.134</td>
</tr>
<tr>
<td>Age</td>
<td>10. Expression</td>
<td>0.103</td>
</tr>
<tr>
<td>Age</td>
<td>11. Security</td>
<td>0.140</td>
</tr>
<tr>
<td>Age</td>
<td>12. Manipulation</td>
<td>0.098</td>
</tr>
</tbody>
</table>
In Table 15 one again sees the low correlation between age and art scores. The total group's correlation between age and art score is .102, shown above. Out of the twelve categories listed here, seven correlate lower than the correlation for the whole research sample, while five are slightly higher.

Following is Table 16 in which the IQ Number and each category of the evaluation sheet are correlated and show marked relationships as revealed by every correlation in the +.8 bracket. Spatial awareness developed to have an .803, the lowest correlation, while the highest correlation between IQ and an evaluation category was flexibility, with .886.

TABLE 16
CORRELATION BETWEEN IQ'S AND ALL CATEGORIES OF THE EVALUATION SHEET

<table>
<thead>
<tr>
<th>Variable</th>
<th>Art Category</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ Number</td>
<td>Art Score</td>
<td></td>
</tr>
<tr>
<td>IQ</td>
<td>1. Inventiveness</td>
<td>0.879</td>
</tr>
<tr>
<td>IQ</td>
<td>2. Perceptiveness</td>
<td>0.813</td>
</tr>
<tr>
<td>IQ</td>
<td>3. Skill</td>
<td>0.816</td>
</tr>
<tr>
<td>IQ</td>
<td>4. Pictorialization</td>
<td>0.825</td>
</tr>
<tr>
<td>IQ</td>
<td>5. Spatial awareness</td>
<td>0.827</td>
</tr>
<tr>
<td>IQ</td>
<td>6. Color distinction</td>
<td>0.803</td>
</tr>
<tr>
<td>IQ</td>
<td>7. Flexibility</td>
<td>0.837</td>
</tr>
<tr>
<td>IQ</td>
<td>8. Fluency</td>
<td>0.836</td>
</tr>
<tr>
<td>IQ</td>
<td>9. Sensitivity</td>
<td>0.886</td>
</tr>
<tr>
<td>IQ</td>
<td>10. Expression</td>
<td>0.878</td>
</tr>
<tr>
<td>IQ</td>
<td>11. Security</td>
<td>0.832</td>
</tr>
<tr>
<td>IQ</td>
<td>12. Manipulation</td>
<td>0.852</td>
</tr>
</tbody>
</table>
As would be expected in a study, when the correlation between art scores and IQ is .879, the relationship between art score and all categories of the evaluation sheet correlate +.9. In Table 17 this seems to indicate the deeper relationships between the total art score and its component parts. When the art categories are correlated with the variable, IQ number, the correlations go down just a trifle, as seen in Table 16.

In partial explanation, the IQ number is not visible to the eye, as far as observing art expression would be, but nevertheless it is present in the child as innate to his nature and an element of his intelligence. Therefore, all art score categories correlate better with the variable, art score, as seen in Table 17, than art score categories with the variable, IQ number, as in Table 16. The IQ correlations in Table 16 are very good, however, because IQ seems to be a factor in the rendition of the art product, the painting.
### Table 17

**Correlation Between Art Scores and All Categories of the Evaluation Sheet**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>$r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art score</td>
<td>1. Inventiveness</td>
<td>0.936</td>
</tr>
<tr>
<td>Art score</td>
<td>2. Perceptiveness</td>
<td>0.948</td>
</tr>
<tr>
<td>Art score</td>
<td>3. Skill</td>
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</tr>
<tr>
<td>Art score</td>
<td>4. Pictorialization</td>
<td>0.946</td>
</tr>
<tr>
<td>Art score</td>
<td>5. Spatial awareness</td>
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</tr>
<tr>
<td>Art score</td>
<td>6. Color distinction</td>
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</tr>
<tr>
<td>Art score</td>
<td>7. Flexibility</td>
<td>0.970</td>
</tr>
<tr>
<td>Art score</td>
<td>8. Fluency</td>
<td>0.973</td>
</tr>
<tr>
<td>Art score</td>
<td>9. Sensitivity</td>
<td>0.974</td>
</tr>
<tr>
<td>Art score</td>
<td>10. Expression</td>
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</tr>
<tr>
<td>Art score</td>
<td>11. Security</td>
<td>0.967</td>
</tr>
<tr>
<td>Art score</td>
<td>12. Manipulation</td>
<td>0.973</td>
</tr>
</tbody>
</table>

Most of the correlations exposed in Table 18 following, reveal the relationship between all categories of the evaluation sheet are very high, with dependable relationship to each other. Twenty-two correlations are +.9, while eight are in the +.85 lane, suggesting a high correlation with a marked relationship between these inter-items of the art score categories taken from the evaluation sheet for kindergarten paintings, which the three professional raters used for this scoring.

Table 18 continues to make clear the importance of each facet of a rating sheet. When scores were decided, the raters had twelve values to consider, all of which were in close relationship with each other.
<table>
<thead>
<tr>
<th>Variable</th>
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<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventiveness</td>
<td>Perceptiveness</td>
<td>0.895</td>
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<td>Skill</td>
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<td>Pictorialization</td>
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<td>Inventiveness</td>
<td>Spatial awareness</td>
<td>0.892</td>
</tr>
<tr>
<td>Inventiveness</td>
<td>Color distinction</td>
<td>0.897</td>
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<td>Perceptiveness</td>
<td>Pictorialization</td>
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</table>
### Table 19

IQ AND ART SCORE IN RANK ORDER OF ART SCORE

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<tr>
<th>IQ</th>
<th>Art</th>
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<th>Art</th>
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<td>185</td>
<td>109</td>
<td>156</td>
<td>096</td>
<td>127</td>
</tr>
</tbody>
</table>
Total art scores, in rank order, were just presented with corresponding IQ's. Chronological ages and classes of kindergarteners were purposely left out of this list, for these variables are treated adequately on other pages. Through a general scanning of these figures in Table 19, one can visually locate individual combinations of interest to the educator.

**TABLE 20**

**NINETY-TWO BOYS’ MEAN IQ’S AND MEAN ART SCORES**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean IQ of boys</td>
<td>92</td>
<td>101.37</td>
<td>15.56</td>
</tr>
<tr>
<td>Mean art score</td>
<td>92</td>
<td>176.96</td>
<td>74.99</td>
</tr>
</tbody>
</table>

Numbers divide almost equally in this research with ninety-two boys and ninety girls. The mean IQ of boys, 101.37, is some four points below the mean of the entire group, 105.67. The standard deviation of 15.56 is just .70 higher than the standard deviation for the whole group, 14.86.

When one examines the boys' mean art score, 176.96, in Table 20, the drop of 26.16 points from the general mean, 203.12, tends to present a picture of the average boy in a less creative light than the average girl, who will be discussed next.
The ninety girls in this study of creativity and intelligence ranked 4.4 points higher, with a 110.07 IQ mean than the mean IQ of 105.67. Also, in an analysis of the art scores, girls with 229.87, rated 26.75 points higher than the average of 203.12, while the boys rated 26.16 points lower. According to the text, some authorities, especially Kirstensteiner, claimed that boys were more artistically oriented, while Goodenough showed that girls were more artistically alert than boys.

At this particular five-year level it is noteworthy to observe the results of this special study, with boys and girls almost equally distant from the mean art score, but in opposite directions. In the next pages this challenging explanation will be further expanded.

