LEVELS OF ART DEVELOPMENT AMONG
PRESCHOOL CHILDREN

by

Sally Lynn Miner

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Child Development
ACKNOWLEDGMENT

The author wishes to extend appreciation to Dr. Carroll Lambert, Dr. Don Carter and Jo Ann Bowden for serving as a committee for this thesis.

The author is especially indebted to Dr. Carroll Lambert for the many hours she spent supervising this project, helping to organize the thesis, analyzing children's pictures, and for her interest, support and encouragement.

The author is also indebted to Dr. Don Carter for the many hours he contributed to the final writing and construction of this thesis.

A special thank you is extended to Loa Thomson for giving many hours of her time to analyze the children's pictures.

Lastly, the author wishes to thank both roommates and family for their help and support during this project.

Sally Lynn Miner
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>Objectives</td>
<td>3</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>4</td>
</tr>
<tr>
<td>REVIEW OF LITERATURE</td>
<td>5</td>
</tr>
<tr>
<td>Physical, Visual, Perceptual Cognative Development</td>
<td>5</td>
</tr>
<tr>
<td>Physical maturation and visual development</td>
<td>5</td>
</tr>
<tr>
<td>Perceptual/cognitive development</td>
<td>7</td>
</tr>
<tr>
<td>Discrimination in relationship to perception and cognitive development</td>
<td>8</td>
</tr>
<tr>
<td>Children's Art Development</td>
<td>13</td>
</tr>
<tr>
<td>Biology and art</td>
<td>13</td>
</tr>
<tr>
<td>Developmental stages of art</td>
<td>13</td>
</tr>
<tr>
<td>Scribbling, a physical activity</td>
<td>16</td>
</tr>
<tr>
<td>Art development in relationship to visual, cognitive, and perceptual maturation</td>
<td>17</td>
</tr>
<tr>
<td>The &quot;Naming Stage&quot;</td>
<td>20</td>
</tr>
<tr>
<td>The crayon and easel paint mediums and the use of color in young children's art</td>
<td>21</td>
</tr>
<tr>
<td>Using young children's art as measures of intelligence, as indicators of personality and emotional problems and as a means of teaching</td>
<td>23</td>
</tr>
<tr>
<td>METHODS AND PROCEDURES</td>
<td>27</td>
</tr>
<tr>
<td>Setting</td>
<td>27</td>
</tr>
<tr>
<td>Purpose of the Child Development Laboratory</td>
<td>28</td>
</tr>
<tr>
<td>Physical setting</td>
<td>30</td>
</tr>
<tr>
<td>Other students studying young children</td>
<td>34</td>
</tr>
<tr>
<td>Sample</td>
<td>35</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----</td>
</tr>
<tr>
<td>Instruments</td>
<td>38</td>
</tr>
<tr>
<td>Art examples</td>
<td>38</td>
</tr>
<tr>
<td>Discrimination tasks</td>
<td>45</td>
</tr>
<tr>
<td>Pilot Study</td>
<td>51</td>
</tr>
<tr>
<td>Main Study</td>
<td>54</td>
</tr>
<tr>
<td>Collection of art work</td>
<td>54</td>
</tr>
<tr>
<td>Discrimination task</td>
<td>57</td>
</tr>
<tr>
<td>FINDINGS</td>
<td>59</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>68</td>
</tr>
<tr>
<td>Problems Encountered by Taking Groups of Children Out to Paint and Color</td>
<td>82</td>
</tr>
<tr>
<td>SUMMARY, CONCLUSION AND RECOMMENDATIONS FOR FUTURE STUDY</td>
<td>93</td>
</tr>
<tr>
<td>Summary</td>
<td>93</td>
</tr>
<tr>
<td>Conclusion</td>
<td>94</td>
</tr>
<tr>
<td>Recommendations</td>
<td>95</td>
</tr>
<tr>
<td>LITERATURE CITED</td>
<td>98</td>
</tr>
<tr>
<td>APPENDIXES</td>
<td>103</td>
</tr>
<tr>
<td>Appendix A: Art Analysing Data Sheet</td>
<td>104</td>
</tr>
<tr>
<td>Appendix B: Instructions for Art Analyzing Data Sheet</td>
<td>109</td>
</tr>
<tr>
<td>VITA</td>
<td>112</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>1.</td>
<td>Names and ages of children in the sample</td>
</tr>
<tr>
<td>2.</td>
<td>Total frequencies of art patterns by enrolled time in the Laboratory</td>
</tr>
<tr>
<td>3.</td>
<td>Frequencies of pictorial representations by enrolled time in the Laboratory</td>
</tr>
<tr>
<td>4.</td>
<td>Age of children and level of art development</td>
</tr>
<tr>
<td>5.</td>
<td>Frequency of learned forms by enrolled time in the Laboratory</td>
</tr>
<tr>
<td>6.</td>
<td>Frequency of each learned form according to experience in the Laboratory</td>
</tr>
<tr>
<td>7.</td>
<td>Relationship between discrimination scores and level of art development</td>
</tr>
<tr>
<td>8.</td>
<td>Frequency of scribble patterns with easel paint and crayons</td>
</tr>
<tr>
<td>9.</td>
<td>Frequency of art patterns, beyond the scribble stage, which occurred with easel paint and crayons</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Combine and aggregate compositions</td>
<td>43</td>
</tr>
<tr>
<td>2. Art stages of corresponding art scores</td>
<td>45</td>
</tr>
<tr>
<td>3. Data sheet for recording discrimination tasks</td>
<td>46</td>
</tr>
<tr>
<td>4. Spacing of face blocks</td>
<td>48</td>
</tr>
<tr>
<td>5. Matching sheet for letters</td>
<td>49</td>
</tr>
<tr>
<td>6. Faces used for discrimination task</td>
<td>50</td>
</tr>
<tr>
<td>7. Houses used for discrimination task</td>
<td>52</td>
</tr>
<tr>
<td>8. Comparison of frequencies of scribble patterns by use of easel paints and crayons</td>
<td>65</td>
</tr>
<tr>
<td>9. Comparison of frequencies of advanced art patterns by use of easel paints and crayons</td>
<td>66</td>
</tr>
<tr>
<td>10. Pictures demonstrating experimentation with letters in children's art work</td>
<td>70</td>
</tr>
<tr>
<td>11. Emergent diagrams (circled by author)</td>
<td>74</td>
</tr>
<tr>
<td>12. Pictures demonstrating similar art patterns of different complexities</td>
<td>75</td>
</tr>
<tr>
<td>13. Human figure drawings</td>
<td>76</td>
</tr>
<tr>
<td>14. Different art stages demonstrated by the same child</td>
<td>77</td>
</tr>
<tr>
<td>15. Ricky's picture and comments</td>
<td>84</td>
</tr>
<tr>
<td>16. Terrall's picture and comments</td>
<td>85</td>
</tr>
<tr>
<td>17. Paul's picture and comments</td>
<td>86</td>
</tr>
<tr>
<td>18. Repetitious art patterns</td>
<td>87</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>19.</td>
<td>Sun/human images</td>
</tr>
<tr>
<td>20.</td>
<td>Stages of art development progression from sun images to human with a body</td>
</tr>
</tbody>
</table>
ABSTRACT

Levels of Art Development Among Pre-school Children

by

Sally Lynn Miner, Master of Science

Utah State University, 1970

Major Professor: Dr. Carroll Lambert
Department: Family and Child Development

The problem which was investigated in this study was the influence of a child development laboratory experience and the child's discriminatory abilities on the developmental level of children's art productions.

Forty-eight children, three and four years of age, of whom 24 had no prior experience, and 24 others had completed approximately six months as participants in a child development laboratory, were included in the study.

All children were given a discrimination task to establish their individual levels of discriminatory abilities. Each child painted four pictures, two with easel paint and two with crayons. Each painting was analyzed to determine art content and level of development.

The findings indicated that discrimination ability does not appear to be an influential factor on the developmental level of children's art creations among children of this age. Children demonstrated more advanced art stages when using crayons than when painting with tempera at the easel.
Experience in the Child Development Laboratory exerted its strongest influence on the child's production of learned art forms, alphabet letters and numerals.

It was concluded that art experiences for three and four year old children tend to be motoric and exploratory responses to the various media in use by them. However, experience is also a factor in the development of children's art, in that the child's use of learned art forms is influenced by an enriched learning environment.
INTRODUCTION

In observing the art work of many children in White, Indian and Eskimo cultures, the author became aware of both the similarities and differences in children's pictorial representations. In Alaska, Eskimo children like to draw dog sleds. In Shonto, Arizona, Navajo children draw hogans, and in rural Utah, White children might draw pigs. These items, dog sleds, hogans and pigs, are peculiar to that environment and rarely found in either of the other two areas. However, the children in all three areas like to draw snowmen and square houses.

During a lecture by Dr. Carroll Lambert, concerning children's art, it occurred to the author that children spend the first years of their lives scribbling before they even attempt pictorial representations. What was known about the stages of young children's art development? Was there a pattern of development which is consistently followed by all children? In undertaking this study, the author sought to find what can be learned from and about young children's art work.

Statement of the Problem

Art activities have long been an established part of the preschool curriculum. The purposes of such activities have been to supply children with a media (paint, crayons, clay) with which to explore, to experiment, and to express emotions.
It is believed that children's art develops through general stages (Kellogg, 1967, 1969; Lowenfeld and Brittain, 1970; Eng, 1931). Kellogg identifies a developmental process through Scribble, Placement, Implied Shape, Outline, Structured Forms, Early Pictorial and Later Pictorial Stages.

Both Kellogg (1967), as well as Lowenfeld and Brittain (1970) feel that children enter the Scribble Stage around age two (or earlier) and move on into the representational stage around the age of four. Lowenfeld and Brittain further state that the progression through the Scribble Stage can be seen as a reflection of the child's physical, emotional, and to some extent his intellectual development.

That the stages of children's art development are believed to be an index of intellectual ability is further demonstrated by the usage of the Goodenough Draw-A-Man Test (Goodenough, 1927 and Harris, 1963), which has been incorporated into Evanston Early Identification Scale or the Metropolitan Readiness Scale and is used in many public school systems. A kindergarten child who draws a man and includes all body parts properly located is believed to be better prepared for school than the "high-risk" child who will only draw portions of a man and often mislocate the body parts.

Preschool age is the period in a child's life when he will progress rapidly through the various Scribble Stages, Shape and Design Stages into the Representational Stage. Preschool age is also a time when art activities are generally unstructured, allowing the child a degree of free-exploration and
free-expression. Therefore, it seems that a child's art work, the stage he is presently at in his art development, could be an indicator of such things as a child's readiness to begin and/or progress into intellectual, conceptual and perceptual developmental tasks. Art work may be an indicator of the child's readiness to begin tasks requiring finer discriminatory abilities, or it might simply be an indicator of the degree of physical maturity the child has reached.

**Objectives**

Although many questions need to be asked and investigated concerning the developmental stages of art, this study will be limited to the following:

1. To investigate if a child's preschool experience affects the rate at which he progresses from one art stage to the next.

2. To investigate the correlation between the child's stage of art development and his ability to perform finer discriminatory tasks.

3. To investigate any differences in art stages a child may demonstrate when painting with a brush at an easel and when coloring at the table with crayons.

4. To provide the author and reader with more general information concerning children's art work and children's ability to perform discrimination tasks.
Hypotheses

The hypotheses to be examined in this study are as follows:

1. Those children who have been in the Utah State University Child Development Laboratory for longer period of time will demonstrate more advanced stages of art development than children who have been in the Laboratory for a shorter period of time.

2. Children in more advanced stages of art development will be able to work through more complicated discriminatory tasks than children in earlier stages of art development.

3. Children demonstrate a more advanced stage of art development when using crayons than when painting at the easel with a brush and tempura paint.
Physical, Visual, Perceptual Cognitive Development

Physical maturation and visual development

The cerebellum of an infant grows rapidly from six months of age to eighteen months of age, according to Breckenridge and Murphy (1964). By the time the child reaches the age of five years, the cerebellum is almost full size. The brain waves have become smaller and faster because the child has become more aware of, and is paying closer attention to, his surroundings. About this time, the child becomes physically, linguistically and relatively socially independent. Gesell, Ilg and Bullis (1949) term the fifth year of a child’s life the "nodal" year. They state that at age five a child reaches a maturity level which marks both the beginning and the end of growth epochs.

Perfection in eye control develops rapidly from birth and particularly from two months on. By the time an infant is eight months old, his eye movements are well coordinated (Breckenridge and Murphy, 1964). The eyeball is short and shallow and farsightedness is very normal. By age two, a child’s eye control and ability to see is as perfect as an adults, however, as the child grows, the eyeball increases in diameter and reaches adult dimension about age six.

