A STUDY OF EARLY ELEMENTARY SCHOOL TEACHERS EVALUATIONS OF SELECTED EYE-HAND COORDINATION SKILLS OF KINDERGARTEN CHILDREN

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ABSTRACT

A STUDY OF EARLY ELEMENTARY SCHOOL TEACHERS EVALUATIONS OF SELECTED EYE-HAND COORDINATION SKILLS OF KINDERGARTEN CHILDREN

By

Emma Jane Scandary

Two forces have created concerns, on the part of researchers in Child Growth and Development, for the educational and emotional welfare of the early elementary school child. Societal circumstances appear to be creating pressures on the educational institutions of this country to accelerate the learner and his academic achievements. Commensurate with these pressures for educational acceleration has been an impetus for the early identification of the child who may not be able to keep up this academic pace. It was the purpose of this study to investigate the extent to which some of the expectations of the school compared with similar expectations based on research findings from the field of Child Growth and Development, and to discover the nature of the discrepancy between these two expectations, if such existed.

The eye-hand coordination skill development of Kindergarten children was selected as a focus point for this investigation. Three school-related eye-hand coordination

tasks which had been normed on large groups of Kindergarten-age children were selected for use in this project; Gesell's Copy Forms and the Ten-Dot Gestalt and Sentence Gestalt subtests of the Anton Brenner Developmental Gestalt Test for School Readiness. Samples of these tasks were gathered from 104 Kindergarten children within the Ingham Intermediate School District (excluding the City of Lansing) during the spring of 1967. These samples were evaluated by three experienced School Diagnosticians according to criteria established by authorities in Child Growth and Development. Fifteen samples of each of the three tasks, representing a full range of performance ability, were randomly selected and reproduced for presentation to teachers for their evaluation. One Kindergarten teacher, one First Grade teacher and one Second Grade teacher from each of the 37 elementary schools within the Ingham Intermediate District were randomly selected to evaluate these samples of children's work. The same samples were evaluated by the same teachers during October and May of the 1967-68 school year. These evaluations were analyzed for differences between the grade levels, teaching experience at grade level and academic training represented within the teacher group. The teacher evaluations were then compared with the evaluations of the children's work derived from specialists in Child Growth and Development. Where discrepancies in the evaluations of

these two groups existed, the nature of the discrepancies were noted.

Significant Findings

Analysis of the data indicates that these early elementary classroom teachers agree less than 50 per cent with specialists on the evaluation of the eye-hand coordination skills of Kindergarten children. The data showed that, although there was a wide discrepancy between the evaluations of the teachers and the specialists, there was little discrepancy among the evaluations of the teachers from the three grade levels. That is, the teachers of these three grade levels evaluated the children's work in much the same manner, as if adhering to a uniform evaluation standard of their own, rather than one more congruent with Child Growth and Development research. The data further indicated that teacher familiarity with the nature of the eye-hand coordination tasks used, proximity to the Kindergarten-age child (grade level of the teacher), teaching experience at grade level, and academic training were not significant as factors which might make a difference in teacher evaluations of children's performances in these selected tasks.

Where discrepancies existed between the evaluations of the teacher group and the specialists, the direction of disagreement was more apt to be one of under-rating the

child's performance on the part of the teacher. Kindergarten teachers appeared to be more negative in their evaluations of Kindergarten children's skills than did teachers of the First and Second grade levels. Comparison of the teacher evaluations over time revealed fewer "High" and "Unacceptable" performance ratings in the May evaluation than in October, indicating a tendency, on the part of this teacher group, to respond to fewer differences in children's performance abilities over time.

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Emma Jane Scandary

A THESIS

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Dedicated to:

Leonard W. Leipprandt

He believed in and
cared about people.

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The cooperation of the Ingham Intermediate School District staff and the administrators and teachers of the school districts making up that unit were largely responsible for making this project possible.