The question which arose from the evidence found in the last two tables, 20 and 21, is particularly explained by the forthcoming material in the next four outcomes of children's works shown in the next four tables. For purposes of comparing

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean IQ of girls</td>
<td>90</td>
<td>110.07</td>
<td>12.79</td>
</tr>
<tr>
<td>Mean art score</td>
<td>90</td>
<td>229.87</td>
<td>81.13</td>
</tr>
</tbody>
</table>
the senior and junior kindergartens, whose mean age difference is seven months; while the boys' and girls' experience in the junior kindergartens is one-half the time of the seniors, these statistics become more meaningful. Most senior kindergarteners have been in attendance two semesters, some three, and a few, four semesters. Attention is called to Table 12, which reveals the three lowest IQ's belong to children who are well over seven years of age, and still in a kindergarten situation. The junior kindergartens were enrolled one semester at the time of this sampling.

TABLE 22
AM BOYS' MEAN AGE AND ART SCORE

<table>
<thead>
<tr>
<th>AM Boys</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>53</td>
<td>14.04</td>
</tr>
<tr>
<td>Mean art score</td>
<td>53</td>
<td>190.68</td>
</tr>
</tbody>
</table>

TABLE 23
PM BOYS' MEAN AGE AND ART SCORE

<table>
<thead>
<tr>
<th>PM Boys</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>39</td>
<td>20.38</td>
</tr>
<tr>
<td>Mean art score</td>
<td>39</td>
<td>158.31</td>
</tr>
</tbody>
</table>
In the four tables, twenty-two through twenty-five, just presented, one finds an important demonstration of the similarities between girls of the junior and senior kindergartens to produce somewhat more creatively, as judged by the three raters. The AM girls' art mean is 242.31 and the PM girls' art mean is 210.31. One finds each group of boys about 52 points below their corresponding girl-group on the art score mean, with AM boys' art score mean of 190.68 and the PM boys' with 158.31.
TABLE 26
MEAN ART SCORES OF BOYS AND GIRLS

<table>
<thead>
<tr>
<th>Kgn. Group</th>
<th>M Art Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Boys</td>
<td>190.68</td>
</tr>
<tr>
<td>PM Boys</td>
<td>158.31</td>
</tr>
<tr>
<td>AM Girls</td>
<td>242.31</td>
</tr>
<tr>
<td>PM Girls</td>
<td>210.31</td>
</tr>
</tbody>
</table>

One candidly notices both girls' groups are above the general mean for art scores, 203.12, while both boys' groups are below the mean. The PM girls rate 20 points above the AM boys at this particular five-year level, seen in Table 26, and it would seem that in this group of 182 children, the girls paint in a manner that can be more readily noticed as artistically creative.

The writer would like to call attention to the chronological ages in Table 27, for they again verify the six months and seven months difference in ages between the senior and junior kindergartens. Evidently, although these half-year steps separate the groups, the boy-girl differences in their general artistic endeavors apply to both groups, with the girls in each category surpassing the boys in art score and IQ as measured by the standardized test, the Pintner-Cunningham.
This last section of results according to statistical procedures set forth in the beginning of this paper, help verify one of the objectives: to locate the differences existing between the creative paintings of children in the junior and senior kindergartens, as well as the differences between individual groups of boys and girls.

Since the IQ's were derived from the Pintner-Cunningham Achievement test, the writer felt some description of mental ages concerning various art scores should be presented next. Following, in Table 28, the mean mental ages are compared with general art scores. One finds mean art scores in good relation to higher mental ages, and lower scores in the 4-0 through 5-2 mental age stratum.

Classifications were displayed in this manner for they generally approximate the body and the extremes of a given group, as well as roughly resembling year-plus steps in the mental age scale.
TABLE 28

MEAN MENTAL AGES COMPARED WITH GENERAL ART SCORES

<table>
<thead>
<tr>
<th>MA Group</th>
<th>M Art Score</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-0 through 5-2</td>
<td>96</td>
<td>29</td>
</tr>
<tr>
<td>5-3 through 6-3</td>
<td>159</td>
<td>73</td>
</tr>
<tr>
<td>6-4 through 7-6</td>
<td>269</td>
<td>65</td>
</tr>
<tr>
<td>7-7 through 8-8</td>
<td>354</td>
<td>15</td>
</tr>
</tbody>
</table>

Three individual sections of the Pintner-Cunningham were thought to be especially significant to one of the general topics under discussion in the last chapters of this study of the relationship of creativity and intelligence through artistic standards. Therefore the writer removed the results of three specific subtests of this test: The aesthetic differences, the discrimination of sizes, and the dot drawings, averaged them, and then related these results to the same brackets of the mental age scale which is presented in Table 28. Thus, in Table 29, one finds the lowest mental age group producing the lowest mean score on these three subtests: 1.59 points in the 4-0 through 5-2 division; while the fifteen children in the top mental age stratum, 7-7 through 8-8, receive the top scores for the three special tests, 5.60 points.
One of the major tasks of this writer was to search for and locate similarities and differences in the art expression, intelligence quotients, junior-senior classes and boy-girl achievement. Part of this investigation used the variables just listed to reveal the average work of all of the children over the entire semester, to observe children's development and the growth pattern over the five month span. First let us examine the broad picture of the art scores for everyone.

Here, in Table 29, we see a presentation of growth in art score means from February to June, but the third month, April, 15.41, reaches the apex, rather than the fifth month, 13.90. The growth from the first month, 10.95, through the fifth month, 13.90, is about three points, but four and one-half points are reached the third month, 15.41. The fourth and fifth months each drop .7 of a point.
TABLE 30
MEAN ART SCORES BY THE MONTH

<table>
<thead>
<tr>
<th>Month</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>10.95</td>
<td>7.63</td>
<td>546</td>
</tr>
<tr>
<td>March</td>
<td>13.15</td>
<td>8.45</td>
<td>546</td>
</tr>
<tr>
<td>April</td>
<td>15.41</td>
<td>8.29</td>
<td>546</td>
</tr>
<tr>
<td>May</td>
<td>14.79</td>
<td>8.26</td>
<td>546</td>
</tr>
<tr>
<td>June</td>
<td>13.90</td>
<td>8.47</td>
<td>546</td>
</tr>
</tbody>
</table>

The researcher finds that three points show a dependable growth pattern, when one realizes that the improvement of three points means that the February score, 10.95, improved itself approximately 28% by June. The .7 gradual drop never again reached the beginning low point of the research begun in February. This was encouraging. The writer offers this explanation for these results.

The start in February showed a low of 10.95. During this month the junior kindergartens were introduced to easel painting for the first time. The month of March showed good general improvement of 2.2 points, with a 2.3 point growth during April. It appears that spring, with its theme of the world's reawakening after winter, spurred the children on to more and more varied and attractive themes for their paintings. Easter, with rabbits, chicks and colored eggs combined with the new leafing
and vitality of spring flowers is reflected in the children's art productions.

The culmination of the children's art expression, although reached during the third month, never drops again to the levels of the first and second months. This is an indication of highly inspired effort on the part of the children, with perhaps a little lessening of enthusiasm in putting forth greater thought on the themes of their work as the semester passed the second half of the period.

**TABLE 31**

**AM BOYS' MEAN ART SCORES BY THE MONTH**

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>Month</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM boys</td>
<td>February</td>
<td>159</td>
<td>10.76</td>
<td>8.64</td>
</tr>
<tr>
<td>AM boys</td>
<td>March</td>
<td>159</td>
<td>11.95</td>
<td>7.11</td>
</tr>
<tr>
<td>AM boys</td>
<td>April</td>
<td>159</td>
<td>15.32</td>
<td>7.16</td>
</tr>
<tr>
<td>AM boys</td>
<td>May</td>
<td>159</td>
<td>13.32</td>
<td>7.44</td>
</tr>
<tr>
<td>AM boys</td>
<td>June</td>
<td>159</td>
<td>12.79</td>
<td>7.73</td>
</tr>
</tbody>
</table>

Continuing with an examination of monthly means of the art scores of kindergarten junior boys and senior boys, this next group of four tables, including the one above, present a breakdown of these art scores by the month. Through this manner, one can analyze progress during the semester. Again the children follow the pattern established by this research into the creativity and intellectual artistic expression of five year
olds: that the AM girls, table 32, reach a greater climax, 18.07, and end with a higher score, 16.74, than the PM girls, culmination 15.92, and final score of 14.97, in Table 34.