Perceptional depth and distance occur gradually as both eyes begin to focus on an image through binocular vision and fuse what both eyes see.
into one image. DeHirsch, Jansky and Langford (1966) state that lack of binocular vision farsightedness and eye-muscle imbalance are usually associated with reading disorders. However, mild visual variations in eye movements and eye-muscle imbalance do not interfere with reading as this is a perceptual function involving central processes. As Kellogg (1969, p. 11) states: "Perceptual organization is something that originates as a physiologic characteristic of the nervous system."

Gesell, Ilg and Bullis (1949) tell us that during the preschool years the eyes are coming into effective relationship to rapidly changing motor equipment. The visual functions are coordinated with locomotive, manipulative, linguistic, adaptive, personal and social development. By age three, the "organizing age," eye-hand activities are more unified, a child "... can displace his hands without riveting his eyes on the task; his eyes can take a more directive role and they may rove inspectionally without associated head movements." (Gesell, Ilg and Bullis, 1949, p. 107) The three year old can plan ahead, is interested in the wholeness of things, needs simplification of environment, and does not perceive bilateral things as a whole. Many of the anxieties a child has at this age, because of his inability to control his environment smoothly, stem from immature visual-motor orientations. But by age four, a child can take in a whole situation in a flash of perception. There is more symmetry in his motor patterns.

Whereas Gesell, Ilg and Bullis (1949) feel a child is fluid at age four, by age five he is "in focus." By age five the child can single out specific
details or familiar features without losing an awareness of the total entity, but until age six, Milner (1967) states, perceptual errors are frequent. According to Milner (1967) all basic locomotor and manipulative skills are apparently acquirable by age six.

Gesell, Ing and Bullis (1949), Milner (1967), and Breckenridge and Murphy (1964) all agree that up to age six a child's eyes are still developing, changing, and physically maturing.

**Perceptual/cognitive development**

There are many philosophies, theories and studies currently being developed concerning the relationship between perceptual and cognitive development and the relationship of both of these to discrimination.

Breckenridge and Murphy (1964) state that perception develops from awareness, to awareness with meaning.

Jean Piaget is perhaps the most quoted man in the field of cognitive psychology (Flavell, 1963; Maier, 1965; Milner, 1967; DeHirsch, Jansky and Langford, 1966; Lansing, 1966; and Jersild, 1968). Piaget has described a series of stages of cognitive development. The sensory-motor period exists from birth to about two years of age. Around two years of age the child is believed to move into the "pre-operational stage" which lasts until approximately age seven. Between the ages of seven and eleven the child is going through a stage Piaget terms "concrete operations," and around the age of eleven the child enters the phase of "formal operations."
According to Maier (1965) Piaget feels that cognitive human behavior has to be conceived as a combination of maturation, experience, social transmission, and equilibration (self-regulation of cognitive adaptation). Lansing (1966) labels Piaget's stages of cognitive development as (1) "perceptual images": the images we have as we look at an object, (2) "representational images;" those images we retain after the experience with an object has passed, (3) "conceptual schemas;" this is the retention of information about an object in the mind in the form of words.

Milner (1967) agrees with Lansing's (1966) and Maier's (1965) interpretation of Piaget's cognitive development theory but she ties this portion of his theory back to the preconceptual and intuitive phases of the concrete operational stage of the two to four year old as follows:

In Piaget's schema, two to four years comprises the first, "preconceptual," phase of the "concrete operations" stage, the second one in the development of intelligence. This phase consists of three successive, overlapping developments: construction of mental symbols or images which represent oft-repeated action schemata; capacity to distinguish between the name of an object and the object itself as a result of imitation (accommodation) and imaginative play (assimilation); projection of already developed symbolic schemata onto new objects and situations and beginnings of a tendency to identify self, or parts of own body, with others and with things; beginning of genuine communicative language, acquisition of a mental picture of topological space, although imagery still lags behind a physically direct, sensorimotor, approach to the external world at this period. (Milner, 1967, p. 219)

**Discrimination in relationship to perception and cognitive development**

Milner (1967) supports Piaget stating that from age two to age six,
as a young child matures, his improved memory, combined with the ability
to take cues from sensory sources, increases his ability to perform detailed
and complex perceptual discrimination tasks.

DeHirsch, Jansky and Langford (1966) feel that children are chal-
lenged by puzzles because they have a great deal of difficulty identifying a
figure on a strongly patterned background.

Bruner, Oliver and Greenfield (1966) seem to agree with DeHirsch,
Jansky and Langford (1966) and adds that young children are ill equipped
to reconstruct a picture from parts to a whole. They state that children
need to achieve "serial integrity" in the way figures are viewed. The child
often helps himself with "serial integrity" by tracing forms with his finger.

Witkin (1962) found that it is easier for a three year old child to
pick a figure from a camouflaged background if the object is familiar or
meaningful and if the child can manipulate the object.

DeHirsch, Jansky and Langford (1966) further state that even at
kindergarten age, children's visual-perceptual functioning is often fluid and
often nothing on the printed page stands out. Figure-ground difficulties have
been observed to play a role in reading disorders of elementary school chil-
dren.

Concerning younger children, Bruner, Oliver and Greenfield (1966)
states:

... young children have greater difficulty in noticing detailed
differences between pictures, as if they were attending to more
general features of objects around them. ... on occasion
children also respond to very small details in attempting to recognize and match design--but only to one detail at a time (Bruner, Oliver, and Greenfield, 1966, p. 24)

Some say childhood perception is global while others believe children are overly sensitive to small single cues. Bruner, Oliver and Greenfield (1966, p. 23) feel that one reason a young child's perceptual attention is highly unstable and is easily distracted is because he is a "victim of shifting vividness and of the novelty of the environment."

Breckenridge and Murphy (1964) found that infants enjoy patterns more than plain bright colors, however perception of size, shape, and depth in patterns is still being perfected in the preschool years. They suggest that four and five year olds enjoy matching games because of their interest in accurate visual details. They add to statements by Bruner, Oliver and Greenfield (1966) that if a child is free to manipulate and explore materials, this added experience gives meaning to the material, which makes a child's perception more complete.

In a study by Potter (1966) people from age four to adult age were asked to identify objects in a set of ten pictures in progressing stages of focus. The first of the ten pictures was badly blurred and each of the following pictures was in clearer focus than the previous one. Potter (1966, p. 132) found that "at age four the identity of an object is not fully separated from ones own experiences; this lack of differentiation precludes an active discriminatory matching process." Potter (1966) concluded, however, that the "span of integration" increases with age.
Dember (1960), who has done numerous perception studies with adults, found that the distance between the stimuli and the retina is important. As distance between the stimuli of the retina increases, the neural summation decreases. He states that detection and discrimination are a joint function of the properties of the stimulus and the characteristics of the receptor system.

Falk's (1968) studies found that differences in the rate of learning of discrimination tasks by children are significantly influenced by the dimensionality of the stimuli, even when tactual and kinesthetic cues were added to visual cues during the learning period. He adds, however, that using only visual cues retarded learning, especially when the task was related to size discrimination. Four year olds learned to discriminate between stereometric (three-dimensional) objects fastest, and two-dimensional patterns the slowest. This coincides with Gesell, Ilg and Bullis (1949) findings that three year olds have discrimination difficulties with bilateral objects.

Scholnick, Osler and Katzenellenbogen (1968) found that experience with simple discrimination tasks facilitates performance in concept learning. This experience with perceptual familiarization may be a key factor in promoting positive transfer. Blum (1957) found that size estimation of an object is influenced by the value of the object to the child. The size of valued objects was accentuated by the perceiver.

Scholnick, Osler and Katzenellenbogen (1968) also found in their studies that initially lower-class children have lower performance on discrimination tasks than middle-class children. However, after training, neither social
class nor I.Q. affect performance. Lower-class children may have more difficulty with simple discrimination tasks than middle-class children because the middle-class children are initially more familiar with the stimulus materials. The study went on to state that lower-class children could often handle complex problems more adequately than middle-class children.

... the solution of concept problems, which requires skill in making inductive inferences, may not ordinarily fall within the realm of experience of children from any social background. Hence it is possible that all subjects come to concept tasks equally unprepared. (Scholnick, Osler and Katzenellenbogen, 1968, p. 25)

The authors felt that much of the social class variance in performance may reflect the behavior of subjects of the extremes of the distribution.

Culture does have an influence upon visual perception, according to Segal, Campbell and Herskovits (1966). Segal, Campbell and Herskovits (1966, p. 39) asks if words create perceptions or if perceptions create words. "Different people organize the world differently in accord with cultural forces rather than in a manner dictated by its intrinsic structure."

Hallowell (1966, p. 168) agrees that ". . . the human organism becomes selectively sensitized to certain arrays of stimuli rather than others . . . as a function of the individual's membership in one cultural group, rather than another . . . ."

Segal, Campbell and Herskovits (1966) adds that although there is not a lot of evidence that culture influences perception, there is enough evidence to indicate that differences in perception do exist and that these differences are culturally mediated due to experiences rather than biological differences among cultural groups.
Children's Art Development

Biology and art

Morris (1962), Kellogg (1969), Arnheim (1960), and Alschuler and Hattwick (1947) all feel that the origin and use of color, line, form and space stems to prehistory through infra-human primates and primitive man.

Morris (1962) conducted extensive experiments with chimpanzees in which he showed that if a chimpanzee is given a drawing tool over a period of two years, his art will progress through various stages of scribbling refinement. The chimpanzees came close to drawing diagrams such as circles and squares, but never beyond that point. Most of the chimpanzee's drawings could not be differentiated from the scribble drawings of two and three year old children.

Kellogg (1969) cites archeologists Herbert Kuhn and Segfried Giedion and discusses numerous similarities between primitive art and the beginning stages of children's art. They suggest that beginning art is a biological feature in a child's make-up.

Developmental stages of art

Tomlinson (1934) believes that children draw naturally for their own pleasure. He goes on to state:

... all authorities agree that children, in their reactions to art, pass through certain stages of development. These may be briefly stated as follows: First, the stage of manipulation which occupies the first two or three years. Second, the stage of child-symbolism which normally lasts up to the sixth or eighth year. Third, the stage of pseudorealism, a transitional stage which comes between
the ages of eight to eleven years. Fourth, the stage of realization
and awakening. (Tomlinson, 1934, p. 14)

Alschuler and Hattwick (1947) believe children go through stages they
call scribbling—a period of manipulation, first experimentation with line and
form, and representation, or the capacity to organize.

Lowenfeld and Brittain (1970) divided the development of children's
art into similar stages which they title Scribbling at ages two through four,
Preschematic at ages four to seven and Schematic from age seven to nine.

art describes the Scribble stage first (ages two through four), the Diagram
stages which occur about ages three and four and related Sun Images occur-
ing about ages three to five which lead into people drawings at ages four
and five and the beginning of the Pictorial stage about age four or five.

During the 1920's, Dr. Helga Eng (1931) kept a detailed account
of the drawing development of her niece from ten months of age into the upper
grades of school. She felt that regulated development follows steps of
Scribbling, Formula Drawing (naming scribbles, and trying to put scribbles
into forms), Flat pictures and Perspective drawing.

While Lowenfeld and Brittain (1970) have broken scribbles down into
three categories: Disordered, Controlled and Named scribbles, Eng (1931)
was more specific in stating that wavy scribbling is the first fundamental form
drawn, then circular scribbles, zigzags, lines, crosses, straight lines and
other single lines and forms.
Aschuler and Hattwick (1947) agree with Eng (1931) that curves precede straight strokes in children's art development. A child's first strokes are short, broken and scattered. The wavey scribbles precede vertical or straight-lines and circles are made before squares or other angular forms. Aschuler and Hattwick (1947) state that three to three and-a-half year old boys have more of a tendency towards drawing vertical lines than do girls. Four and four-and-a-half year old girls have a tendency towards a partial swing stroke.

According to Lansing (1966), Piaget also observed loops, circulars and whirls to be a child's earliest scribbles.

Kellogg (1955, 1967a, 1967b, 1969, 1970) has spent a considerable amount of time analyzing and categorizing the scribbled pictures in her collection of over 500,000 drawings by children. Kellogg (1969, p. 14-15) states that "the basic scribbles are twenty kinds of markings that are made by two-year olds and even younger children. . . . the Twenty Basic Scribbles are the building blocks of art . . ." (Kellogg's Twenty Basic Scribbles are listed on page 41 of this thesis.) Kellogg (1969) feels that there are no studies to really substantiate which lines, curves or scribbles appear first, but she seems to think that vertical, horizontal, diagonal and circular (or curved) lines are most easily drawn. Further

. . . Scribbles comprise all marks that are made by spontaneous movement with or without the control of the eyes. . . . every drawing, pattern, shape, design, pictorial, or language symbol can be broken down into Scribble components, that is, into basic line elements. (Kellogg, 1969, p. 18)
Scribbling, a physical activity

Kellogg (1969), Aschuler and Hattwick (1947), Lowenfeld and Brittain (1970) and Eng (1931) agree that scribbling is a result of muscular activity without visual guidance or intentional motor control.