Special acknowledgment should be given to the four people whose encouragement and assistance to the writer were constant over the years of study and investigation: Dr. Louise Sause, committee chairman and friend; Mr. Robert Wells and Mrs. Elizabeth Hackel, co-workers on the Ingham Intermediate Schools staff; and Dr. Howard Splete, fellow graduate student. Appreciation is also expressed to Dr. Clessen Martin, Dr. Duane Gibson, and Dr. Charles Blackman, committee members, for their ideas and contributions to this study.

To my husband, Ted, and my children, John and Bob, go eternal gratitude for their assistance, patience, and faith.

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CHAPTER I

INTRODUCTION

Education has been besieged with multiple pressures for the past twenty years. Beginning with the Veterans Readjustment Act in October 1944 (more generally known as the GI Bill) federal legislation and funds made higher education and advanced training available to millions of Americans. This act eventually inducted into the professions and society an educated group of men and women from a broader social and economic base than ever before. The value of education, as a means of social and economic achievement, got its first big national thrust![1] The post-World War II years saw science and technology expanding each other in the areas of business and industry, while a new feeling of "internationalism" was infiltrating local governmental affairs through the almost instant communication and transportation vehicles. The orbiting of Sputnik (1957) was fast followed by a political need for competition with Russia and concerns about survival. Pressures steadily arose from political, technological and economic levels; from the need for more

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[1]Frank G. Jennings, "It Didn't Start with Sputnik," Saturday Review, September 16, 1967, pp. 77-79, 95-97.

manpower, the search for talent, increasing social mobility, industrialization, urbanization, and, more recently, an honest concern for the education of all--especially children and families in economically and culturally deprived areas.[2]

The target of these pressures has been the American educational system, and, more specifically, the children within the classrooms of that system.[3] The premise upon which a majority of the innovations and changes in the educational organization have been based during this past decade is that the child must learn more; he must learn it faster, and he must learn it earlier than ever before.[4]

Accompanying these external pressures to accelerate the learning process has come a revival of interest in the intellectual growth and development of the child with a commensurate concern for the identification and remediation of factors which may prohibit his effective and efficient learning in the academic setting. Indirectly, it is with these

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[2]Anton Brenner, "Readiness for School and Today's Pressures," The Inter-Institutional Seminar in Child Development; Collected Papers, 1966, The Edison Institute, 1967, pp. 1-24.

[3]Robert J. Fisher, "Assault Upon the Young," Childhood Education: Crucial Years in Learning, Association for Childhood Education, International, Washington, D.C., 1966, pp. 65-66.

[4]Caroline A. Chandler, "The Importance of the Early Years," Childhood Education: Crucial Years in Learning, Association for Childhood Education, International, Washington, D.C., 1966, pp. 3-5.

latter concerns and some of their broader implications, that this study is involved.

As more and more persons and agencies are caught up in the educational momentum to produce more and better students at an earlier and faster rate, it becomes necessary to focus briefly on the perceived factors which may prohibit children from fulfilling these expectations. A current diagnostic term which is popularly used to indicate cause for subnormal performance or potential difficulty in school learning is "learning disorder." This term has been used to describe any one or several of the following difficulties: aphasia, autism, brain disturbance, educational retardation, fine motor involvement, gross motor involvement, hyperkinesis, language disorders, minimal brain pathology, neurological handicap, organic involvement, perceptual handicaps, reading disabilities, and cultural deprivation.[5]

Despite the fact that no literature in the field of general or special education has, as yet, supplied a concise or common definition of the term "learning disorder" or "disability," its use is prevalent throughout the educational setting. New diagnostic tools have been developed for the identification and classification of such disorders among

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[5]Barbara Batemen, "Learning Disorders," Review of Educational Research, American Educational Research Association, XXXVI, No. 1 (February 1966), 93-119.

learners (i.e., Frostig, Kirk, Kephart).[6] Materials and methods of instruction for the prevention and remediation of such disorders have flooded the educational publishing market. Conferences, workshops, seminars, and in-service education experiences have focused heavily upon this new area of interest. Most classroom teachers are now familiar with the terminology of the field, if not its basic understandings.