**TABLE 32**

**AM GIRLS' MEAN ART SCORES BY THE MONTH**

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>Month</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM girls</td>
<td>February</td>
<td>165</td>
<td>12.98</td>
<td>6.28</td>
</tr>
<tr>
<td>AM girls</td>
<td>March</td>
<td>165</td>
<td>15.22</td>
<td>7.68</td>
</tr>
<tr>
<td>AM girls</td>
<td>April</td>
<td>165</td>
<td>18.07</td>
<td>9.20</td>
</tr>
<tr>
<td>AM girls</td>
<td>May</td>
<td>165</td>
<td>17.59</td>
<td>8.05</td>
</tr>
<tr>
<td>AM girls</td>
<td>June</td>
<td>165</td>
<td>16.74</td>
<td>8.60</td>
</tr>
</tbody>
</table>

Both girls' groups, tables thirty-two and thirty-four, perform better, according to the professional raters, than the AM boys, whose height, table thirty-one, 15.32, was greater than the ending, 12.79; furthermore these AM boys exceeded the PM boys' top month, 11.37, and the last average score of 10.47, in table thirty-three.

Each of these four groups started lower in February in creative expression, as evidenced by easel paintings, and ended higher in June, but in each case they exceeded their final averages in the very center of the study, during April, the month of the most fruitful and delightful paintings.
TABLE 33
PM BOYS' MEAN ART SCORES BY THE MONTH

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>Month</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM boys</td>
<td>February</td>
<td>117</td>
<td>8.93</td>
<td>8.23</td>
</tr>
<tr>
<td>PM boys</td>
<td>March</td>
<td>117</td>
<td>10.84</td>
<td>9.32</td>
</tr>
<tr>
<td>PM boys</td>
<td>April</td>
<td>117</td>
<td>11.37</td>
<td>7.98</td>
</tr>
<tr>
<td>PM boys</td>
<td>May</td>
<td>117</td>
<td>12.27</td>
<td>7.97</td>
</tr>
<tr>
<td>PM boys</td>
<td>June</td>
<td>117</td>
<td>10.47</td>
<td>8.04</td>
</tr>
</tbody>
</table>

Reassuring to this investigation of similarities and differences is the general total gain by each group over the five months. PM girls increased 4.68, AM girls 3.76, AM boys 2.03, and PM boys, 1.54.

TABLE 34
PM GIRLS' MEAN ART SCORES BY THE MONTH

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>Month</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM girls</td>
<td>February</td>
<td>105</td>
<td>10.29</td>
<td>6.46</td>
</tr>
<tr>
<td>PM girls</td>
<td>March</td>
<td>105</td>
<td>14.31</td>
<td>9.56</td>
</tr>
<tr>
<td>PM girls</td>
<td>April</td>
<td>105</td>
<td>15.92</td>
<td>6.98</td>
</tr>
<tr>
<td>PM girls</td>
<td>May</td>
<td>105</td>
<td>15.49</td>
<td>8.78</td>
</tr>
<tr>
<td>PM girls</td>
<td>June</td>
<td>105</td>
<td>14.97</td>
<td>8.23</td>
</tr>
</tbody>
</table>

The final art scores for June are in exact relationship to the mean IQ's found for these four groups, according to
table thirty-five.

**TABLE 35**

**THE MEAN IQ'S AND JUNE ART SCORE MEANS, BOTH IN DESCENDING ORDER**

<table>
<thead>
<tr>
<th>Kgn.</th>
<th>Mean IQ</th>
<th>June Art Score M</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM girls</td>
<td>110.71</td>
<td>16.74</td>
</tr>
<tr>
<td>PM girls</td>
<td>109.06</td>
<td>14.97</td>
</tr>
<tr>
<td>AM boys</td>
<td>102.53</td>
<td>12.79</td>
</tr>
<tr>
<td>PM boys</td>
<td>99.79</td>
<td>10.47</td>
</tr>
</tbody>
</table>

This research would not be complete without a thorough discussion of the observable characteristics of the three raters. These raters could not be evaluated adequately without a review of their professional backgrounds. Originally, three unbiased people were sought who were knowledgeable in the field of child art. These persons were located and agreed to participate in the study.

As the plan was discussed one noticed different reactions by the raters, in their conversations with the writer, and later, in their individual scoring. They would remark: "This was an especially good batch of paintings," or "I'd like to frame this one," and "Now I can actually see improvement." Sometimes a rater would say, "I would like to have known this child," or, "I wonder what he had in mind."

Raters and students did not get to know each other per-
sonally. The student's code number was always recorded by the writer. Answers to the above remarks were made as completely as possible without telling anything confidential about the child-painter, his age, sex or personality. Raters, of course, never asked a pointed question, never probed, and lived up to the original design of the research in a most cooperative, friendly manner. It is obvious that rating 182 paintings a month, each with twelve items, meant a gigantic chore in evaluating 2,184 different categories every month.

TABLE 36
MONTHLY MEAN ART SCORES OF RATER I

<table>
<thead>
<tr>
<th>Month</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>8.14</td>
<td>6.31</td>
<td>182</td>
</tr>
<tr>
<td>March</td>
<td>7.31</td>
<td>5.57</td>
<td>182</td>
</tr>
<tr>
<td>April</td>
<td>10.47</td>
<td>7.03</td>
<td>182</td>
</tr>
<tr>
<td>May</td>
<td>10.54</td>
<td>7.20</td>
<td>182</td>
</tr>
<tr>
<td>June</td>
<td>9.49</td>
<td>6.67</td>
<td>182</td>
</tr>
</tbody>
</table>

To resume with the raters' specific qualifications for judging: Rater I is an art supervisor, who has charge of several elementary art courses on educational television. His scores in table thirty-six were lowest in the group of raters, but as consistent as the next two. His April and May scores were almost identical, 10.47 and 10.54. The June rating of
rater I, 9.49, was higher than the February score, 8.14. In one of the next sections when the scores themselves are highlighted, the lower scores of rater I will be seen, in comparison with others.

### TABLE 37

MONTH MEAN ART SCORES OF RATER II

<table>
<thead>
<tr>
<th>Month</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>11.45</td>
<td>5.46</td>
<td>182</td>
</tr>
<tr>
<td>March</td>
<td>13.07</td>
<td>7.32</td>
<td>182</td>
</tr>
<tr>
<td>April</td>
<td>17.54</td>
<td>8.03</td>
<td>182</td>
</tr>
<tr>
<td>May</td>
<td>15.47</td>
<td>8.16</td>
<td>182</td>
</tr>
<tr>
<td>June</td>
<td>12.55</td>
<td>6.88</td>
<td>182</td>
</tr>
</tbody>
</table>

Rater II, presented in table thirty-seven, began in February and ended in June three points above rater I. At the midpoint high of April, she was seven full points above rater I's mean. Rater II is the kindergarten teacher who has worked with five year olds only. She also looks at children's paintings in her own unique way, which of course is different than rater I and rater III. Fortunately for this research, the raters score individually, with a definite pattern of their own, with rater I giving high scores sparingly, rater II to a greater degree, and rater III using higher scores most often.

Rater III teaches kindergarten art in a training school of a state university, trains prospective teachers, and also
participates in a weekly television show featuring art and storytelling, plus conducting Saturday classes for kindergarten children in art, at a municipal art center.