Eng (1931) observed that a child feels pleasure in seeing and feeling movements in his hands. Brittain (1969) quotes the dissertation of Harlan H. Halloday who found that a child usually chose one crayon of a color which contrasted with the paper and stuck with the one instrument. He further discovered that the type of grip a child has on a crayon follows a developmental pattern from various grips with little control at age two to a normal adult controlled grip by age five.

Aschuler and Hattwick (1947) term scribbling as a stage of relatively involuntary movements. Earliest easel paintings are done in a rhythmic back and forth swing.

Lowenfeld and Brittain's (1970) three levels of scribbling are primarily based on maturation.

Disordered . . . scribbles are not attempts at portraying the visual environment. To a great extent the scribbles themselves are based upon the physical and psychological development of the child. . . . A child will be fascinated with his activity and enjoy these marks both as motions and as a record of kinesthetic activity. (Lowenfeld and Brittain, 1970, p. 91-92)

At this age they become intently engrossed in drawing, but " . . . at this stage the child's intentions do not go beyond the movements of his crayon, and his enjoyment is essentially from the kinesthetic sensation and mastery."

(Lowenfeld and Brittain, 1970, p. 96)
The "Naming of Scribbles" indicates that a child is beginning to change from kinesthetic thinking to imaginative thinking. This usually occurs around the age of three. The scribbles are still meaningless for adults, but they have real meaning for the children who do the drawings.

About age four, as preschematic or early pictorials begin to evolve, marks and scribbles are losing their relationship to bodily movement. The marks are now controlled and related to visual objects. This is the beginning of graphic communication.

**Art development in relationship to visual, cognitive, and perceptual maturation**

Kellogg (1969), quotes Brain as saying that perceptions are the receipt of information about the external world which is handled by the nervous system as coded electrical impulses. Conceptions are thoughts, ideas, opinions, or mental patterns based mainly on perceptions. Conceptions also can be based on previously held conceptions.

According to Lowenfeld and Brittain (1970), perceptual growth stems from a child’s increasing awareness.

Children who are rarely affected by perceptual experiences show little ability to observe and little awareness of differences in objects. . . . The cultivation and growth of our senses is an important part of the art experience. (Lowenfeld and Brittain, 1970, p. 27-28)

Concerning vision, Lowenfeld and Brittain (1970) state that the child who is still in the disordered stage of scribbling has no visual control over his scribbling. This is " . . . an indication that he is not yet ready to perform tasks that require fine motor control over his movements." (Lowenfeld
By the controlled stage of scribbling, the child discovers he is beginning to be able to coordinate his visual and motor development. The importance of the changes which have taken place when a child begins naming his scribble can be understood when we realize, that

... as adults, most of our thinking is in terms of mental pictures. If we try to think back in our own memory as far as we can, our memory will carry us no further than this naming of scribbling stage. It is at this point, then, that the child develops a basic for visual retention. (Lowenfeld and Brittain, 1970, p. 96-97)

Kellogg (1969, p. 7) states that "visual interest is an essential component of scribbling." She suggests that scribbling offers a possible record for more clearly understanding a child's developing vision and mental processes. At age two, children scribble without visual guidance. "$\ldots$ when scribbles are made with eye control, they yield an immense range of visual effects $\ldots$" (Kellogg, 1969, p. 18)

Kellogg (1970) feels that scribbling is a self-preparation for reading. Children teach themselves to draw people and trees by age six. At this same time, the brain has reached its full growth and therefore most children are ready to learn to read. They now use their skill with the lines they made scribbling to write letters; they can see and remember which lines are needed to put letters together. In other words, when a child begins to draw pictorials he is physically ready to read and write, and spontaneous and free scribbling develops the mind and prepares children to read and write. At present, Kellogg (1970) holds after-school art sessions for retarded readers in San Francisco area. She has designed her own reading program and has found
that this program, combined with art sessions allowing the children free expression, is improving their reading ability.

Arnheim (1966) found that even when a child has achieved visual and motor control in his art work, he draws an object which he can see the same way he draws that same object from memory. The abstractness in children's drawings occur on a perceptual level because children grasp global characteristics first and individual characteristics later.

... a pictorial representation is neither a copy nor a manipulation of a perceptual concept. Undoubtedly, the young child who draws the circle sees more than sheer roundedness when he looks at a human head. Before he can draw at all, he is capable of distinguishing different people from each other. The perceptual pattern is refined beyond anything indicated by the child's drawing. Nor can the difference between what is perceived and what is produced on paper simply be explained as a lack of technical craftsmanship. By and large, the young child, and certainly the primitive artist, already possesses enough motor skill and visual control to produce the image he intends to. A child may not be able to draw a perfect circle, but as a rule he achieves enough of an approximation to make his intention quite clear to the spectator. The circle ... is a fairly exact representation of what the craftsman meant to produce.

(Arnheim, 1966, p. 34)

Arnheim (1960) further tells us that young children pay little attention to orientation; they do not mind looking at a picture upside down. Orientation and unified space concepts do not seem important to a child until about age six. He feels this might be an effect of the still developing nervous system.

A study by Lewis and Livson (1967) found that from first grade (age six) up to sixth grade, there was successive discovery of increasingly adequate means of depicting three dimensional spatial relations. Lansing (1966) feels that elementary art teachers could use Piaget's suggestions and provide
perceptual games and activities to develop a child's concept of space.

The "Naming Stage"

Lowenfeld and Brittain (1970) call the final scribble stage the "Naming Stage" (which occurs between ages three and four) because even though the actual content of the scribbles have changed little in form, the child is talking about the scribbles and they have meaning to him and to his growing awareness of his relationship to the world around him.

Aschuler and Hattwick (1947) say that prior to age four or five, children rarely name pictures even though it expresses something they deeply feel because they do not have the words to verbalize what they think or feel.

On the other hand, Eng (1931) found that her niece and nephew began to talk about and label their pictures as soon as they could talk.

In a study by Brittain (1969), comments and conversations of four year old children were recorded while they were painting and drawing. It was felt that children do not have a preconceived notion of an end product when they begin work on a picture. The picture is actually a record of the child's thinking process. As he works and talks, lines and forms change. The child may start with one line which is to be a tree. As he talks, it becomes a ladder and soon it is a fire tower. The child does not capture a moment in time, but a series of changes through time. It was found that "Children had difficulty in recognizing their own paintings the day after they were completed."

(Brittain, 1969, p. 17) Brittain theorizes that either the completed images
were not clear to the children or they were unable to retain the image.

The adult's role, according to Brittain (1969), is that of a passive listener. He found that the length of time a child stuck with a project increased when an adult was present. Brittain (1969, p. 23) feels that "'What is it?' asked in a nonthreatening fashion, is the most important thing a Nursery School teacher can say." It seems that interest expressed in this manner gets and keeps the child more involved in the drawing process.

The crayon and easel paint mediums and the use of color in young children's art

Lowenfeld and Brittain (1970) state that the type of picture a child produces depends a great deal on the materials available to him.

Jefferson (1964) states that many people recommend reducing art to separate activities in which they deal with only one thing at a time. She goes on to say that there is no evidence proving that one thing at a time in an art experience helps a child concentrate on and master one activity at a time.

Brittain (1969) feels that a variety of art materials may stand in the way of expression.

Perhaps the value of any art material is the opportunity it provides the child to develop strategies to conceptualize and express the relationship he has developed with his environment. (Brittain, 1969, p. 24)

Mastery of a few materials is more important than messing with a whole range of projects. He states that

... a good deal of the painting done at the easel seemed to be more manipulative in nature than representative of any scene
or idea . . . perhaps because of the nature of the material which requires more concentration and control . . . Color and tactile quality of paint seems to be an enjoyable experience in itself . . . (Brittain, 1969, p. 18)

When studying art and personality, Aschuler and Hattwick (1947) seemed to think easel paints were a medium directly associated with expression of feelings and therefore was enjoyed most by three year olds. The children also appeared to enjoy color as part of the media not just because it was a certain color.

By age five, crayons were used more because this is an age of more controlled behavior, realistic interest in the outside world, concern with conforming and a concern to express ideas and communicate with others.

Studies by Corcoran (1954) and Brunson (1967) demonstrate that three and four year old children do not express color preferences in their easel painting. Gesell, Ilg and Bullis (1949) state that two year olds prefer red; two and a half year olds prefer yellow and three year olds prefer blue.

Aschuler and Hattwick (1947) state that an interest in color placement and discrimination mixing of colors increases with age. Findings by both Arschuler and Hattwick (1947 and Child, Hansen and Hornbeck (1968) state that there is an increased interest in and usage of cool colors at all ages.

Color discrimination and matching was an important part of Montessori's program (Montessori, 1914), but this was accomplished through a structured perceptual development program and not in a free-expression art situation.
Using young children's art as measures of intelligence, as indicators of personality and emotional problems and as a means of teaching

In the forties, Aschuler and Hattwick (1947) did extensive work studying children's art work as an indicator of emotional stability. Using background information on children, they analyzed every aspect of a child's picture, color, mass, lines, form, media preference, etc., and designed an extensive scale to use in determining a child's emotional health through his art work.

Machover (1949) designed a means of discerning aspects of a child's personality by analyzing that child's drawings of a human figure. She felt that there was "... an intimate tie between the figure drawn and the personality of the individual who was doing the drawing." (Machover, 1949, p. 4)

Goodenough (1926) and later Harris (1963) developed a means of determining the intellectual potential of children through an analysis of their human figure drawings.

Koppitz (1968) built on the work of Aschuler and Hattwich (1947), Machover (1949), Goodenough (1926), and Harris (1963) by designing a means of using children's Human Figure Drawings for psychological evaluations. She was careful, however, to note that when a child produces a picture in a clinical situation, it represents a graphic form of communication between the child and the psychologist. These drawings are different from spontaneous drawings by the same child.

Ballard (1911) and Dennis (1966), however, found that children in different cultures may draw people and other objects a little differently.
The evaluations by Koppitz (1968), Aschuler and Hattwick (1947), Machover (1949), Goodenough (1926) and Harris (1963) all deal with children after the scribble stage and at the onset of early pictorial drawing. Harris (1963) felt that young children's enjoyment of scribbling is largely motoric. Human Figure Drawing was usually the first attempt at pictorial representation. It was felt that these drawings express the child's early interest in and concern with the people around him.

Kellogg (1969) attacks all tests which use children's art for the basis of determining intelligence or personality. She agrees that the child's natural system of drawing does reveal some conceptual and perceptual abilities, but asking children to draw a human figure does not take into consideration the influence of children's spontaneous art.

The evaluations erroneously assume that the child's art work gives reliable evidence of what the child has observed in the world about him, and that his drawings record his observations adequately and thus indicate degrees of intelligence. . . . If art is to be used as a test, the artistic aspects of child work cannot be disregarded; instead they must be part of the basis of test construction. Every child can identify a house or dog long before he can draw one. . . . Pictorial capacity, other than in childlike esthetic form, does not exist until the child is trained to substitute an adult's idea of how lines "should be drawn" for his own highly developed and natural ideas about drawing. If the capacity for such training measures intelligence, most adults lack it, for few can draw according to the standards in the minds of those who have devised the art mental tests. (Kellogg, 1969, p. 188-189)

Copy-work has also been used to study young children's stages of intellectual and cognitive development as well as a means of reinforcing concepts. In a study of form reproduction among preschool children,
Graham and Berman (1960) found that the ability to reproduce forms increases with age.

According to Lansing (1966), Piaget found three year olds, when asked to copy a shape, often just scribbled. He found that three and four year olds could copy irregular circles. Triangles, crosses and squares were all drawn as irregular circles. He concluded that the earliest aspects of form children could conceive and draw were topological.

DeHirsch, Jansky and Langford (1966) remind us that much time is spent in kindergarten helping children to recognize and to reproduce various forms and shapes. She feels that such training serves to familiarize children with visual-motor experiences.

Russel and Waugaman (1952), Kellogg (1969), Pearce (1965), Jefferson (1964), Aschuler and Hattwick (1947) and Lowenfeld and Brittain (1970) suggest that children's creative and natural artistic abilities possibly are in danger of being blocked and stifled when adults ask them to copy forms, reproduce likenesses, or stay within the lines of stencils or coloring book pictures.