Personal Interest

The interest of the writer in this study stemmed initially from her experiences as a consultant for the physically handicapped child in the regular classroom, and as a resource person to the public school teachers of these children. The advent of the new diagnostic tools for the identification of "learning disorders" and the subsequent popular use of terms or labels denoting possible causes for underachievement in the learning situation, has caused a marked increase in children referred to as "disabled" without the prerequisite medical and psychological evaluations. The problem appeared even more serious when the implications of erroneous labeling and the accompanying attitudes toward the child in the classroom were considered.

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[6]Marianne Frostig, The Marianne Frostig Test of Visual Perception; Samual Kirk, The Illinois Test of Psycho-Linguistics; and Newell C. Kephart, The Purdue Perceptual-Motor Survey.

The pressures to accelerate learning, the rising expectations of school achievement, and the push for the early identification of "learning disorders" creates questions concerning teacher evaluations of children's performance in the early grades. This also leads to speculation whether or not teachers might be exhibiting over-concern for, or negatively evaluating, behaviors and performance abilities which may be within the normal range of expectations as determined by child growth and development specialists. The efforts of these concerns have culminated in the study which is the basis of this dissertation.

Many of the diagnostic tools and remedial materials developed relative to the area of "learning disorders" deal with the eye-hand coordination skill development of the child. The ability to copy forms, letters, pictures, and numbers, is one of the many activities included under the category of eye-hand coordination development. Furthermore, copying is considered, by kindergarten and early elementary teachers, as being one of the more important skills in the evaluation of the child's ability to progress in the regular school setting. It was for this reason that the copying abilities of kindergarten children were selected as a criteria upon which the evaluations of teachers and child growth and development specialists will be compared.

In order to carry out this study the writer collected samples of kindergarten children's work, in the

nature of eye-hand coordination tasks, which were evaluated on the basis of criteria derived from child growth and development specialists. These samples were then submitted to kindergarten and early elementary public school teachers for evaluation. The results of these evaluations comprise the major portion of this study.

Statement of the Problem

The purpose of this study is to compare the evaluations of kindergarten, first and second grade teachers and child growth and development specialists on selected eye-hand coordination skills of kindergarten children.

Sub-Problems

A. To determine and identify what eye-hand coordination tasks are included as a part of the kindergarten and early elementary learning experience within the limitations of the area studied.

B. To determine if there are specific evaluations on the part of kindergarten and early elementary teachers concerning the skill of these eye-hand coordination tasks for the kindergarten age child.

C. To analyze these evaluations of eye-hand coordination skills compared to norms derived from the research on these skills by authorities in the field of child growth and development.

Hypothesis

The expectations of the school, as reflected in the evaluations by selected kindergarten, first and second grade teachers, concerning the eye-hand coordination skill development of kindergarten children are not congruent with the evaluations of these skills derived from research by child growth and development authorities.

Assumptions

A. That there are expectations (as ascertained by evaluation) of eye-hand coordination skill development for kindergarten children as perceived by kindergarten, first and second grade teachers.
B. That these expectations, referred to in A (above) can be determined and identified.

Limitations

A. This study will be limited to the thirty-seven elementary schools in Ingham County, Michigan, excluding the City of Lansing. One kindergarten teacher, one first grade teacher, and one second grade teacher from each of the thirty-seven elementary school buildings will be included in the study.
B. This project will attempt to study the evaluations of these kindergarten, first and second grade teachers on the eye-hand coordination development of

children through the use of selected copy task samples of kindergarten children's work.

Importance of the Study

The increase in pressures to accelerate learning with the commensurate need to identify early those children who might not be able to keep up the pace, creates the need for some tangible evidence that might indicate that the pace expected is unrealistic in terms of what is known about how children grow and learn.

A survey of the research and literature relating to teacher expectations and evaluations and the developmental aspects of eye-hand coordination in the child indicated that, individually each of these areas has much to offer on the subject, but nothing, to the knowledge of the writer, has been combined to challenge the issue. That is, research in the area of teacher evaluations of children's performance have been largely derived from questionnaire surveys or from observations of the teacher's behavior within the classroom. Research in the development of vision, gross and fine motor skills--eye-hand coordination--has been the result of longitudinal studies from which norms of expected age-grade behavior might be inferred. It appeared appropriate to this study that these two areas be combined and realistically compared for tangible evidence of discrepancy.