TABLE 38
MONTHLY MEAN ART SCORES OF RATER III

<table>
<thead>
<tr>
<th>Month</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>13.27</td>
<td>9.60</td>
<td>182</td>
</tr>
<tr>
<td>March</td>
<td>19.14</td>
<td>7.77</td>
<td>182</td>
</tr>
<tr>
<td>April</td>
<td>18.28</td>
<td>7.47</td>
<td>182</td>
</tr>
<tr>
<td>May</td>
<td>18.41</td>
<td>7.42</td>
<td>182</td>
</tr>
<tr>
<td>June</td>
<td>19.71</td>
<td>8.32</td>
<td>182</td>
</tr>
</tbody>
</table>

Each rater sees something different in children's paintings. In a section at the beginning of this chapter on results, the twelve categories were correlated with various items to discover similarities and differences. At the end of this chapter, the raters' strong and weak emphases are further analyzed concerning their uses of numerical scores.

In table thirty-eight, rater III disseminated art scores' means six to nine points above those of rater I, and two through seven points greater than rater II. This delving into the scores of the raters in this section and the others is not intended to praise or find fault. On the contrary, every rater and his scoring is the outgrowth of his conscientious judgment, and this
study merely searched for relationships, whether similar, dis-

similar, high or low.

Rater III, in table thirty-eight, ended with the highest
score for all raters, and reached her apex at the second month.
After the initial score of 13.27, she leaped to 19.14, then
dropped only slightly, .9 and .8 during April and May, and then
surpassed her four previous means, to complete the project by
rating children's paintings at a mean of 19.71 in June.

IQ's reveal more at this age level when compared with
another variable. Since the art score is highly predominant
in this study, a comparison of the art scores found within
certain IQ ranges will be revealed. Tables thirty-nine through
forty-one portray the distribution of art scores according to
IQ scores and sex. The sex of the children is further channel-
ed into the senior and junior kindergartens from whence they
came, and there classified as to IQ and art score means.

TABLE 39
IQ'S OF BOYS AND GIRLS IN RELATION TO ART SCORE MEANS

<table>
<thead>
<tr>
<th>IQ score</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>130+</td>
<td>9</td>
<td>357.89</td>
<td>25.25</td>
</tr>
<tr>
<td>111-129</td>
<td>63</td>
<td>271.73</td>
<td>52.16</td>
</tr>
<tr>
<td>91-110</td>
<td>84</td>
<td>166.75</td>
<td>39.48</td>
</tr>
<tr>
<td>70-90</td>
<td>23</td>
<td>103.78</td>
<td>33.30</td>
</tr>
<tr>
<td>69-</td>
<td>3</td>
<td>78.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>
IQ scores have been presented in various groupings to serve the purposes under discussion. First the scores are divided broadly to show the clusters around 100 and the two extremes, as in table thirty-nine. An examination will show this table's scores to be skewed positively. The ample number of children, sixty-three, in category of IQ's, 111-129, indicates that one-third of these 182 children in the sample have very fine capacity for an intelligent approach to education at this kindergarten and pre-primary level. Table forty shows all seven kindergarten classes for a closer look and analysis of IQ's.

### Table 40

**Seven Kindergarten Classes Showing IQ Scores**

<table>
<thead>
<tr>
<th>IQ</th>
<th>Groups</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B G</td>
<td>B G</td>
<td>B G</td>
<td>B G</td>
<td>B G</td>
<td>B G</td>
<td>B G</td>
<td>N</td>
</tr>
<tr>
<td>130-139</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>1</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>120-129</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>12</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>110-119</td>
<td></td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>44</td>
<td>2</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>100-109</td>
<td></td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>72</td>
<td>12</td>
<td>44</td>
<td>52</td>
</tr>
<tr>
<td>90-99</td>
<td></td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>12</td>
<td>42</td>
<td>52</td>
<td>34</td>
</tr>
<tr>
<td>80-89</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>62</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>70-79</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>60-69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>13</td>
<td>17</td>
<td>11</td>
<td>12</td>
<td>14</td>
<td>13</td>
<td>11</td>
<td>15</td>
</tr>
</tbody>
</table>

*Note: Each column represents a different IQ group.*
More girls hold status in the above 130 IQ group than boys. Girls also dominate the 120 and above group by better than two to one. By the time the 110-119 category is reached, boys have twenty members and girls, thirty, which shows that boys are improving. The boys and girls are almost identically representative at the 100-109 IQ level, with twenty-five boys and twenty-seven girls claiming places here.

Before table forty-one is presented, this reminder of the sex-code classification is again given:

1 = AM boys   2 = PM boys   3 = AM girls   4 = PM girls

TABLE 41
MEAN ART SCORE BY EACH IQ CATEGORY AND BY EACH SEX CODE

<table>
<thead>
<tr>
<th>IQ</th>
<th>Sex Code</th>
<th>M Art Score</th>
<th>N</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>130+</td>
<td>1</td>
<td>360.00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>319.00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>362.83</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>365.00</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>111-129</td>
<td>1</td>
<td>269.00</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>253.78</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>294.27</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>256.00</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>91-110</td>
<td>1</td>
<td>172.78</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>143.41</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>182.50</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>150.91</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>70-90</td>
<td>1</td>
<td>121.50</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>94.42</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>98.67</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>118.00</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>69-</td>
<td>1</td>
<td>78.00</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>00.00</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>00.00</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>00.00</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{Total: 182} \]
In discussing intelligence quotients of the children who comprise this research, the topic is strengthened by looking at the highs and lows as well as at the majority that cluster around the mean. Throughout this chapter reference has been made to various classifications of the subjects involved: their IQ's, art scores, sex-codes, mental ages, kindergarten classes and the junior and senior divisions. The IQ's were shown in distribution in table forty-one according to boys and girls making up the AM and PM kindergarten classes, of which there are seven. Previously, children were examined as to the seven kindergarten classes, boys and girls separately, table forty, and the IQ's in relation to the art score means were shown in table thirty-nine.

Through this detailed examination, numerous similarities and differences came to the foreground, IQ's were also compared with art scores, chronological ages, and were closely investigated in a search for answers to the questions all educators have, about the young child's intelligence and its relationship to the aesthetic field. In the next chapter certain conclusions are drawn for final evaluation of this data.

The entire area involving the professional art education raters who are responsible for the art scores assigned to each individual child, as well as the means of the art scores by the month, plus the relationship of these vital marks to intelligence, age, sex, kindergarten class and the many new approaches to this subject, which have arisen during this study, places
increasing importance on their respective roles.

This research, to be complete, needs the actual evidence of the type of scoring which each rater used in carrying out his specific, non-biased, thoughtful estimates of children's creative ability as documented through the five pieces of artistic material, self-initiated paintings, collected from each of the 182 children.

Raters have already been described as to background and training, plus current qualifications for the responsible position accepted by each with great enthusiasm. It was thought fortunate that the three raters used their individuality in ascertaining scores. They have already been appraised as to particular features of their mean scores during the course of this evaluation of results, with special attention placed upon highs, lows, mid-points, and culmination of scores.

The immediately succeeding tables, forty-two through forty-four, reveal the raters' frequencies in checking items, using a value of 3, when an art description was vividly present in the painting, a 2, when it was present to a moderate degree, a 1, when the raters could only see the categories of art creativity to a slight degree, and 0, when it was not present, when it was unobservable.

This operation was individually programmed in Fortran language, especially for this research, by the advisor specialist in computing. Each operation took IBM Computer 1401 fourteen
minutes to accomplish, while it stored about 15,000 items, always checking, counting, and totalling.