Pearce (1965, p. 2) states that copy work places "... all the emphasis on the finished product with complete disregard for the processes of seeing, discovering, and making (creating new relationships)." And Kellogg (1969) feels that

Adults who encourage copywork and who forbid spontaneous scribbling may harm the child's development in learning as well as in art. ... the child who has frequent opportunity to draw without
adult interference learns faster and increases his cognitive ability more than he would if he were denied the opportunity. (Kellogg, 1969, p. 100)

Lowenfeld and Brittain (1970, p. 51) caution that art instruction which includes activities is "... worse than no art at all."

Eng (1931) quotes E. T. Cooke as believing that teachers start art instruction with geometrical shapes and angles. He feels children want to draw many lines and dislike being confined to one line.

Montessori (Plank, 1966), on the other hand, felt creativity was stopped if children did not learn art techniques. According to Gaitskill and Spalding (1959), children need to be given skills for creativity, Aeristic expression never emerges from a void. . . . Any artistic expression worthy of the name reflects the thoughts and feelings of the author. His thoughts and feelings are the result of his reaction to his experiences. (Gaitskill and Spalding, 1959, p. 6)

and any person designing a program of art instruction must keep this in mind.

Lansing (1966) feels that the work of Piaget could offer a foundation for art instructors. Since children from ages two to eleven "... entertain concepts that deal with real objects and events . . . " (Lansing, 1966, p. 41) rather than abstract ideas, then art for children should deal with concrete objects and events.
METHODS AND PROCEDURES

Setting

The Child Development Laboratory, housed in the Family Life Building at Utah State University, Logan, Utah, is a large sunny complex which is usually bustling with activity.

The Department of Family and Child Development, which directs the Laboratory, has built its philosophy around the findings of Benjamin S. Bloom (1964).

... from conception of age four, the individual develops 50% of his mature intelligence, from ages four to eight he develops another 30%, and from ages eight to 17 the remaining 20%. (Bloom, 1964, p. 68)

This department strives in every way to provide a setting, an environment and a daily program for three and four year old children which will contribute to and stimulate this period of rapid intellectual growth while providing a program which will aid children in optimal physical, social and emotional development. Every effort is made to make the Laboratory a happy and stimulating center for young children.

During the past year (1969-1970) morning and afternoon sessions were held in both the East and the West Laboratories and early morning, mid-morning and afternoon sessions were held in the North Laboratory. Each session served 20 children, or a total of 140 children a day.
Each Laboratory was staffed with one directing teacher who was a member of the Child Development staff, and four student teachers. The children spent two and a half hours each day in the Laboratory Monday through Thursday. Teachers were there an additional hour for preparation, setting-up and cleaning-up the room. They met on Fridays to discuss plans, and prepare for the following week, rearrange the room, place out new toys and materials and discuss children.

**Purpose of the Child Development Laboratory**

**Teacher training.** One of the functions of the Child Development Laboratory is to train teachers to understand and work with young children as individuals and in groups in a preschool setting. After taking background classes in Child Development, such as Child Guidance and Percept/Concept Development, students enter the Child Development Laboratory and under the direction of the Child Development's staff member begins to train as teachers.

Student teachers learn to develop an environment and curriculum which will aid in stimulating the intellectual, social, physical and emotional growth of three and four year old children.

For the first week of the quarter, student teachers act as supporting teachers while observing model teaching done by the directing teacher. Then each student teacher acts as head teacher for two or three separate weeks during the quarter. As head teacher, the student must plan and organize the activities and events of the week around a central theme. The goals
and objectives of each activity are intended to reinforce the main theme of the week.

Prior to his head teaching week, the student teacher will develop a lesson plan listing all activities planned for the children during the week. The activities are to be planned as a means by which to achieve specific goals and objectives rather than as ends in themselves. After discussing the plans with the directing teacher, the plan will be mimeographed and a copy given to each teacher in the Laboratory on the Friday prior to the students' head teaching week. On Friday, the student teacher will explain the plans in detail to the other teachers in that Laboratory.

Included in the activities during the two or three weeks when a student teacher takes over, there must be at least one flannel board story as well as a science, a food, and a music experience, one excursion and one visitor from outside the Laboratory. In addition to these requirements, a student teacher teaches the children at least three fingerplays and songs each week. Teachers will also provide creative activities aimed at reinforcing the main goals as well as provide the children with medias and experiences designed to encourage them to explore and create at will.

During a student teacher's head teaching weeks, they learn to organize and handle the entire group of 20 children. They practice supervising and giving directions to supporting teachers. They further practice guidance methods best suited for three and four year old children and will decide how the room will be arranged, which toys, equipment, books, records and pictures will be used.
The children. A second purpose of the Utah State University Child Development Laboratory is to provide a center of learning and overall development for three and four year old children.

All children attending the Laboratory reside either in the City of Logan or in a smaller community or rural area within Cache Valley. Many children have parents who are employed by the University as teachers, secretaries, or in other capacities. Some are children of students attending the University. Other children are from families in the area which have no connection with the University. The children are primarily from middle-class economic homes. Occasionally the Laboratory supervisor and staff accept "special consideration" children. These are children whom pediatricians have referred to the Laboratory because of special problems, or children whom the Department of Communicative Disorders has referred because of speech needs. Sometimes "special consideration" is given to children who have just moved into the area (perhaps children of new faculty members, or children from another country) and have not had an opportunity to be placed on the waiting list. Other than "special consideration" children, all applicants to the Laboratory are placed on a waiting list from which they are accepted into the Laboratory when an opening occurs.

Physical setting

The Child Development Laboratory compound consists of three separate Laboratories labeled the East, West, and North Laboratories.
Each Laboratory has an adjoining observation booth. There is also a kitchen, entry or parent room, a library, several storage rooms and closets, and an outside playground shared by all three Laboratories.

**Observation booths.** The observation booths run the full length of the East and West Laboratories and the width of the North Laboratory. The wall separating the observation room from the Laboratory consists of a wide strip of two-way glass which runs the length of the booth. The observer can see through this glass into the Laboratory, but from the Laboratory side of the wall, the glass looks like a mirror and those inside the Laboratory cannot see through the glass into the observation booth. The observer sits at a high stool with a counter and observes through the glass. Immediately above and below the glass are strips of audio screen and the remainder of the wall above the glass and below the counter is slatted. The slats and audio screen allow the observer to clearly hear what is taking place inside the Laboratory. Between 10 and 40 people can be seated to observe in each booth at one time.

**Kitchen.** The kitchen is equipped with two dish washers, a refrigerator, sink, telephone and a large cooking range with a double oven. Here juice is prepared daily for the children, student teachers prepare for food, creative and other experiences which will be moved into the Laboratory during the day.

Included in the kitchen is storage space for paints, scissors, glue, as well as food staples, dishes, pans, utensils and a good supply of most any item needed to prepare a food, a cooking or an eating experience. East
and West Laboratories have drawers and cupboards in the kitchen for storage of materials. All drawers and cupboards are labeled and color coded. A woman is hired to work three hours a day to help maintain the kitchen and the equipment and materials in other areas of the Laboratory complex.

**Parent room.** An entry room is provided for parents to bring their children upon arrival each day. A student teacher greets the children here and takes them into the Laboratory.

In addition to the small table with information sheets, and the chairs and couches provided for parents and children to use while waiting, there is a bulletin board in this room. Each student teacher is required to make one bulletin board as part of their teaching training experience. Therefore, each week, a new bulletin board is placed in the parent room for the children to look at, touch and talk about.

On stormy days, children might also wait in this room for parents to pick them up. (On warm days, they play outside while waiting for rides.)

Connected to the parent room is a small room with sink, a medicine cabinet, a bulletin board and an extension telephone. After the children have gone into their Laboratories, graduate students often use this room for testing children for research purposes.

**Library.** The south wall of this small room has shelves containing about 450 books for young children, in addition to music books, science books, magazines and other items for student teachers to use. Each week the student teacher who is acting as head teacher selects books to be placed on the book rack in the Laboratory.
Also housed in the library are over 200 records, hundred of pictures, and several kinds of rhythm instruments which student teachers may use to reinforce the goals they wish to work on during head teaching weeks.

Storage areas. Within the Laboratory complex are several storage areas. The Small Manipulative Closet shelves numerous manipulative, percept and concept development toys. Connected to the Small Manipulative Closet is a small room called the Step-up Closet which contains dolls, woodworking tools and additional manipulative and concept development toys.

The Science and Paper Room contains magnets, magnifying glasses and other items of equipment to aid in science experiences as well as a large supply of construction paper and newsprint. Outside the Science and Paper Room is a set of drawers containing large quantities of small items such as clothes pins, nails and paint brushes. Three of these drawers are used to store extra mittens, sweaters, underpants and other clothing children may need and might not have in their locker.

The Large Manipulative Toy and Sensory Closet contains barrels of sensory materials such as sawdust, sand and wheat, as well as large trucks, climbing toys and equipment for large muscle development inside the playroom.

Additional storage areas are found in the observation booths and inside the Laboratory playrooms. Outside the Family Life Building, on the west side of the playground, is a large garage used to store equipment for the playground.
Playground. The almost U-shaped playground is shared by all Laboratories. There are seven pieces of permanent equipment on the playground. Each morning student teachers take turns setting up additional moveable equipment in different arrangements.

The Laboratories. The Laboratory "playroom" is primarily designed to reach as many aspects of a child's life as possible. All furniture in the Laboratories is child-size, thus providing an environment children can control.

Each Laboratory has child-size toilets and sinks. Two labs have storage closets and supporting pillars. Other than these items, all equipment and furniture in the room can be rearranged and removed as needed. As student teachers change the room each week, they learn to arrange activity areas for domestic play, large muscle activities, quiet activities, etc. so that they do not conflict with each other but rather complement adjoining areas.

Other students studying young children

The Child Development Laboratory serves as an area where students studying children in such departments as: Psychology, Education, Communicative Disorders, Special Education, Sociology or Home Economics, can come and observe young children. These observations provide a base for classroom discussions which adds to students' knowledge and understanding of young children and increases their awareness of the behavior and development of three and four year old children.
The Laboratory also serves child development graduate students enrolled in a course entitled Internship in the Child Development Laboratory (FCD 275). In this course, graduate students spend two days each week acting as supporting teachers in different Laboratories. This not only allows them continued practice and experience in working with preschool children, but also gives them experience in observing and working with many different student teachers and many different directing teachers. This experience further increases their awareness of different methods of teaching student teachers and different methods of working with children.

The Laboratory is also used by people, students, teachers, and others who have no connection with the University. Occasionally home making classes from various high schools, students from neighboring universities, Head Start workers and people from across the nation who are interested in child development and Child Development Centers come to observe.

The children in the Child Development Laboratory are also used by graduate students from many departments for studies needed for theses and dissertations. It was from this Laboratory setting that the children for this study were chosen.

Sample

One of the major purposes of this study was to compare the differences in the art stages of children just entering the Child Development Laboratory to children who have been enrolled for 18 weeks or longer; therefore, the sample size was determined by the number of new children who entered the
program during Spring Quarter 1970. An equal number of children who had been in the Laboratory for 18 weeks or longer was selected to complete the sample.

Fifteen new girls and fifteen new boys were enrolled into the Laboratory Spring Quarter. One of the new girls moved from the area soon after her enrollment and two more girls refused to participate in the painting activities. This left 12 new girls. Of the new boys who entered the lab Spring Quarter, three of the 15 did not want to participate in the painting activity, this left 12 new boys in the sample and a total of 24 new children.