Possible Results of the Study

A. Provision for decreasing some of the early and/or erroneous labeling of children as "slow," "disabled," or "potentially disabled" in the learning situation.

B. Provision of a partial basis for the releasing of undue pressures and expectations on kindergarten and early elementary children.

C. Provision of a partial basis for the evaluation of present kindergarten curriculums and expectations.

D. Provision of a partial basis for the development of kindergarten curriculum guidelines which are more congruent with normal child growth and development patterns and expectations.

E. Evidence for the need of more effective study in child growth and development in teacher education programs.

Methodology

A. A search was made of the research and literature of child growth and development to find appropriate eye-hand coordination tasks that had been developed and normed on children of kindergarten age by authorities in this field. It was also considered important that these eye-hand coordination tasks be those that were related to the regular kindergarten and early elementary grade level activities. The Copy Forms, developed by Arnold Gesell and normed by Ilg

and Ames[7] of the Gesell Institute of School Readiness, and the Ten-Dot Gestalt and Sentence Gestalt (sub-tests of the Anton Brenner Developmental Gestalt Test of School Readiness) by Anton Brenner[8] of the Merrill-Palmer Institute met the requirements of the study.

B. A comprehensive sample of these tasks was collected from kindergarten children in selected areas of Ingham County during the last two weeks in May, 1967. These samples were submitted to three experienced, certified School Diagnosticians for rating and scoring on the basis of criteria established by child growth and development authorities. Derived ratings of High, Average, and Low, and sub-normal performances were arrived at through the use of the Mean and Standard Deviation of the scores obtained on the sample tasks. A random selection of fifteen scored samples, representing a full range of performance on each task, was gathered and reproduced to be presented for teacher evaluations.

C. Three booklets were prepared and submitted to each elementary school for teacher evaluations of the

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[7]Frances L. Ilg and Louise B Ames, School Readiness (New York: Harper & Row, Pub., 1965).

[8]Anton Brenner, Anton Brenner Developmental Gestalt Test of School Readiness (Beverly Hills, California: Western Psychological Services, 1964).

children's work. Each booklet contained fifteen examples of children's work on a particular task: (1) Copy Forms, (2) Copy Dots, and (3) Copy Sentence. Original approval for involvement in the research project was given by all Ingham County school district superintendents. Meetings were held with all elementary building principals to orient them to the project. In most cases, these principals cooperated wholeheartedly in the random selection of one kindergarten, one first grade, and one second grade teacher within that building to whom the booklets were given for their individual evaluations. Evaluations of the children's work were collected from the same teachers twice during the 1967-68 school year. The first evaluations were submitted to and returned by the teachers during the month of October, 1967. The second evaluation period was during the month of May, 1968.

D. The results of these teacher evaluations of the children's material were compared with each other on the basis of grade level, professional training, and the number of years of teaching experience. They were also compared with the criteria derived from child growth and development specialists. The October and May evaluations were compared for reliability purposes.

Plan of Study

In Chapter II the research and literature on the developmental aspects of eye-hand coordination and copying skills of children will be reviewed. In addition, teacher expectations and attitudes and their influence on children's performance and behavior in the classroom will be discussed.

Chapter III will be concerned with the specific efforts of the writer to understand the problem more thoroughly by making a direct study of the situation. The decision to use the Gesell Copy Forms and the Brenner Ten-Dot Gestalt and Sentence Gestalt as copy tasks for teacher evaluation will be reviewed. Sampling techniques will be discussed. The criterion and technique for scoring these tasks will be presented, followed by a description of the procedures used in preparing and submitting samples of these tasks for the kindergarten, first grade, and second grade teacher evaluations.

In Chapter IV the hypothesis which the study was designed to test is stated. The remainder of the chapter is devoted to the results of the teacher evaluations of the children's material. These results will be compared and analyzed on the basis of grade level, professional training, years of teaching experience, and time (October-May) of evaluation. Finally, the teacher evaluations are compared with the criteria derived from authorities in the field of child growth and development.