**TABLE 42**

RATER I's FREQUENCY IN CHECKING ITEMS ON THE EVALUATION SHEET FOR KINDERGARTEN PAINTINGS

<table>
<thead>
<tr>
<th>Category</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventiveness</td>
<td>257</td>
<td>452</td>
<td>186</td>
<td>20</td>
</tr>
<tr>
<td>Perceptiveness</td>
<td>411</td>
<td>411</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Skill</td>
<td>393</td>
<td>419</td>
<td>97</td>
<td>6</td>
</tr>
<tr>
<td>Pictorialization</td>
<td>259</td>
<td>486</td>
<td>157</td>
<td>18</td>
</tr>
<tr>
<td>Spatial awareness</td>
<td>253</td>
<td>438</td>
<td>202</td>
<td>22</td>
</tr>
<tr>
<td>Color distinction</td>
<td>284</td>
<td>468</td>
<td>153</td>
<td>10</td>
</tr>
<tr>
<td>Flexibility</td>
<td>371</td>
<td>430</td>
<td>107</td>
<td>7</td>
</tr>
<tr>
<td>Fluency</td>
<td>382</td>
<td>439</td>
<td>90</td>
<td>4</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>413</td>
<td>421</td>
<td>77</td>
<td>4</td>
</tr>
<tr>
<td>Expression</td>
<td>296</td>
<td>435</td>
<td>169</td>
<td>15</td>
</tr>
<tr>
<td>Security</td>
<td>529</td>
<td>329</td>
<td>53</td>
<td>4</td>
</tr>
<tr>
<td>Manipulation</td>
<td>390</td>
<td>448</td>
<td>73</td>
<td>4</td>
</tr>
</tbody>
</table>

Key: Reading across, following each category-
- Red = highest score
- Blue = second highest
- Black = third highest
- Green = lowest score

Reading down, attributed most 3's to spatial awareness, 2's to spatial awareness, 1's to pictorialization, 0's to security.
TABLE 43
RATER II'S FREQUENCY IN CHECKING ITEMS ON THE EVALUATION SHEET FOR KINDERGARTEN PAINTINGS

<table>
<thead>
<tr>
<th>Category</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventiveness</td>
<td>26</td>
<td>479</td>
<td>358</td>
<td>45</td>
</tr>
<tr>
<td>Perceptiveness</td>
<td>134</td>
<td>507</td>
<td>237</td>
<td>33</td>
</tr>
<tr>
<td>Skill</td>
<td>109</td>
<td>531</td>
<td>228</td>
<td>43</td>
</tr>
<tr>
<td>Pictorialization</td>
<td>63</td>
<td>591</td>
<td>223</td>
<td>33</td>
</tr>
<tr>
<td>Spatial awareness</td>
<td>93</td>
<td>574</td>
<td>204</td>
<td>39</td>
</tr>
<tr>
<td>Color distinction</td>
<td>96</td>
<td>532</td>
<td>236</td>
<td>46</td>
</tr>
<tr>
<td>Flexibility</td>
<td>141</td>
<td>559</td>
<td>179</td>
<td>31</td>
</tr>
<tr>
<td>Fluency</td>
<td>159</td>
<td>541</td>
<td>180</td>
<td>30</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>209</td>
<td>523</td>
<td>147</td>
<td>31</td>
</tr>
<tr>
<td>Expression</td>
<td>182</td>
<td>545</td>
<td>152</td>
<td>31</td>
</tr>
<tr>
<td>Security</td>
<td>198</td>
<td>539</td>
<td>141</td>
<td>32</td>
</tr>
<tr>
<td>Manipulation</td>
<td>179</td>
<td>544</td>
<td>155</td>
<td>32</td>
</tr>
</tbody>
</table>

Key: Reading across, following each category -
Red = highest score
Blue = second highest
Black = third highest
Green = lowest score
Reading down, attributed most 3's to color distinction
" " " 2's to inventiveness
" " " 1's to pictorialization
" " " 0's to sensitivity
### TABLE 44

**RATER III's FREQUENCY IN CHECKING ITEMS ON THE EVALUATION SHEET FOR KINDERGARTEN PAINTINGS**

<table>
<thead>
<tr>
<th>Category</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventiveness</td>
<td>34</td>
<td>279</td>
<td>420</td>
<td>172</td>
</tr>
<tr>
<td>Perceptiveness</td>
<td>57</td>
<td>511</td>
<td>276</td>
<td>61</td>
</tr>
<tr>
<td>Skill</td>
<td>53</td>
<td>510</td>
<td>281</td>
<td>61</td>
</tr>
<tr>
<td>Pictorialization</td>
<td>70</td>
<td>379</td>
<td>338</td>
<td>118</td>
</tr>
<tr>
<td>Spatial awareness</td>
<td>51</td>
<td>370</td>
<td>374</td>
<td>110</td>
</tr>
<tr>
<td>Color distinction</td>
<td>63</td>
<td>405</td>
<td>337</td>
<td>100</td>
</tr>
<tr>
<td>Flexibility</td>
<td>106</td>
<td>334</td>
<td>342</td>
<td>123</td>
</tr>
<tr>
<td>Fluency</td>
<td>128</td>
<td>361</td>
<td>297</td>
<td>119</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>112</td>
<td>454</td>
<td>243</td>
<td>96</td>
</tr>
<tr>
<td>Expression</td>
<td>105</td>
<td>359</td>
<td>311</td>
<td>130</td>
</tr>
<tr>
<td>Security</td>
<td>227</td>
<td>347</td>
<td>244</td>
<td>87</td>
</tr>
<tr>
<td>Manipulation</td>
<td>101</td>
<td>530</td>
<td>218</td>
<td>56</td>
</tr>
</tbody>
</table>

**Key:** Reading across, following each category -
- **Red** = highest score
- **Blue** = second highest
- **Black** = third highest
- **Green** = lowest score

Reading down, attributed most **3's** to inventiveness
- **2's** to inventiveness
- **1's** to manipulation
- **0's** to security
It was recognized earlier in this chapter that rater I scored the lowest, rater II next highest, and the last rater, number III, appointed the highest scores to children's work. In tables forty-two, forty-three, and forty-four one can see another vitally revealing exhibit of the categories which seemed most, least, and of average value to the raters while rendering knowledgeable opinion, after careful consideration.

After examining table forty-two, rater I's use of specific scores, it appears that the numeral 1 is used most frequently in eleven of the twelve categories. Number 3 is the highest score which could have been given, and is used least often by rater I. In each art category, rater I used 2 the next least seldom, 0 was used second most often, while 1 becomes the most valid appraisal of rater I's estimate of children's work.

Rater II, in table forty-three, and rater I, in table forty-four differ in the use of their second most often used score. In rater I's work the score used second is 0, while rater II used the 2 next most frequently after the basic 1 was distributed. Again rater I and rater II are in disaccord with their employment of the weight 3. Rater II used it sparingly, but rater I surpasses rater II in using the weight of 3 most sparingly.

Again rater III, table forty-four, differs most from the other two raters. In monthly averages of art scores, rater III
gave the highest marks, most consistently. In the frequency with which she checked certain categories, it is noted that the numeral 2 is used more than the first two educators used it in their ratings. However, 1 is used first in most of the categories, with 2 following a very close second, often separated by as low as four and eight points. Therefore, it is outstanding that rater III, although using 1 the most, uses 2 much more often than raters II and I did.

The total of rater III's 2 column is 3681, compared to 2440 and 1454, for raters II and I, respectively. It is impressive that rater III used 2's two and one-half times more than rater I and one and one-half times more often than rater II.

Rater III was unusual in her use of 0's also. She used 0's least often in all of her evaluations, while raters II and I used 3's most seldom. When the evaluation sheet was designed it was rater III who specifically requested that flexibility, fluency, sensitivity and security be included.

To study the grading elements of these four classifications we find rater III gave flexibility 2's most often, while fluency, sensitivity, and security received 1's the most. The greatest number of 0's used in scoring by rater III were given to security.