There were 20 girls and 28 boys returning to the Child Development Laboratory for their third quarter. Only five of the six Laboratories which operated during Spring Quarter, had both new children and returning children. The sixth Laboratory had only children who were returning for a second or third quarter. Therefore, the five girls and five boys in this Laboratory who were returning for their third quarter were eliminated as potential participants in the study. From the remaining labs, which had 15 girls and 23 boys who were returning for a third quarter, 12 girls and 12 boys were randomly selected to take part in this study. This made a total sample of 48 children, 24 new children (hereafter referred to as first quarter children or first quarter group) and 24 returning children (hereafter referred to as third quarter children or the third quarter group). The children were divided into four groups according to sex and quarter of entry into the lab and listed by age as follows:
### Table 1. Names and ages of children in the sample

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Name</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Quarter Girls</strong></td>
<td></td>
<td><strong>Third Quarter Girls</strong></td>
<td></td>
</tr>
<tr>
<td>Teresa</td>
<td>3.0</td>
<td>Jamie</td>
<td>3.7</td>
</tr>
<tr>
<td>Nancy</td>
<td>3.1</td>
<td>Paige</td>
<td>3.8</td>
</tr>
<tr>
<td>Tracy</td>
<td>3.3</td>
<td>Gina</td>
<td>3.10</td>
</tr>
<tr>
<td>Sandi</td>
<td>3.5</td>
<td>Stephanie</td>
<td>4.0</td>
</tr>
<tr>
<td>Joyce</td>
<td>3.7</td>
<td>Melece</td>
<td>4.3</td>
</tr>
<tr>
<td>Wendy</td>
<td>3.7</td>
<td>Marnie</td>
<td>4.5</td>
</tr>
<tr>
<td>Lisa</td>
<td>3.11</td>
<td>Jill</td>
<td>4.5</td>
</tr>
<tr>
<td>Tiffini</td>
<td>4.1</td>
<td>Marion</td>
<td>4.5</td>
</tr>
<tr>
<td>LeAnn</td>
<td>4.2</td>
<td>Oksan</td>
<td>4.8</td>
</tr>
<tr>
<td>Dawnie</td>
<td>4.4</td>
<td>Angie</td>
<td>4.8</td>
</tr>
<tr>
<td>Kiyoko</td>
<td>4.8</td>
<td>Alice</td>
<td>4.9</td>
</tr>
<tr>
<td>June</td>
<td>4.9</td>
<td>Heidi</td>
<td>4.9</td>
</tr>
<tr>
<td><strong>Mean Age Both Groups:</strong></td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Name</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Quarter Boys</strong></td>
<td></td>
<td><strong>Third Quarter Boys</strong></td>
<td></td>
</tr>
<tr>
<td>Bradley</td>
<td>3.6</td>
<td>John</td>
<td>4.0</td>
</tr>
<tr>
<td>Chris</td>
<td>3.7</td>
<td>Ted</td>
<td>4.0</td>
</tr>
<tr>
<td>Dan</td>
<td>3.7</td>
<td>Eric</td>
<td>4.1</td>
</tr>
<tr>
<td>Jeff</td>
<td>3.7</td>
<td>David</td>
<td>4.2</td>
</tr>
<tr>
<td>Stuart</td>
<td>3.8</td>
<td>Shane</td>
<td>4.2</td>
</tr>
<tr>
<td>John</td>
<td>3.11</td>
<td>Michael</td>
<td>4.3</td>
</tr>
<tr>
<td>Matthew</td>
<td>4.1</td>
<td>Paul</td>
<td>4.3</td>
</tr>
<tr>
<td>Terrall</td>
<td>4.6</td>
<td>David</td>
<td>4.6</td>
</tr>
<tr>
<td>Karl</td>
<td>4.7</td>
<td>Jay</td>
<td>4.7</td>
</tr>
<tr>
<td>Bryan</td>
<td>4.8</td>
<td>Nathan</td>
<td>4.9</td>
</tr>
<tr>
<td>Doug</td>
<td>4.8</td>
<td>David</td>
<td>4.9</td>
</tr>
<tr>
<td>Max</td>
<td>4.10</td>
<td>Ricky</td>
<td>4.10</td>
</tr>
<tr>
<td><strong>Mean Age Both Groups:</strong></td>
<td>4.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Instruments

This study required both collecting examples of the children's art work and giving them a discrimination task.

Art examples

One of the hypothesis compared art stage differences as demonstrated with crayon drawings and with easel paintings. Therefore, two crayon drawings and two easel paintings, a total of four pictures, were collected from each child in the manner described on page 53.

The type of paper used was not a major factor. Eighteen inch by 24 inch newsprint of various pastel shades and white was used on the easel. On some easels the paper was lengthwise and on others it was vertical. If the double easel, which can accommodate four children was available, it was used. Otherwise, the single easel, accommodating two children, was used.

Aprons were located on hooks at the end of each easel.

The colors used were not a major factor in this study. The author chose the three primary colors and these same three colors were used on the easel throughout the study. On each side of the easel was placed one cup, one-third full, of blue paint, a cup, one-third full, of red paint and one cup, one-third full, of yellow paint. These cups were randomly placed in the easel trough and they were not kept in any specific order.

In each cup was a 12 inch brush with 3/4 inch bristles. Extra cups of paint were kept nearby. If a child used an excess of one color, or if the
paint in the cups became mixed, the cups of paint could be removed from the easel and replaced with new unadulterated paints. The paint was thick enough to prevent unnecessary dripping and running. One child referred to the consistency as "muddy."

The crayons were the large crayons. Each child had a box with all eight colors. The crayons were not new, but were crayons that had been used previously in the lab.

The paper used for the crayon pictures was 12 by 18 inch construction paper or newsprint. The paper was presented to the child with the horizontal 18 inch edge towards the child but the child was free to turn the paper any angle he wished. Children were asked to use one side of the paper only. The author tried to be aware of when a child was finishing up a picture so that a new sheet of paper could be offered before the child started to color on the opposite side. However, the author did not always catch a child in time. If the child had already started to work on the opposite side of a completed picture, he was not interrupted but allowed to finish before being offered a new sheet.

The child's name, the lab he was in, the date he made the picture and a picture number was recorded on the back of each picture:

John Smith
East AM
4/7/70
C-1

The pictures were identified with C-1 for the first crayon drawing
the child made and C-2 for the second crayon drawing made. Likewise with
the easel paintings, the first easel painting was identified E-1 and the second
easel painting E-2.

Three four-page data sheets (see Appendix A) were prepared for
each picture. Two members of the Child Development Faculty and the author
independently analyzed each picture as guided by the instructions (see Appendix
B) and recorded on separate sets of data sheets which art stages and patterns
were demonstrated in the picture. The results of each examiner's analysis
were recorded on a master chart. Agreement between two of the three raters
was needed to establish the presence of each pattern in each art example.
The frequency of each art pattern was tabulated for each child. This fre-
quency was used to establish an art development score for each child. (The
art development score is explained in more detail on pages 44-45.)

The art stages and patterns used as a basis for analyzing the chil-
dren's pictures were based on the patterns established by Rhoda Kellogg (1969)
with some editing done by Carroll Lambert and the use of the Goodenough (1927)
or developmental phases of children's art. Each broad classification is broken
down into specific patterns. The 19 broad classifications are:

1. Twenty Basic Scribbles
2. Placement Patterns
3. Emergent Diagrams
4. Diagrams
5. Combines
6. Aggregates
7. Mandala Aggregates
8. Suns
9. Radials
10. Humans
11. Animals
12. Buildings
13. Vegetation
14. Transportation
15. Joined Pictorials
16. Learned From Others
17. Formal Designs
18. Works of Advanced Scribbling
19. Individual Work

The author edited and combined classifications and chose to call these changes or condensed classifications: Art Stages. The following changes were made in Kellogg's (1969) classifications to fit the author's needs for the purpose of this study:

A. The classification title, Basic Scribbles, was retained for the first Art Stage. However, the Twenty Scribbles described by Kellogg (1969) were combined and reduced to eleven scribbles:

<table>
<thead>
<tr>
<th>Kellogg's Scribble Classifications</th>
<th>Author's Scribble Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dot</td>
<td>1. Dot</td>
</tr>
<tr>
<td>2. Single Vertical Line</td>
<td>2. Single and Multiple Vertical Lines</td>
</tr>
</tbody>
</table>
5. Single Curved Line
6. Multiple Vertical Line
7. Multiple Horizontal Line
8. Multiple Diagonal Line
9. Multiple Curved Line
10. Roving Open Line
11. Roving Enclosing Line
12. Zigzag or Waving Line
13. Single Loop Line
14. Multiple Loop Line
15. Spiral Line
16. Multiple-line Overlaid Circle
17. Multiple-line Circumference Circle
18. Circular Line Spread-out
19. Single Crossed Circle
20. Imperfect Circle

B. All six patterns within the Diagram Classification were retained as established by Kellogg (1969) and these comprised the second Art Stage or the Diagram Stage:

1. Rectangle and Squares

2. Crossed and Imperfect Uncrossed Oval and Circle

3. Triangle
4. Greek Cross

5. Diagonal Cross

6. Odd Shapes

C. Combines and Aggregates were put together for the third Art Stage with the following explanation to the examiners: A Combine is a unit of two Diagrams, separated or joined. An aggregate is a unit of three or more diagrams separated or joined. "

![Separated, Joined, Combined, Separated, Joined, Aggregate]

Figure 1. Combine and aggregate compositions

D. The Sum Images were condensed to two patterns: (1) Beginning Sun and (2) Sun/Humans, for the fourth Art Stage.


Art Stage Five was entitled Pictorial Representations and was broken down into the following patterns:

1. Human
   a. Face only.
b. Face with Limbs Extending From Head.

c. Face. Body with body parts attached.

2. Animals.


4. Vegetation.

5. Transportation.

F. Art Stage Number Six, Combined Pictorials, included a combination of any two or more pictorial representations.

G. Art Stage Number Seven, Learned Forms, included:

1. Letters—with special note if the letters were in the child’s name.

2. Numbers.

3. Other Patterns—or patterns which a child probably learned by watching an older child or adult, or had probably been given instructions on how to draw the form.

In order to analyze the art data for some of the stated problems, each art stage was considered more advanced than the previous stage and scored accordingly. Zero was the score for the scribble stage because all children scribbled. The maximum potential score on the art development scale was six points. When comparisons of art development scores were made with other scores, those children at or above the mean score of 2.9 were classified as high scorers and those below the mean were classified as low scorers.
Stage Number or Score | Name of Art Stage
---|---
0 | Scribbles
1 | Learned Forms
2 | Diagrams
3 | Combines and Aggregates
4 | Sun Images
5 | Single Pictorial Representations
6 | Combination Pictorial Representations

Figure 2. Art stages of corresponding art scores

**Discrimination tasks**

After all the art examples were gathered from the children, three tasks requiring varying degrees of visual discrimination were given to each child. The three tasks combined could be completed by a child within three to five minutes. The result of each was recorded on a data sheet (Figure 3). A score of six points was possible on each task to establish a total possible discrimination score of 18 points. When comparing discrimination to art development, scores at or above the mean discrimination score of 9.87 were considered high scores and scores below the mean were classified as low scores.
Child's Name__________________
Room_____________________

<table>
<thead>
<tr>
<th>Test #1</th>
<th>Letters</th>
<th>Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test #2</td>
<td>Faces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test #3</td>
<td>Houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

Test #1. Letters placed incorrectly only because of stem length will be indicated by slicing through incorrect stem length.
Correct letters will be circled.
Incorrect letters (other than incorrect stem length) will be sliced.

Test #2. Circle correct matches--slice incorrect matches

Test #3. Circle correct match--slice incorrect match.

Figure 3. Data sheet for recording discrimination tasks.
Task #1--ALPHABET LETTERS. The six lower case letters used for this test, p q o a b d, were manufactured by the Judy Toy Company and were 1 1/2 inches in height. The letters were constructed of cardboard and were white on the front side with green felt on the back.

An 8 1/2 by 11 inch white sheet of paper with the six letters printed in black and covered with plastic (Figure 5) was placed on the table in front of the child about six to eight inches away from the edge of the table. Six white cardboard three dimensional letters were placed in the space between the edge of the sheet and the edge of the table. The letters were placed haphazardly and in a scattered fashion. The child was asked to match the loose letters on the table to the black letters on the white sheet in front of him.

If the child placed the letter correctly, the correct choice was circled on the data sheet (Figure 3, p. 46). Incorrect choices were recorded with a slash. If the child inverted a letter and did not discriminate the stem length, this was recorded by slashing the stem only (e.g., by turning the letter p around, it becomes d and visa versa and by turning the letter q around, it becomes the letter b and visa versa. There was, however, a 3/16 inch difference in the stem length of the letters p and q and the letters b and d). Each correct placement counted as one point. If a placement was correct, except for the slight difference in stem length, the placement was counted as 1/2 point. The number correct was added into the total of all three tasks.
Task #2--FACES. A series of six smiling faced outlined in black on 2 1/2 by 2 1/2 inch flat blacks were lined up in front of the child. Three faces were next to each other, then there was a 2 1/2 inch space and three more faces:

![的笑容](image)

Figure 4. Spacing of face blocks

This space was left because the author felt it would cause less visual confusion and aid in discrimination.

The order of the faces was decided arbitrarily; however, once the order was decided, it remained the same for all children. The author provided the child with one face at a time. Each face was to be placed on top of the identical face in the group on the table. Correct matches were circled on the data sheet and incorrect matches were slashed. The number correct was added into the total of all tasks.
Figure 5. Matching sheet for letters.
Figure 6. Faces used for discrimination task
Task #3--HOUSES. Each child was given a 6 1/2 by 7 inch plaque of thin wood which had a series of six white houses with green doors and windows, and red roofs and chimneys painted on it. There were minor differences in the placement of the door, chimney and windows of each house.