General conclusions regarding the differences of evaluation will be presented in the final chapter. The implications of these results in terms of questions and issues regarding realistic expectations and evaluations of children's performances on eye-hand coordination tasks raised in Chapter III will be discussed. Finally, implications for further research will be suggested.

CHAPTER II

REVIEW OF THE RESEARCH AND RELATED LITERATURE

In the preceding chapter, it has been noted that the investigator has become aware of the many pressures for the acceleration of learning on young children in the school setting, and some of the criteria (copying ability) by which the child's performance in this learning is evaluated by the classroom teachers. In this chapter these two aspects will be stated more explicitly and research results and philosophies which seem to relate to these observations will be examined. First, pertinent research and literature on the developmental aspects of the copying, or eye-hand coordination, skills of children will be discussed. Following this, research regarding teacher expectations and attitudes and their influence on children's performance and behavior in the classroom will be reviewed.

Developmental Aspects of Eye-Hand Coordination Skills in Children

Maturation, as interpreted by Piaget,[9] Kurt Koffka,[10] and Donald Hebb,[11] is contingent on functioning, which, in turn, is fostered by experience and training. Maturation unfolds in continuous interaction with stimulation. Hurlock has synthesized a number of longitudinal studies on motor development in the following generalized principles:

1. Development of muscle control depends upon the maturation of the neural structures, bones, and muscles and upon changes in body proportion, as well as upon an opportunity to learn how to use the different muscle teams in a coordinated fashion.

2. Learning cannot occur until maturation has laid the groundwork for it. It is impossible to teach the child skilled movements until his nervous system and muscles are well enough developed for him to profit from the teaching.

3. Motor development follows a predictable pattern.

4. There are predictable stages within the pattern of motor development. Numerous studies of the sequence of stages in the motor development of different areas of the body tend to confirm the belief that maturation rather than training is largely responsible for motor development.

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[9]Jean Piaget, The Origins of Intelligence in Children (New York: International Universities Press, 1952).

[10]Kurt Koffka, The Growth of the Mind (London: Kegan Paul, 1928).

[11]Donald O. Hebb, Organization of Behavior (New York: John Wiley, 1949).

5. There are individual differences in the rate of motor development.[12]

During the first four or five years of life the child gains control over gross movements. These movements involve the large areas of the body used in walking, running, swimming, and bicycling. After five years of age, major development takes place in the control of finer coordinations, which involve the smaller muscle groups used in grasping, throwing, catching balls, writing, or using tools. It is within this latter stage of motor development, the refinement of fine muscle coordination, that copying as a eye-hand coordination skill, is primarily developed.

Eye-hand coordination is the ability to coordinate the hand movements with what is seen by the eye. This coordination is important because well-directed eye movements are a prerequisite for reading and for most other school work; and good coordination of hand and eye is necessary for writing.[13] Kephart[14] maintains that the problem of eye-hand coordination is often taken very much for granted. It is

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[12]Elizabeth B. Hurlock, Child Development (New York: McGraw-Hill Book Co., 1956), pp. 170-71.

[13]Marianne Frostig and David Horne, The Frostig Program for the Development of Visual Perception: Teacher's Guide (Chicago: Follett Publishing Co., 1964), p. 10.

[14]Newell C. Kephart, The Slow-Learner in the Classroom (Columbus, Ohio: Charles E. Merrill Books, Inc., 1960), p. 26.

thought of as a skill involving only accuracy and control and remarkable only when reaching high degrees of precision. However, many physical and psychological skills are involved in making possible any eye-hand activity at all. In the copying activity the child has not only the problem of muscular coordination and the neurological innervation to muscles, but also the problem of matching these motor skills to a visual imput which is being generated as his pencil moves over the paper. Copying even the simplest geometric figures from a model is very difficult for a young child because it requires not only control over the finer muscles of the hand and arm, but also the ability to perceive relationships. Thus it is a skill that cannot be developed until the muscles, nerves, and brain have reached the developmental status needed for such an intricate act. Cronbach, in his book, Essentials of Psychological Testing,[15] discusses the relationship between neuromuscular development and intelligence, and explains why copying is used as a measure of intelligence in some of the intelligence tests for the early age levels (i.e., Stanford Revision of the Binet Scale).