Rater II did likewise, as rater III, concerning the rating scale. Her request was for spatial awareness, which also received great attention in the literature on child art. Rater II checked spatial awareness 574 times under the weight of 1.
Pictorialization rated 591, under the 1 classification, with spatial awareness second in use.
CHAPTER VIII

SUMMARY AND CONCLUSIONS

The Problem

This study was undertaken to discover the relationship of intelligence and creativity in kindergarten children's easel paintings. Because the child of five years of age has not yet developed his vocabulary to the point of fluent conversation with full interpretation of his feelings, in addition to the fact that this child cannot read or write for communication or release, the creative pursuits become more natural for him to follow. Therefore we find the five year old child engaging in active and passive play, singing during games or experimenting with sounds just for the joy of expression; we also find this child actively engaged in manipulative endeavors, including working with puzzles, coloring, cutting, pasting, building, stringing beads, working with pegs and blocks and painting.

To the five year old child, play is work and work is play. The sheer joy of major physical activity and supposed minor mental activity will keep the child engaged in pursuits which are to his liking. Even though some adults think only minor mental activity is taking place during creative experiences, the greater number of sources in this study stress emotional and mental stimulation taking place coincidentally during
children's creative expression.

**The Design**

One hundred and eighty-two kindergarten boys and girls in seven classes of a Milwaukee public school comprised this study. Every month, over the period of one semester, consisting of five months, five year olds painted a surprise easel production for evaluation. Children were assigned an individual code number which appeared on all paintings.

Three raters, each professionally trained and working currently in the area of child art, scored each painting every month. An art score was derived from the collective ratings of these judges.

At the end of the semester an achievement test was administered to all children, from which an IQ and an MA were derived. Means, standard deviations, ranks and frequencies were disclosed through the analysis of these variables. Correlations were sought from these combinations of data: the art score and the IQ, the art score and chronological age, and the IQ and chronological age.

**Locale and Subjects**

The neighborhood in which this school is locate is primarily residential, but lies in close proximity to the largest and busiest shopping area on the south side of the city. Department stores as well as small shops are prominent in the immediate vicinity.
Children come mainly from homes in which most mothers and fathers completed grade school only. Parents earn their living in industry, sales, building trades, trucking and unskilled labor.

Children's chronological ages cover a span of approximately two years, including ages of five years, two months and surpassing seven years.

The Results

Most children with higher art scores also possessed a higher IQ. Girls in the senior kindergarten performed in a more outstanding manner in every phase of this study than the junior girls or both groups of boys. The junior girls were next in order of intellectual and creative expression. Senior boys, with junior boys following, ranked third and fourth in order of outward manifestations of measurable qualities in this experiment. Boys' art scores were found below those of all girls.

A marked relationship was disclosed between art scores and intelligence. Five year olds whose easel paintings received high scores also performed well on the Pintner-Cunningham.

Insignificant correlations were discovered between chronological ages and art scores; while IQ's and chronological ages had a definite but small relationship. The art scores of all groups improved over the expanse of one semester even though they hit their highest peaks of production in April, the middle
Raters were unique in their individual scoring, for each had a specific and uniform method of marking the children's paintings. Numerous patterns in children's performance, raters' scoring, and children's relationships with other variables were found and discussed in the section on results.

The Conclusions

After summarizing the data gathered during the extension of this research study into the relationship of creativity and intelligence to kindergarten art expression, certain definite points of view can be taken. These relationships are now made statistically significant concerning this particular sample of five year old children.

Of major importance to the study is the high relationship discovered between IQ scores and art scores. The correlation is .879. Little relationship appeared to exist, however, between age and art scores, with a correlation of .102; while low relationship was present between age and IQ scores, a correlation of .331.

Methods of procedure and the gathering and interpreting of data in this study have already been discussed. Nevertheless, a review at this time seems contributory to the final evaluation of this research into current methods of measuring the intelligence and creativity of kindergarten children through the aid of standardized tests and creativity evaluation sheets which
which reveal the creativity found in 910 actual samples of kindergarten boys' and girls' easel paintings.

Over a period of five months, from February through June, a duration of one semester according to the school calendar of the Milwaukee public school system, research was undertaken with the four kindergarten rooms of the Forest Home Avenue School. Three of these rooms consisted of both senior, morning classes, and junior, afternoon classes, while a fourth comprises only one senior kindergarten class of five year olds; thus seven classes formed this study.

One hundred and eighty-two boys and girls, ranging in age from five years, two months to over seven years, participated in this investigation. Children in the junior, afternoon kindergartens were younger, just having entered school in the month of February during which this study was undertaken. Children in the senior, morning kindergartens were already enrolled since the prior September, and were beginning their second semester.

In some cases, children had been retained, and were in the kindergarten environment for a third semester. Three boys, with low IQ's and corresponding unfavorable art scores had been in kindergarten beyond three semesters, and were over seven years of age. The wisdom of over-age children being kept in a similar situation much longer than a normal two semesters' duration is highly questionable, for these children did not appear to profit and possibly needed another type of challenge. Even though the
question of retention is not handled in this study, the above thought is expressed because of the noticeable negative functioning at every testing level by these three children.

However, as was seen in the results of the study, the great majority of children appeared to be adequately stimulated to produce to their fullest capacity and potential. Children were rewardingly cooperative; for they always appeared happy on collection day and seemed anxious to paint a surprise. Children painted during the regular free play activity period when this kind of artistic expression is always available for the children to experiment with and use materials as they please.

Children's paintings have a charm all their own. They further show us that children do not observe as adults. They have different perception as shown in the themes of their paintings, which according to some art authorities resemble primitive art. To other authorities it appeared that the child is painting his individual conception of the world.

Creative children have a plus to their nature. According to this study, the creative children are intelligent and creative. There is intelligence revealed by creative children, even though it is difficult to measure creativity in all its many facets.

There were some children in this research with IQ's in the second and third brackets from the top of the study, in ranges including 100-119 IQ's, who performed somewhat better on
art scores than those with higher IQ's. The majority of the higher IQ's did extremely well in revealing creativity in their easel paintings, as judged by three professional art judges.

"Intelligent only" children may have a minus to their nature, as revealed by this study, and this statement must include one's conviction whether creativity is thought to be a genuine attribute. These intelligent only children often show less creativity than their peers, for the aesthetics are not found to be one of their outstanding basic qualities. Contentment and satisfaction evidently is derived from further pursuit of the academics in these cases. Lack of evidence of creativity among some bright only children reveals they are functioning minus some artistic appreciation.

Intelligence and creativity, revealing both sides of the question concerning their relationship to each other is discussed to some length in the body of this report. Although some references were made to adolescents and adults, most of the review of the literature dealt with authorities from the fascinating field of early childhood education.

There was almost universal agreement that in order to express themselves creatively, children would have to think. However, in the field of perception, much more experimentation will have to be undertaken, for children see through the eyes of a youngster, based on their experiences and feelings. These feelings, this emotional life, is of primary importance in any work with little children. One of the cruelest things any
adult can do, and this was discussed by more than one source, is to impose adult standards of perfection, design, construction and reasoning on the little child. Writers in the field of child art, creativity, and intelligence agree that little children will have to have ample opportunity to work out their own schema.

The results of this study were presented for appraisal of the five year old children currently under examination. No prognosis is made concerning their future performance in the fields of art, intelligence or creativity. One hopes that the very bright child will continue to do well, but one must admit that persons of moderate intelligence sometimes do decidedly original things, too.

Since an evaluation of the data was undertaken in the last chapter, there seems to have been a logical explanation established for the high relationship between IQ and art scores, with its corresponding high relationship to creativity and intelligence at this five year old level. Later, as the child leaves kindergarten and goes up the elementary ladder, (1) art moves into the background, while (2) the academics take on new meaning. (3) Reading and reading-related subjects become so greatly pronounced at the upper primary and intermediate stages that other media, often art, are given the shortest amount of time for expression.