The child performing the task was given the plaque with the houses plus six 3 1/2 by 2 1/4 inch wooden plaques each with a picture of a house which corresponded with one of the houses on the larger plaque of wood. The small plaques were to be placed on the identical house on the large plaque. Correct matches were circled and incorrect matches were slashed on the data sheet. The number of correct matches was added into the total score of all three tasks and placed at the top of the data sheet.

Pilot Study

Originally the author intended to use letters only for the discrimination task. Therefore, a pilot study was run to determine which combinations of letters could be most effectively used to test discrimination for the main study. Forty-five combinations of letters were put together. Of this number, 15 were selected and traced with the Judy Company letters. Four of these combinations: mmh, ltvu, utvl, pdqb, dbqb, dbqp, were traced and cut out of black construction paper and placed on white 5 by 8 inch white index cards. One combination: mhn, was cut out of red construction paper and placed on a 5 by 8 white index card. Two more combinations: bgdqh and pqoabd were cut out of black construction paper and mounted on pieces of 8 1/2 by 11 white construction paper.
Figure 7. Houses used for discrimination task
The author then selected three children from the lab who had been enrolled for one quarter and had demonstrated a familiarity with letters. All three of these children, for example, could spell and/or recognize and name the letters in their own name. An additional two children, whom lab instructors verified were not familiar with letters, were used for the pilot study. These five children: Gordon, 4.3 years old; Steve, 4.4 years old; Russel, 4.3 years old; Ben, 3.3 years old and Holly, 3.1 years old were not to be used in the main study sample.

Individually, each of these children was given each of the combinations of letters mentioned. With the exception of one child placing the letters incorrectly because of stem length, the three older children placed the letters on each combination correctly. The two younger children placed the letters on the three-letter combinations correctly, but had trouble with the two longest combinations which consisted of six letters each. They confused the a and o and could not discriminate stem length.

It was therefore concluded that letters were a sufficient discrimination task for less mature children, but not for the three older children.

The author then selected the six smiling faces and six houses and gave the sets of each of the three children to match. Gordon matched four of the six faces correctly and all the houses correctly because he had had prior experience with the houses. Steve matched four of the faces correctly and two incorrectly and matched four of the six houses correctly. Russell matched half of the faces correctly, but could not match any of the houses correctly.
Therefore, it was decided that it would be necessary to give each child in the main study all three tests: Alphabet letters, Faces and Houses. It was felt after the pilot study that these three tasks varied enough in difficulty to challenge children with all developmental levels of discrimination.

**Main Study**

**Collection of art work**

The second week of Spring Quarter, 1970, after the children had time to become settled in the Laboratories, the author began collecting children's art work from each Laboratory in the following manner:

The double easel was placed inside the Laboratory in which art work was to be collected. One cup each of newly mixed red, blue and yellow paint was placed in each of the easel troughs in a random order. A crayon was placed on top of the easel to use to write the child's first name on his pictures.

At one end of the large figure-eight-shaped table were open boxes of eight large crayons. The number of boxes opened varied with the number of children. Effort was not made to provide each child with his own box of crayons, but there were enough crayons so that each child would have easy access to them. A blank piece of paper was placed on the table in front of four or five empty chairs.

During freeplay the children in the Laboratory who were in the sample were invited to paint, draw or color a picture. The children were told that the author would need to keep two easel and two crayon pictures, but that the children could take home "extra" pictures which they made.
Those children in the lab who were not in the sample were not invited to use the easel or crayons at this time. However, if they chose to paint or color as part of their free choice activities, they were welcomed to do so and were not prevented from using the easel or crayons.

At the conclusion of the first week of collecting pictures inside the lab, the author moved the easel, a small table and four chairs into a hallway because of the many problems encountered in trying to collect pictures within the lab setting. There was no way the author could control which children in the lab colored and painted and aggressive children won out over new and/or reticent children. When so many activities were before the child, they often did not want to paint, or once at the easel or crayon table, they often spied an activity they would rather take part in and would leave the art activity.

Children occasionally interfered with each other. Teachers were eager to help but were not familiar with the plan of study and therefore often invited non-sample children to paint, forgot to write names on pictures and were sometimes overbearing in their efforts to bring children to the art activity. Supervising teachers occasionally extended freeplay or rearranged the days activities in order to accommodate the author and the collection procedure.

The author had no way to be at the easel and crayon table at the same time and could not observe art process, could not keep easel paints replenished, and could not be aware of comments and conversations by the children while they were working. As a result, the collection procedure was moved to the hallway.
During freeplay, one to four children were invited to go to the hallway with the author to paint pictures. The author invited only those in the sample to go paint, however, if two sample children were intently playing with a child not in the sample, the author allowed the non-sample child to go to the hallway with his friends to paint a picture.

On two occasions a new child was afraid to go with the author to paint. In one situation, the child chose a friend he felt secure with to go along to paint with him. In the other situation, a teacher went with the child to the hallway and stayed until the child felt comfortable about letting the teacher leave. After a child had once been out in the hallway to paint and color, he did not hesitate to go with the author a second time. Many children requested to return to the hallway several times and many children expressed a desire to stay and continue working much longer than time would allow. The author felt that using the paint and crayons with other children was a social experience for the children as well as a working experience.

When the children reached the hallway containing the easel and table, they were given a choice as to which medium they wanted to use first, the paint or the crayons. They were told the author needed the children to make pictures with both the crayons and the easel paints. If the author had not collected a picture from the child during the first week in the lab, the child was encouraged to make two easel and two crayon pictures. If the child did not want to be detained that long, or if he was not interested in one of the media or if, for some reason, it was necessary to return to the lab before
a child had finished working, the child was invited at a later date to go to the hallway to paint.

If there were a group of children working together in the hallway and one child had painted or colored the number of pictures needed for the study but had to wait for the other children to finish pictures before they could be returned to the lab, the child was invited to continue painting or coloring another picture until the children were all finished and ready to return to the Laboratory together.

**Discrimination task**

After all pictures had been collected for the study, the children in the sample were taken individually to the small table in the hallway to do the discrimination tasks.

On the way to the hallway, the child was told that instead of making a picture this time, he was going to do a puzzle or a game.

**Task #1--ALPHABET LETTERS.** The letter sheet and the alphabet letters described in the section concerning the instrument were on the table when the child arrived. Most children went right to work matching the cardboard letters to the black patterns without any instructions or prodding. If a child hesitated in starting he was directed to match the letters in front of him to the black letters on the sheet. If he still hesitated, the author would pick up one of the white letters and say to the child: "Put this letter on top of the black letter (pointing to the letter sheet), which looks just like this letter." When the first letter was placed, the child was told to go ahead and
do the same with all the letters. Since it was easy for a child to turn the p, q, b, and d, over and make different letters, it was necessary to remind the children to keep the white side of the letter facing up.

**Task #2--FACES.** When the letters had been matched, the letter sheet was removed and the six smiling faces were placed in front of the child. The author then arbitrarily handed the child one face, pointing to each facial feature and said: "Look very carefully at the eyes, nose, and mouth on this face and put this face on top of a face whose eyes and nose and mouth look just like this face." After the child had placed the face on top of one of the faces lined up in front of him, he was given each of the remaining faces one at a time until all the faces were matched. The faces were then moved away and the houses were presented to the child.

**Task #3--HOUSES.** The wooden plaque with the six houses was set in front of the child and all six small plaques with the individual pictures of the houses were laid next to the large plaque. The author randomly picked up one of the small plaques and said: "Look very carefully at the chimney, the door and the windows of this house (the author pointed to each house part as it was named) and put it on top of a house on this board which has the chimney, door and windows (author again pointed to these items) in exactly the same place." The child then faced the task of deciding which house in the cluster of six matched which house on the board. When the child had completed this task, he was taken back to his lab.
FINDINGS

The findings appear to provide generalized support for the hypotheses of the study. There are some exceptions, however, and while the findings do provide support for the hypotheses in general, there are some areas in which the findings provide only moral support.

The first hypothesis was that those children who have been in Utah State University Child Development Laboratory for a longer period of time would demonstrate more advanced stages of art development than children who were enrolling in the lab for the first time. The findings indicate that those children with longer Laboratory experience, the third quarter group, created a greater frequency of art patterns than did the new children, or those who were in the Laboratory for their first quarter of experience. See Table 2.

Table 2. Total frequencies of art patterns by enrolled time in the Laboratory

<table>
<thead>
<tr>
<th>Children--Enrolled Time</th>
<th>Frequency of Art Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced Group (3rd Quarter)</td>
<td>427</td>
</tr>
<tr>
<td>New Children (1st Quarter)</td>
<td>373</td>
</tr>
</tbody>
</table>
The findings also indicate, however, that experience in the Laboratory, alone, does not account for the advancement of children through the levels of art development. Table 3 indicates that there is essentially no difference between the new and experienced group of children in frequency of pictorial representations found in their art creations, beyond the scribble and diagram stages.

Table 3. Frequencies of pictorial representations by enrolled time in the Laboratory

<table>
<thead>
<tr>
<th>Children--Enrolled Time</th>
<th>Type and Frequency of Art Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sun Image</td>
</tr>
<tr>
<td>Experienced Group</td>
<td>4</td>
</tr>
<tr>
<td>New Children</td>
<td>3</td>
</tr>
</tbody>
</table>

Most of the new children whose art creations included pictorial representations were four years old, which makes them among the oldest group of children in the Laboratory. The two who had not reached the age of four were older than three and a half years. Maturation, therefore, seems to be an influence on children's development through the various stages of art. To test the influence of age on such growth, children were grouped according to age and level of art development. Those whose art scores were above the mean were classified as high scorers, and those below the mean were classed
as low scorers. The two groups were compared in terms of the influence of age. See Table 4.

Table 4. Age of children and level of art development

<table>
<thead>
<tr>
<th>Age</th>
<th>Level of Art Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Three years old</td>
<td>5</td>
</tr>
<tr>
<td>Four years old</td>
<td>21</td>
</tr>
</tbody>
</table>

$X^2 = 5.16$  
$df = 1$  
Level of Significance .05-- .02

Chi Square analysis of the data in Table 3 indicates that the element of chance does not appear to account for the distribution of art development scores by age. Age must be considered to be a factor in such development. It appears that maturational forces do exert an influence on the rate of development through art stages.

Experience and learning, however, cannot be discounted as influences on children's art development. In the classification of Learned Art Forms, which includes the use of letters and numerals in art creations, the children with longer enrolled time in the Laboratory scored higher than the new children on almost a three to one basis. (Tables 5 and 6.)
Table 5. Frequency of learned forms by enrolled time in the Laboratory

<table>
<thead>
<tr>
<th>Children—Enrolled Time</th>
<th>Frequency of Learned Forms as Art Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced Group (3rd Quarter)</td>
<td>29</td>
</tr>
<tr>
<td>New Children (1st Quarter)</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 6. Frequency of each learned form according to experience in the Laboratory

<table>
<thead>
<tr>
<th>Learned Form Patterns</th>
<th>New Group</th>
<th>Experienced Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated letters from child's name</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Name written on paper by child</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Isolated letters not in name</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Numerals</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Hand tracings</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Other forms (a star pattern)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>

Apparently the kinds of experiences that children encounter in the Laboratory influence their ability to visualize, reproduce and create letters and numerals which have meaning to them.

The findings indicate that maturational factors must be included among the forces which influence art development, but that experience in the Laboratory does influence some aspects of growth in the area of art expressions and creativity, particularly in the child's ability to use learned art forms in his artistic creations.
The second hypothesis stated that children in higher stages of art development would be able to work through more complicated discrimination tasks. The second hypothesis stated that children in higher stages of art development would be able to work through more complicated discrimination tasks. The findings seem not to support this hypothesis (Table 7).

Table 7. Relationship between discrimination scores and level of art development

<table>
<thead>
<tr>
<th>Discrimination Scores</th>
<th>Level of Art Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>High</td>
<td>15</td>
</tr>
<tr>
<td>Low</td>
<td>11</td>
</tr>
</tbody>
</table>

Apparently, children of the age level represented by the Laboratory group are not dependent upon their discrimination powers as they go about the task of expressing themselves in their art creations. It may be that other factors, such as the child's enjoyment of the art material for its own sake, his exploratory use of the materials available to him, and his emotional state at the time, are more influential forces than discrimination ability, among children of this manipulative and exploratory age.

The third hypothesis stated that art development stages of crayon drawings would be more advanced than the art stages demonstrated with easel paint. The findings provided support for this hypothesis.
Scribbles are considered to be the beginning of art development and as Table 8 and Figure 8 show, there is a greater frequency of scribble patterns demonstrated with easel paints than with crayons. Roving lines, zigzag waving lines, multiple and spread-out circular lines and the spiral pattern were slightly more frequent in crayon drawings.