The study of copying as a developmental skill originated with Dr. Arnold Gesell in 1911 at Yale University.

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[15]L J. Cronback, Essentials of Psychological Testing (2nd ed.; New York: Harper & Row, 1960).

At that time Dr. Gesell was already in the process of developing possible tools which would reveal the growth process. The simple tools that he chose to probe the mind's depths were a rattle, a ring on a string, a one-inch cube, a cup and a spoon, a tiny sugar pellet, and pencil and paper.[16] He found that the same tools used at succeeding age intervals could reveal changes so specific and well-patterned that they could be documented as closely as at four-week intervals in the first year of life. Gesell standardized the drawing ability of small children and found that a child of nine months to one year can scribble imitatively; that a child of one to one-half years can scribble spontaneously; that a child of two years can imitate a vertical stroke; that at three years a child can copy a circle from a model; that at four years a child can copy a cross; that at five years a square and a triangle; and that at five years a child can also draw a recognizable figure of a man. Gesell expressed wonder at the inability of a child to produce an oblique cross as early as it could produce a square cross, or a diamond as early as a square. Gesell tried to explain it on the basis of a motor difficulty.[17] In later research,

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[16]Arnold Gesell, The Mental Growth of the Pre-School Child (New York: Macmillan, 1930).

[17]Arnold Gesell and Catherine S. Amatruda, Developmental Diagnosis: Normal and Abnormal Child Development (2nd ed.; New York: Hoeber, 1947).

Gesell and Ames[18] found that more complex figures are not fully grasped until later. Thus, the figure  was reproduced at four years with a single central vertical line and numerous cross-lines. Between four and five years, the tendency was to draw the inner lines as spokes radiating from the center, but unrelated to one another. At six years, there were a vertical, horizontal and a diagonal cross, but their centers did not necessarily coincide. Clearly the child analyzed the complex shape into several constituents, without relating them to one another. Piaget and Inhelder[19] found much the same. In copying figures such as a circle within a triangle, each shape was correctly reproduced by the five year old child, but their relationship to each other was not accurately reproduced. It appeared that the child's perceptions were fragmented, and that he could not combine them into a coherent whole.

The most complete study of the ability of children at various ages to copy moderately complex figures is that of Lauretta Bender.[20] Using geometric forms, Bender made

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[18]Arnold Gesell and Louise B. Ames, "The Development of Directionality in Drawing," Journal of Genetic Psychology, LXVIII (1946), 45.

[19]J. Piaget and H. Inhelder, The Child's Conception of Space (London: Routledge and Kegan Paul, 1956).

[20]Lauretta Bender, A Visual Motor Gestalt Test and Its Clinical Use, Research Monograph No. 3 (New York: The American Orthopsychiatric Association, 1938).

clinical interpretations of the development of copying in children. Her interpretations are based on the assumption that the pattern of the copying shows the ways in which the original pattern was modified by the integrating level of the individual who experienced it. In a sense, the whole integrative level of the child determines the pattern of the response. Bender has found this copying to be different at different maturational or growth levels. She showed, as had Piaget and Inhelder, that younger children appeared to have some awareness of the details within a figure, but could not produce them accurately. Thus, the direction of lines, other than the horizontal, were not copied correctly; vertical lines were approximately correct by five to six years, but oblique lines not until nine to ten years. From her study of the visual motor patterns in children from age two and a half to eleven years of age, Bender deducted the following principles:

> Scribbling is at first a motor activity. It may acquire significance after production.[21]

and

> It would appear from our experiments that visual motor patterns arise from motor behavior that is modified by the characteristics of the visual field.[22]

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[21] Ibid., p. 11.

[22] Ibid., p. 13.