As the child gets a little older he also builds up walls of shyness concerning his art work, sometimes preferring to
copy or trace a pattern, or follow precise instructions as to method and coloring, cutting and so on. By the time the child reaches junior and senior high school, creativity has already been working in other areas such as creative writing, creative speaking, the manner of dress, unique presentations of projects in science and math classes, with invention now in an expandable stage, with less and less time devoted to the fields of graphic art, for the child can now verbalize and write with greater and increasing satisfaction.

Back at the five year old level, without the knowledge of reading and writing, the child had to use the assets he had: his mind, eyes, hands, observation, many physical and verbal expressions, even though all of these were yet in the early stages of development. Lacking at this early age is experience, judgment and observation in any substantial amount.

According to the results of this study, AM girls performed better on intelligence and creativity tests, with PM girls following them. Next in order of good achievement and high art appraisals were the AM boys; while the PM boys were always found in the lower categories, whether mental ages, intelligence quotients, or art scores.

Generally girls, including the entire group of 182 children, were ahead of the boys in mean IQ's and mean art scores. Girls also were somewhat younger chronologically, in descending order: AM boys, AM girls next; with PM boys older than PM girls.
Playing a prominent part in this research was the evaluation sheet for kindergarten easel paintings, which was designed by the writer, using various categories made popular by leading authorities in the field of child art. Twelve evaluation categories were established, each with a possible rating of 3, 2, 1, or 0. Inter-item analysis of categories on the evaluation sheet proved to be most adequate to the study. All correlations between art categories were found to be +.8 and +.9.

Scoring, testing, and tabulation of original data, raw scores from the evaluation sheets, were all performed by hand; however at the end of the study statistics were determined with the assistance of advisors from the Data Processing Center at Loyola University. The use of Computer 1401 helped manipulate the vast amount of figures in record time, carrying out the calculations which the writer and her advisors planned and programmed.

In discussing the raters it is significant to say that these three raters varied in their methods of evaluation and recording of scores. Fortunate for this study the three persons are excellent in their qualifications professionally, as well as in understanding of little children, having worked with, and are currently working with the five year old child. Raters I, II and III differed in their scoring. Consistently high, second highest, and lowest scores were assigned to raters III, II and I, respectively.
On numerous occasions throughout this study, references are made, as well as comparisons drawn concerning these three raters. The writer does not want it ever to be inferred that one was held in higher esteem than another. The three raters were entirely unique, one from the other in their evaluations of children's work. They used scores in highly individualized usage and threw more or less emphasis, as they saw it, on certain categories of the evaluation sheet.

Because the raters were so consistent in their operations and so conscientious in their analyses, this study comprises varied representation of their position on several topics in reference to some of the above. At the end of the study in June, raters ended their scoring with higher ratings than they gave in February. Each one reached a height in their scoring which is easily discernible in the last chapter on data.

Through the assistance of the forty-four tables in this research paper, the reader will see a picture of the creative and intellectual performance of the children, their various scores on intelligence and creativity tests, their chronological and mental ages, their classes and the relationship of these variables to one another. It is hoped that this topic has been presented in an understandable manner as possible, so as to enhance one's knowledge of the relationship of intelligence and creativity in kindergarten children's art expression which took the form of easel paintings in this research.
Implications of the Study

Since the results of this study reveal a marked relationship between creativity in children's easel paintings and intelligence, this information is pertinent to the education of the five year old kindergarten child. In fields closely related to painting, in drawing and manipulative activities, children also appear to enter these activities with enthusiasm and the self assurance that they know what they will do and seem to be rewarded while they are actively engaged.

It would therefore be assumed that the art program in kindergarten should be continued and strengthened because of the many evidences of aesthetic and academic benefit. For example, if brighter children produce more creative work, many facilities for artistic endeavors should be made available for all of the children to experiment with materials. If girls at this five to six year level rated higher on achievement tests and creative scales, boys should not be prodded or embarrassed into surpassing their peers, but rather encouraged to experiment with creative expression for whatever individual satisfaction and value it holds for them.

In the daily kindergarten program art is not a subject to be taken lightly or neglected. As the teacher develops her own sense of discrimination while comparing art products from many children, she will become increasingly more aware of the differences and similarities between children's productions...
with art media and children's intellectual expression through evidences of their behavior, understanding, leadership and interaction within the group. Parallels can then be drawn between the creative child and his behavior while working in other areas of the daily program: during games, conversation, storytime, other free choices, and other types of creativity, such as dramatics and music to observed how he is using his intelligence.

**SUGGESTIONS FOR FURTHER STUDY**

Throughout this study reference is continually made to the five year old child. The results of this study specifically refer to children in this particular age group. To generalize concerning children in the intermediate or upper grades would be unwise. The writer holds the opinion that art is a useful indicator of intelligence as well as a helpful projective technique at this early educational level because the child is still somewhat limited in other manifestations of his development.

The five year old child neither reads nor writes. His conversation is not as fluent as it will be at a later date, even his physical coordination is still in an early stage. These facts explain the importance of using media in which the five year old has noted recognized success. Most children are happy and especially productive during the free expression period, for they are doing what they like to do and what comes
natural to them, without calling upon a huge backlog of experience.

Further study could be undertaken in this area by finding another suitable art medium or using paintings again and (1) discovering the relationship of their intelligence in the second, fourth and sixth grades to the creativity displayed at this new intermediate level, or (2) compare the relationship at this later stage with kindergarten creativity and intelligence ratings.

If discrepancies between intelligence and creativity should grow larger as the child becomes older, another study could be conducted in the grades to discover what subjects are substituted for the creative expression which the child engaged in so naturally at the five year level researched in this study.

Investigation concerning the child-like freedom from inhibitions at five years of age would aid a study which attempted to reveal the later age, grade or environment during which the child loses this freedom and spontaneity for original art expression. When does the child start to copy? When does the child find himself at a loss in self-expression? Why does the child gradually feel more confident when his art work looks like everyone else's? Why do some children lose interest in the academics, thus earning lower grades and the dismay of their teachers and parents, and find satisfaction in the produc-
tion of artistic, musical, or physical tasks which as yet do not carry equal recognition.

When the child moves away from the traditional basic subjects, he is often branded intellectually inferior, lazy and non-intellectual. Would this be a professionally sound estimate of a child's stage of mental development? The writer feels that educators must reorganize their child analysis procedures to include the recently widened interpretation of intelligence and creativity.
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APPENDIX A
THE KINDERGARTEN TEACHER

By Helen Heffernan, Chief, Bureau of Elementary Education,
California State Department of Education
Member of Editorial Staff of the California Journal of Elementary Education

Statement of the Problem: Helen Heffernan believes that good teaching is based on an understanding of the nature of the kindergarten child.

Need: It is the prime objective of the kindergarten teacher to enrich the lives of kindergarten children, beginning with the place at which she finds them:

1. Coming from varied home environments
2. Directing every facet - physical, mental, emotional and social towards one main goal: adjustment through opportunity
   a. Introduce the widening world in which the child finds himself
   b. Carry on a readiness program to insure smooth progress through the first grade, with carryover into future school life.

Purpose of Book: As stated in b above, the kindergarten teacher does not wish to have her basic foundations stop with the next grade, but rather her initial teaching and training should form a good foundation for life. The primary grades are especially
stressed, because of the close, friendly relationships between most kindergartens and primary departments, which ultimately are beneficial to the child.

**Method and Procedure:** Heffernan continually recalls ways in which full and mutual enjoyment can be attained by all adults who live with kindergarten children—whether at home or school. If adequate provision is made for programming the kindergarten day, through the application of good planning, good teacher-child-parent and good teacher-child-administrator relationships can grow. Each person then gains satisfaction from knowing that the best is being offered.