Table 8. Frequency of scribble patterns with easel paint and crayons

<table>
<thead>
<tr>
<th>Medium Used</th>
<th>Total Frequency of Scribble Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easel Paint</td>
<td>381</td>
</tr>
<tr>
<td>Crayons</td>
<td>263</td>
</tr>
</tbody>
</table>

As shown in Table 9 and Figure 9, all art stages beyond the scribble stage occurred with greater frequency in crayon drawings than in easel paintings.

Table 9. Frequency of art patterns, beyond the scribble stage, which occurred with easel paint and crayons

<table>
<thead>
<tr>
<th>Medium Used</th>
<th>Frequency of Other Art Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easel Paint</td>
<td>23</td>
</tr>
<tr>
<td>Crayons</td>
<td>134</td>
</tr>
</tbody>
</table>
Figure 8. Comparison of frequencies of scribble patterns by use of easel paints and crayons
Figure 9. Comparison of frequencies of advanced art patterns by use of easel paints and crayons.
Advanced art patterns demonstrated with easel paint included diagrams, isolated letters from children's names, combine/aggregates and a hand print. There were no sun images or pictorial representations painted at the easel.

All of the art stages being considered for this study were demonstrated in crayon drawings.
DISCUSSION

The findings show that age, maturation and experience influence different aspects of children's art development.

The greater frequency of art patterns among children with experience in the Laboratory may be due to a feeling of freedom and familiarity with crayons and easel paints which new children have not had time to acquire.

When considering combined pictorial representations, the most advanced art stage considered in this study, the two combined pictorials were drawn by four year old boys, one who had Laboratory experience and one who was new to the Laboratory. There was an additional combined pictorial which is listed as a human drawing because the human was the item the analyzers could identify. However, at the time the picture was drawn, the child told the author it was a picture of a person on a boat; therefore, only the author knew the picture was actually a combined pictorial (see Figure 15, page 85).

The boy who drew this picture was also a four year old.

The four year old boys showed greater activity in all stages of art than four year old girls or than younger children. Four year old boys had the greatest amount of single pictorial representations and all three combined pictorials were done by four year old boys. Although it must be noted that 18 of the 24 boys in the study were four years old.

The stage of art development which did show a marked difference
between the children who had been in the Laboratory for two and the children just entering the Laboratory was the learned form stage. The greater interest shown by third quarter children in letters and numerals may well be a direct result of their experiences in the Laboratory. For the past 18 months, the children had been exposed to letters in their first names written on their lockers, as well as watching teachers write it daily on their creative art work. The children also had been exposed to many numerals and alphabet letter activities through the conceptual and perceptual development equipment located on the shelves in the Laboratory for the children to explore and manipulate when they desired. (See Figure 10, page 70.)

Kellogg (1970) believes that children teach themselves to write. This study would support that belief as shown by the children who are interested in reproducing forms. The children in the Child Development Laboratory are given no formal instruction on how to write letters and numerals. Yet, through informal exposure to both letters and numerals, through activities and equipment in the Laboratory, the children are experimenting with writing them. More specifically, the children were experimenting with writing the letters in an arrangement which spells their names.

As will be discussed later, it was very difficult to devise a method of accurately comparing children's discriminatory abilities with their developmental art stages. It was, however, reasoned that if children in higher art stages performed high on discrimination tests, then children in lower stages of art development would perform lower on the discrimination test. The
Figure 10. Pictures demonstrating experimentation with letters in children's art work.
difference between the mean scores of the art development stages and the
discrimination tests were so slight that the author could not consider them
adequate for proving the hypothesis. Perhaps a larger sample, or with a
more refined testing procedure, a greater correlation could be found be-
tween a child's discriminatory abilities and his stages of art development.

In watching the children work, and after reviewing some of the
literature (Kellogg, 1969; Lowenfeld and Brittain, 1970; Aschuler and Hattwick,
1947), the author feels that a great deal of the art work done by young
children, prior to the definite and planned drawing of diagrams, is mainly a
physical and motoric activity and an activity which provided the children
with an opportunity to utilize a variety of media which they could explore
and manipulate.

The coordination of the eye, the brain and the hand do not usually
occur in children's art work until around the age of four (starting around
age three and extending into age seven). If the eyes and minds of children
are not fully grown until age six or seven, it is likely that prior to this
time, the discriminatory processes are still quite immature, but rapidly
undergoing change.

The children made very few comments while doing the discrimina-
tion tasks, perhaps because of the concentration needed to perform the tasks.
Rarely did a child name any of the letters he was matching. Bradley was
the only child who named all the letters as he placed them on the sheet. A
couple of children would identify a letter as being in their name, but would
not give the name of the letter.

The six smiling faces used for the task were selected from a set of
24 smiling and frowning faces manufactured by Creative Playthings Company.
As the author worked with the children, it was realized that perhaps a more
extensive pilot study should have been conducted with various combinations
of faces to determine the degree of discrimination needed for certain com-
binations.
When matching the faces and houses, it was interesting to note that some children were unfamiliar with the word "chimney." Also, occasionally a child did not understand the concept "on top of" and this needed to be demonstrated for him. Sometimes if a child was frustrated or bored with the matching task, he would stack all the houses or all the faces on top of each other and consider himself finished with the task.

The children scored consistently higher on the letter-matching portion of the task. However, each task was not analyzed and compared separately with the art work. Perhaps such a comparison would produce different results in this portion of the study.

Analyzing art work. As mentioned earlier, it was very difficult to devise a method for comparing children’s art work to their discriminatory abilities because of the many aspects of children’s art.

First, it was difficult to differentiate between the following scribble patterns:

Vertical and diagonal lines
Curved and roving zigzag/waving lines
Overlaid and circumference multiple-line circles and spread-out circles

It was also sometimes difficult to decide if a diagram should be classified as a circle or a square. An emergent diagram stage needed to be included in the analyzing because at least four pictures demonstrated emergent diagram patterns, or patterns which were beyond scribbles but not quite diagrams.
Great difficulty was found because every child had different combination of scribbles. Even if two children had similar combinations of scribbles, as shown in Figure 12, they differed greatly in complexity and placement patterns. Also, the effects of discrimination and/or maturity upon the exactness of representations in pictures could not be controlled. For example, on the data sheets, both June and Dawnie are listed as drawing humans with eyes, nose, mouth and hair. June's human was listed with dimentional legs and feet, and Dawnie's was listed as having stick limbs. (The limbs for both pictures extended from the head.) Although both pictures were listed with almost identical features on the data sheets, the drawings were very different. (See Figure 13.)
The above pictures both demonstrate vertical, horizontal, and diagonal lines.

Figure 12. Pictures demonstrating similar art patterns of different complexities
Dawnie's figure took up two-thirds of the paper while June's figure was about two inches in height and was drawn upside down on one corner of the paper.

Further, as shown in Figure 14, a child might draw one picture of a representation and another very different picture with scribbles only. The author had no way of controlling the many variables which should be considered when analyzing children's art.
Figure 14. Different art stages demonstrated by the same child
The findings show there was a higher total frequency of scribble patterns in easel painting than in crayon drawings. In all other stages of art, the crayon was the most popular instrument and more advanced stages of art development were demonstrated with crayons. This caused the author to think that children use media in different ways for different reasons.

**Easel painting.** When examining the children’s pictures for art patterns both examiners and the author found that it was more difficult to identify the patterns in easel (paintings) than in crayon pictures. One main reason for this difficulty is that in most of the 192 pictures analyzed, the easel paint was over-layered. In other words, the child painted over the same spot of the paper several times and usually with different colors.

The tendancy children have to overlay paint at the easel leads the author to believe that children experience easel painting as a process. The paint is a medium with which to experiment, and which can be manipulated. It is a medium which allows for free large-area movements which are only limited by the size of the easel paper. The patterns, lines, and results are not permanent, but the child can change as often as he wishes and in anyway he wishes before the paint dries. Some children did not use the brush for stroking paint in any direction or pattern, but rather squished the bristles around in the paint on the paper. One child very carefully held the brush close to the paper and gently waved the brush across the paper letting the paint drip as it went.
Not only did children mix paint and colors through their overlaying process, but some children were more interested in mixing paint in the cups and dumping it back and forth into the different cups and stirring it, than they were in using the paint for painting a picture on easel paper. Two children went as far as to dump the paint into the easel trough to mix.

It was not uncommon for a child to use two or three brushes at one time. Sometimes the children would paint with the right hand and then switch the brush to the left hand and paint left-handed for a while. On one day the author observed five different children who painted with a brush in the right hand and a brush in the left hand simultaneously. On this particular day, the author felt at least two of the children tried this because they had watched another child do it. However, on all other occasions children spontaneously used a brush in the left hand and one in the right hand without having observed other children paint in this manner during the study. Sometimes children used no brush at all, but smeared paint on the paper with their hands.

There were also a few occasions on which children held two or three brushes in one hand at one time. The author did not control the frequency which these events occurred nor were the pictures which resulted from this process singled out or labeled for special analysis.

Of the 76 easel pictures examined, only one was identified as being in the representational stage and this was not identified as such by the examiner, but the child told the author his picture was of a telephone. Two easel pictures demonstrated diagrams and four demonstrated letters; all
other pictures done with easel paints were strictly records of scribble patterns. This further indicates that easel paint might be a medium to use for free-expression, manipulation and large muscle movement for young children. This is not a medium a young child usually tries to control as a means of drawing representations and writing letters until he has mastered this to some degree with the crayons.

Crayon drawings. In analyzing pictures, it was easier to differentiate art stages done with crayons than those done with easel paints. Perhaps to a child, a crayon is much like a pencil and therefore should be used for more adult-oriented work such as making letters, numbers and representational forms.

The author feels the children could have been given a box of crayons of assorted sizes and colors and that the children would have enjoyed the activity as much as they did the eight large new crayons. Individual children would have demonstrated the same art patterns and stages as they demonstrated with large crayons.

Since two children could work at a time at the crayon table, they could converse with one another, observe each others work, and comment on one another's pictures. On two occasions a child began pounding dots onto his paper with crayons and the child sitting opposite imitated the action. However, even though the action was imitated, the placement of the dots and the resulting pattern could not be duplicated.
At other times, children talked about what they were painting or drawing and a child nearby would say "I'm going to make that too." However, the results were always different. It is evident that at ages three and four, few children have the ability to duplicate exactly another person's lines or art work, even though he may attempt to do so. This may account for the reason a child cannot make letters or numbers that are always legible at this age.

There were a few times when the author felt children agree to draw or paint pictures only because the author requested it. For example, some children expressed a preference to paint at the easel but would agree to use the crayons after painting at the easel because the author requested it or because he needed something to do while waiting for a turn at the easel or waiting for other children to return to the Lab.

Early in the study, one of the three new boys who was dropped from the study was willing to do many pictures with the crayons but refused to work with the easel paints. Another new child drew many crayon pictures before feeling comfortable enough to try the easel paints.

On the other hand, many new children were fascinated with the easel paints and used them several times before being content to return to the crayons with which they were familiar. When the double easel was placed in one lab the first week, two new children were so excited about the easel, which was already occupied by three children, that the two new children insisted on working together on the same piece of paper. Neither could be persuaded to wait
until there was another space at the easel and both appeared to enjoy working
together on the same paper; much conversation went on between them as they
worked.

Problems Encountered by Taking Groups of Children Out to Paint and Color

The author found that, although there was enough easel and table
space to accommodate four to six children in the hallway, having more than
two children in the hallway at a time presented many problems.

The author could not listen to children's comments and conversations,
and be aware of art processes the children were going through, at the same
time she was attempting to be aware of such things as the order in which the
children chose easel paints and how crayons and brushes were held.

It was difficult to time the completion of the art projects so that all
children finished at the same time. Some children had to sit idly, wander
around, or make many pictures while they were waiting for slower children
to finish up pictures. If a child in the group had to be returned to the lab be-
fore the rest of the group was ready, a decision had to be made as to what to
do with those children not ready to return. Taking more than two children
out at one time did not save time and often took more time.

The author would not take non-sample children with sample children.
The non-sample children were pleasant to have, but it took extra time and
materials to include these children in the art activities.
Color sequence. On four separate days, the author intentionally arranged the paints on the easel with the red paint on the child's right, yellow in the middle and blue on the left. The author then recorded which colors each child started with. Twenty-four children painted 26 pictures at the easel during those four days with the following results:

- 13 pictures were started with Red
- 1 picture was started with Yellow
- 11 pictures were started with Blue

This would support studies (Brunson, 1967; Cocohran, 1954) which indicate children at ages three and four years select the paint located at the end of the easel first, rather than selecting paint because of color preference.

General comments on art. Very few children conversed about their pictures while they were working. Many children discussed events that had occurred at home or school as they worked, but they did not attach their comments to what they were putting on paper. There were some children who did draw pictures that told a story or they made comments that in some way identified an event in their picture. Following are four such pictures and the child's comments:
Ricky: "You're on fire because you didn't have your tennis shoes on when lightening hit you."

Figure 15. Rickey's picture and comments
Terrall: "This is where we went camping.  (Terrall drew as he talked.) This is Edmonton (center of picture).  Then we drove for a long way (all the circular patterns around the center mark), and had a tent here that we stayed in (the object in the lower left corner)."  Terrall went on to talk about the camping trip and about Edmonton where they live only during the summer.

Figure 16. Terrall's picture and comments
Paul became almost silly as he drew this picture and as he worked he laughed and made up a dialogue about the two cars which had to be wound-up before they would go anywhere, but they were going to run into each other so he decided to make a stop sign so they wouldn't crash.

Figure 17. Paul's picture and comments

As previously mentioned (Figure 14, page 84), it was interesting to note that the same child would occasionally display very different art stages in different pictures. On the other hand, some children's pictures were repetitious of the same patterns. (See Figure 18.)
Figure 18. Repetitious art patterns
Art patterns. As shown in Figures 8 and 9, page 65, 66, the vertical line was by far the most frequent scribble found in both easel and crayon pictures, with diagonal, horizontal, curved lines being next.

Kellogg (1969) states that these patterns are the easiest to make, because of their high frequency in the 192 pictures analyzed for this study, the author would agree with Kellogg.

Circles/ovals were the most frequent diagram patterns. Square/rectangles occurred about half as often as the circles and the rest of the diagrams occurred rarely. The circle is probably the easiest diagram to draw and is likely to occur in a child's art creations before squares.

It appears that children will draw sun images and suns with faces before they draw humans.
The human is the first representation which seems to occur in children's art work. The author is inclined to feel that children may start by drawing humans because they are one of the easiest things for young children to conceptualize, and with which to identify. At this age a child is more aware of his eyes and legs than of trees and buildings. Perhaps this is the point in a child's stage of development when a regulated coordination is beginning to take place between the hand, the eye and the brain.
Figure 20. Stages of art development progression from sun images to human with a body
Figure 20. Continued
Every child has his own interpretation and variations in how he draws people.

As a matter of fact, individuality is one of the most pronounced features of young children's art.
SUMMARY, CONCLUSION AND RECOMMENDATIONS

FOR FUTURE STUDY

Summary

The purpose of this study was to explore different aspects of young children's art work, to learn what affects the Utah State University Child Development Laboratory experience has on children's art work and to investigate the relationship between young children's discriminatory abilities and their stages of art development.

Twenty-four children who were new to the Laboratory experience and 24 children returning to the Laboratory for a third quarter, comprised the sample of 48 children. A discrimination task consisting of matching alphabet letters, faces and houses was given to each child. Four pictures, two painted at the easel and two drawn with crayons, were collected from each child. This made a total of 192 pictures. The pictures were analyzed according to the frequency of art patterns and the degree of art development. The art stages and art patterns were compared to the discrimination scores of each child. The pictures for the children who were new to the Laboratory were compared to the pictures of the children who had been in the Laboratory for at least 18 weeks, and easel paintings were compared to crayon drawings for degree of art development.
It was found that children who have been in the Laboratory for 18 weeks or longer demonstrated a greater frequency of art patterns. However, the new group of children drew an equal number of pictorial representations or advanced art stages. All children in advanced stages of art were three and a half years of age or older. Therefore, it was felt age and maturation play an important part in a child’s art development. However, in the area of learned forms, it was found that children with experience in the Laboratory used more letters and numerals in their art work than those children who had not had Laboratory experience. It was felt that the greater interest in learned forms expressed by the third quarter group of children was a direct result of their experience in the Utah State University Child Development Laboratory.

It appears that discrimination, at the age of three and four years, are not important factors influencing children’s art. There was insignificant relationship between children’s discrimination scores and their level of art development.

Evidence indicated that crayons are used for more advanced stages of art and that easel paint is an exploratory medium for the young child. Children demonstrate advanced stages of art development with crayons earlier in their art experiences than they do with easel paints.

Conclusion

From this study it may be concluded that children incorporate into their art those symbols and representations which have meaning to them.
The symbols selected by them as a product of maturational and life experience influences. Young children with typical life experiences depict sun images, persons, and houses, but children who have encountered learning opportunities in the Child Development Laboratory are more likely to add letters and numerals as forms and shapes which have personal meaning to them. In addition, the level of development demonstrated by a child is influenced by, and to some extend depends on, the nature of the media in use at any particular time.

**Recommendations**

1. At present, there is little research dealing with children's art work prior to the representational stage. More extensive research needs to be done on children's art work prior to this stage of art development.

2. In order to reinforce the finding of this study, which demonstrated that children with experience in the Laboratory incorporate more learned forms in their art work than children without Laboratory experience, further study should be made of the processes through which children progress in the area of learned art forms.

3. A study should be designed in which both crayon and easel paintings are done on the easel and in which both are also done on the table and then compared for stages of art development to see if the angle of the paper and of the child's arm influences which art stages a child will demonstrate.

4. A broader, more long-range study needs to be designed to see if children of all cultures go through the same stages of art development and at the same ages.
5. A more extensive study could determine the relationship between environment, economics and social class, age, sex and various experiences and the rate at which children advance through stages of art development.

6. Further study on how children hold their brushes and/or crayons and when and how they make the transition from the fist-grip to a three-finger hold. Such a study might give more insight as to when and how a child's mind, hands and eyes begin working together in art activities.

7. More needs to be known about the influence of paper-size on children's creativity.

8. A study could further investigate the affect stencils, coloring books, and patterned drawing has on young children's creativity. The creativity of children who have continually used coloring books could be compared to children who rarely or never use coloring books. A study could be designed to see if children actually stay inside the lines they have drawn themselves better than the lines someone else has drawn for them.

9. More needs to be known about the relationship between children's visual discrimination and their physical development.

10. Perhaps a more extensive study using different combinations of the 24 smiling and frowning faces\(^1\) could be used to discern discrimination abilities. How many faces can a three or four year old visually deal with at

\(^{1}\)Manufactured by Creative Playthings, Princeton, New Jersey.
Would a combination of smiling and frowning faces be easier to discriminate between than a series of all smiling or all frowning faces? Would discrimination be easier or more difficult if the faces were arranged so that all faces with the same kinds of facial characteristics were together or if they were separated by faces with different facial features? Do children usually match the same faces incorrectly because of specific facial similarities? What facial characteristics does a child look at first, the eyes, the nose, or the mouth? Do most children identify or look at the same facial characteristic first?
LITERATURE CITED


APPENDIXES
Appendix A

Art Analyzing Data Sheet

Child's Name _______________________

Picture Number _________

Examiner:

Basic scribbles

1. DOT

2. Single and Multiple VERTICAL lines

3. Single and Multiple HORIZONTAL lines

4. Single and Multiple DIAGONAL lines

5. Single and Multiple CURVED lines

6. Open and Enclosed ROVING lines

7. ZIGZAG or WAVING lines

8. Single and Multiple LOOP lines
9. SPIRAL line

10. Overlaid and Circumference Multiple-line CIRCLE

11. Spread-out CIRCULAR lines

Diagrams

1. RECTANGLE and SQUARE

2. Crossed and Imperfect uncrossed OVAL and CIRCLE

3. TRIANGLE

4. GREEK CROSS

5. DIAGONAL CROSS

6. ODD SHAPES
COMBINES and AGGREGATES

1. **COMBINE** (a unit of TWO diagrams—separated or joined)
   D2--oval and circle

   ![Diagram](image1)

   **List Diagrams Used:**

2. **AGGREGATES** (a unit of THREE or more diagrams separate or joined)

   ![Diagram](image2)

   **List Diagrams used:**

--- --- --- --- --- --- --- --- --- --- --- --- ---

**SUN IMAGES**

1. **Beginning Sun**

   ![Diagram](image3)

2. **Human/Sun**

   ![Diagram](image4)

--- --- --- --- --- --- --- --- --- --- --- --- ---

**SINGLE PICTORIAL REPRESENTATIONS**

1. **HUMAN**

   a. **FACE ONLY**

   ![Diagram](image5)

   **Other:** __________________________
b. FACE WITH LIMBS EXTENDING FROM HEAD

- Stick limbs
- enclosed limbs

C. FACE, BODY WITH BODY PARTS ATTACHED

- Legs
- Hands
- Feet
- Fingers
- Arms
- Other: 

Is sex identifiable? _______ Yes _______ Female _______ Male

- No

Other comments about the Human Figure: ________________________________

2. ANIMALS

Is Animal identifiable? ________________________________________

3. BUILDING

4. VEGETATION

- Flowers
- Trees
- Grass
- Other

5. TRANSPORTATION

Name if identifiable: ______________________________________________

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
COMBINED PICTORIALS

Identify representations:

--- --- --- --- --- --- --- --- --- --- ---

LEARNED FORMS

1. LETTERS

Are these letters in the child's Name? _____Yes

_____No

2. NUMBERS

3. Other patterns

Name patterns: _____________________________

--- --- --- --- --- --- --- --- --- --- ---

ADDITIONAL COMMENTS FROM EXAMINER CONCERNING THE ATTACHED PICTURE.
Appendix B

Instructions for Art Analyzing Data Sheet

GENERAL INSTRUCTIONS FOR DATA SHEETS

1. Circle your name or initials at the top of page one and page two.

2. Circle the number in front of each form apparent., e.g.
   1. Dot
   2. Zigzag
   3. Horizontal line

DIAGRAMS

1. Rectangle
2. Circle
3. Greek Cross

3. BASIC SCRIBBLES: Circle the number of EVERY scribble that is evident.

4. DIAGRAMS: Circle the number of EVERY diagram which is evident. If more than one diagram is evident, list them as combines or aggregates in the following section.

5. COMBINES & AGGREGATES: A picture cannot be both an aggregate and a combine as defined on the data sheet. If the picture is one of these, circle which. List the diagrams used by listing the number with the letter D in front of it (e.g., D1 - rectangle, D3 - cross). If scribbles are also in the picture, but not a part of the combine, list the scribbles separately by listing the number with an S (S1-Dot, S7-zigzag, etc.). It is not necessary to list which scribbles are used to compose a diagram.

6. SUN IMAGES: A sun image can include diagrams 1, 2, 3, and 6 with a series of lines extending from the outer line or going through the diagram as the example on the data sheet shows.

7. SINGLE PICTORIAL REPRESENTATIONS: (a picture with one representation only)
Human - a. Face Only: Circle letter "a" if the child has drawn just the face or human head without limbs or body. Check the facial characteristics which are incorporated into the picture. It may be difficult to differentiate between the Human/Sun and the face only. If it is difficult, put the face in either category and make a note that it was difficult to classify.

b. Face with Limbs: This also may be difficult to distinguish from human/sun. If more than four lines extend from the head, it should probably be listed as a Human/Sun.

c. Face with body and parts: Check all parts used on the figure.

Add any comments or questions about the human figure which may be of interest or which might require further investigation.

Animals, Vegetation, Buildings, Transportation: In circling these items it is not necessary to identify those scribbles and diagrams used to create the animals, etc. If a scribble or diagram appears in ADDITION TO the representation, those should be listed under those categories.

If a diagram appears to be a picture or representation, but you are uncertain, either classify it as a pictorial representation and note your uncertainty—or—classify it as an aggregate and note that it might be an attempt at drawing a representation and identify which representation is being attempted.

8 COMBINE PICTORIALS: A picture which includes two or more of the above.

9. LEARNED FORMS: Circle the number if letters or numbers are evident in the picture. Check if the letters are or are not in the child's name.
If the child has written his name in the upper left hand corner where his name normally appears, the child has most likely written it for identification purposes and is not likely experimenting with letters as a part of his art experimentations.

If it appears that there are letters or numbers in the picture which might have been written by an adult rather than a child, note this on the data sheet.

Other Patterns: If any diagram or form is apparent which appears to have been learned from an adult or an older child, note and list it in this
section. For example, if a rabbit appears thusly the child has probably learned how to draw it from an adult rather than experimenting and using his own initiative.

10. Add any comments which you think are of interest or might be important concerning this picture.
VITA

Sally Lynn Miner

Candidate for the Degree of

Master of Science

Thesis: Levels of Art Development Among Preschool Children

Major Field: Child Development

Biographical Information:

Personal Data: Born December 19, 1939, in Magna, Utah, daughter of Leon Ross and Arlean Foy Miner.

Education: Bachelor of Science degree in Sociology with a minor in Child Development and Family Relations, Brigham Young University, May 30, 1963; Master of Science degree, Child Development, Utah State University, 1970.