The author first describes the characteristics of kindergarten children, and then proceeds to the social and physical climate of kindergarten and the interaction of mental and emotional phenomena within this atmosphere. Learning experiences take up the major portion of this book, thus contributing to a most worthwhile program.

**Analysis:** The kindergarten teacher is a happy, forward-looking woman. Occasionally men enter this field, and in cases where a father image is desirable men are most suitable. However, this report refers to women. Kindergarten teachers do not have to be Hollywood stars, says Miss Heffernan, but they will assume the role of prominence. In the life of a five-year-old, the teacher has the same status as parents, for the child will spend
most of his day either in the home or school environment. In the life of the kindergarten child the broadening social influences of clubs and community resources, such as parks, recreation facilities and churches are still used only for a minimum time.

Heffernan makes a special point of discouraging a teacher-centered room, and greatly encourages a democratic atmosphere. Teachers know that it is rather easy at times to swing the majority of one's planning in either direction. Perhaps one does not always meet the following optimum limit, a combination of the two, but one can strive for some of each of the above - child-centered and democratic: with the teacher guiding and introducing the new and unfamiliar.

Conversations with individual children and discussions with the group should be a continuous process, with the teacher at the helm, for up to this time the child's experience is limited and he needs the security a patient teacher can provide. If one is too permissive, good opportunities for cooperative effort can slip past. Kindergarten children live, play and work together because it is the most logical approach to good human relationships.

When children meet other children and adults outside of their homes and schools, they are faced with limits and adjustments. Therefore a gradual program of not always getting one's way is the realistic introduction to living with others. Of
course, along with this sharing and taking turns, the reasons WHY the child cannot be the object of everyone's attention are explained to him in language he readily understands.

In order to carry on this program of getting acquainted with school life, space and equipment conducive to the activities undertaken, are to be provided. Rooms for kindergarten children are usually about one and one-half times as large as the regular classrooms. This is necessary because of the emphasis on physical development through active games and social-emotional growth through group play.

Small furniture sized to the child, and wheeled toys, such as bicycles, tricycles, scooters, coasters, hobby horses, and jungle gyms and slides are also provided for large muscular development. In addition, sand boxes, bean bags, many large balls, jump ropes, doll houses and manipulative toys that require finer muscular dexterity, as in stringing, fitting, lifting, maneuvering parts, are all available to stimulate the desire to attempt and finally complete play-tasks that require thought plus physical activity.

Alternating with active play, passive or quiet play should be provided. Here one finds child-originated and teacher-directed activities side by side: easel painting, easel drawing, numerous art work experiences with clay, yarn, paper, paste, paper mache, string, cotton, and virtually any other medium such as wood, tin, straws and cloth. For varying reasons, these materials fulfill some facet of the daily program and give the
child an outlet for his artistically creative expression.

In addition to art, the creative field also extends to music in the kindergarten where it provides for a large part of the school day. Music enters into many parts of the program, not only in singing and listening, but in the physical education of five year olds, through exercises and games. Musical games are great fun for kindergarteners and teachers, alike, for they bring youngsters together in cooperative play, often singing while carrying out the game. This instills group feeling and kindergarten spirit, so vital to the encouragement of a sense of belonging: for kindergarteners gradually like to talk about "My school," "My teacher," and "My room," and "My game."

In her chapter entitled "Social Environment of the Kindergarten," Heffernan describes personality in relation to the social climate. Other than this she does not isolate the character traits; rather, she fosters acceptable behavior in groups and good personal habits for social approval throughout her whole book. Heffernan never fails to take the opportunity to present numerous examples of the development of proper attitudes toward cooperation, sharing, taking turns, listening to others, helping, truthfulness, sense of humor and respect for and appreciation of, other children and adults.

**Summary:** The *Kindergarten Teacher* attempts to show why the child-centered room is superior to the teacher-centered room,
mainly because in the latter environment the teacher is more likely to overlook little personal problems of the individual child while she is working for the good of the group, which may have been uppermost in her planning. The author suggests that the group continue to be inspired by the teacher, while stressing the growth and development of the individual child.

Conclusions: Heffernan succeeded in a fine presentation. The kind of program presented in this book does not come about in one year. It takes a good deal of experience working with this age child to bring every feature of the kindergarten program to its desired effect on every child - but it can be done.

Implications: This is a useful, workable book to give the total picture of the kindergarten program to new teachers, and it also has the possibility of forming the core of an in-service kindergarten refresher course for those already in teaching for a few years but who are interested in the latest developments in programming for the kindergarten curriculum.

Criticism: Heffernan takes a responsible, positive approach to the teacher who must make use of all the tools of her trade, and then she must have love for children. Love is listed secondly, for with this fine philosophy and the accumulation of practical methods, the teacher is then equipped to encourage each individual child, and is not left groping - possessing love, but without the training and ingenuity to impart her knowledge
to kindergarteners.
PINTNER GENERAL ABILITY TESTS: VERBAL SERIES

Pintner-Cunningham Primary Test: Form A

BY RUDOLF PINTNER, PH.D.
Formerly Professor of Educational Psychology, Teachers College, Columbia University,

BESS V. CUNNINGHAM, PH.D.
Professor of Education, University of Toledo

and WALTER N. DUROST, PH.D.
Associate Professor, School of Education
Boston University

For Kindergarten and First and Second Grades

Name .................................................................
Age .......... years .......... months. Date of birth ...........................................
Grade ........................................ Teacher .................................
Date of test ................................. 19 ....... Examiner .................................
School ....................................................................
City ...................................... State ..........................

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TEST 3 — Continued
of recognizable forms.
**EVALUATION SHEET FOR KINDERGARTEN PAINTINGS**

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<tr>
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<tr>
<td>Vividly present in painting:</td>
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<tr>
<td>1. Inventiveness</td>
<td><strong>Evidence of individuality, imagination, originality.</strong></td>
</tr>
<tr>
<td>2. Perceptiveness</td>
<td><strong>Attention to details.</strong></td>
</tr>
<tr>
<td>3. Skill</td>
<td><strong>Uniqueness in constructive ideas.</strong></td>
</tr>
<tr>
<td>4. Pictorialization</td>
<td><strong>Subject (design, symbol, study, experimentation) expresses child interest. Reaching the level of symbolism or recognizable forms.</strong></td>
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<tr>
<td>5. Spatial awareness</td>
<td><strong>Cognizant of effective use of space.</strong></td>
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<tr>
<td>6. Color distinction</td>
<td><strong>Color discrimination in relation to total production.</strong></td>
</tr>
<tr>
<td>7. Flexibility</td>
<td><strong>Easy, natural organization of painting. Opposite of rigidity and resistance.</strong></td>
</tr>
<tr>
<td>8. Fluency</td>
<td><strong>Unity of a theme (togetherness.) The frequency with which ideas or symbols can be expressed.</strong></td>
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<tr>
<td>9. Sensitivity</td>
<td><strong>Subtle composition revealed in painting.</strong></td>
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<tr>
<td>10. Expression</td>
<td><strong>Freedom of artistic movement.</strong></td>
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<td>11. Security</td>
<td><strong>Shows a sense of well-being and self-confidence, with lack of inhibitions.</strong></td>
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<td>12. Manipulation</td>
<td><strong>Aptitude in working with paint.</strong></td>
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### Evaluation Sheet for Kindergarten Paintings

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3. Skill - Uniqueness in constructive ideas.
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APPENDIX B
The dissertation submitted by Grace Scheftner Besch has been read and approved by five members of the Department of Education.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

Jan 18, 1966
Date
Curtis M. Fueberg
Signature of Adviser