Bender extended Gesell's earlier explanation of the inabilities of the child to reproduce certain forms at an earlier age than others by adding:

> It is quite clear from our studies, however, that the difficulty is related to the problem of visual motor gestalt function.[23]

In a later study, Townsend[24] brought evidence to show that the ability to copy these forms correctly improved fairly steadily up to the mental age of seven and a half to eight years of age. Administering individual tests to 287 New York school children, aged six years-one month to nine years-three months, Townsend hypothesized that copying was more closely related to mental than chronological age. The tests used were composed of nine designs from the Bender-Gestalt Test supplemented by simpler figures including straight lines and combinations of three and four straight lines. The Kuhlman-Anderson Group Test of Intelligence (5th ed.) for grades one, two, and three was also administered. The correlational findings of the Townsend study reflect the growth in copying with increasing chronological and mental age. There is a rapid improvement with chronological age to about year seven, and thereafter the development continues irregularly and at a slower rate. With mental age, the

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[23] Ibid., p. 113.

[24] E. A. Townsend, "A Study of Copying Ability in Children," Genetic Psychology Monograph, XLIII (1951), 3-51.

development is rapid to about year eight and thereafter continues irregularly and at a slower rate. The more obvious improvement of copying with mental age than with chronological age suggests that the measure of mental age and copying are more homogeneous than chronological age and copying. A study of the copying ability of pre-school children by Graham[25] supported Townsend's findings.

Fabian,[26] working with New York school children on the orientation of copying and its relationship to reading, found that the whirling and circular movements, the disassociation of fragments, completion and rotational tendencies in children's drawings were less evident with increasing age. Fabian concluded that vertical rotation was a developmental phenomenon found in normal children. His findings reinforced the clinical interpretations of Bender.

The Hildreth[27] project on writing reflects the same developmental aspects as do those concerning the copying ability of children. Hildreth found that writing changes with chronological age; first, scribbles, aimless and then

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[25]F. K. Graham, P. W. Berman, and C. B. Ernhart, "Development in Pre-School Children of the Ability to Copy Forms," Child Development, XXXI (1960), 339-359.

[26]A. A. Fabian, "Vertical Rotation in Visual-Motor Performances: Its Relationship to Reading Reversals," Journal of Educational Psychology, XXXVI (1945), 129-154.

[27]G. Hildreth, Learning the Three R's (Minneapolis: Educational Publishers, 1947).

directed; followed by wavy lines; then partial letters; and finally copies of varying quality. Bright children tended to telescope some of these stages, yet, so far, no linear relationship has been found between handwriting quality and mental age.

The relationship between copying skills and school achievement was investigated by Lowder.[28] Using a sample of 1510 children in grades one through three in the Winter Haven, Florida schools, Lowder found that the relationship between these two factors was significant. In differentiating low achievers from high achievers, he found the divided rectangle and the horizontal diamond to be excellent items.

The most recent, comprehensive and detailed analysis of the developmental aspects of the copying abilities of young children is reported by Frances Ilg and Louise Bates Ames in their book School Readiness.[29] This longitudinal research project was begun in 1956 as an outgrowth of the author's consultation services for the Fund for the Advancement of Education. The major objective of the study was to gain information concerning the developmental aspects of children as they related to school readiness and grade

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[28]R G. Lowder, Perceptual Ability and School Achievement: An Exploratory Study, Available from Winter Haven Lions Club, Winter Haven, Florida, 1956.

[29]Frances L. Ilg and Louise Bates Ames, School Readiness (New York: Harper & Row, Publishers, 1964).

placement. The Hurlbutt School in Weston, Connecticut was selected as the site of the study. Between the fall of 1957 and the spring of 1959 (two school years of time) 100 kindergarten children, plus one classroom of first grade children and one classroom of second grade children were followed as they progressed through these two school years. All children were tested annually on a series of individual developmental and projective tests.

The developmental examination tests included the Gesell Copy Forms; an adaptation of Jacobson's Right and Left Tests; Vision One and Vision Three from the Marion Monroe Reading Readiness Test; the Lowenfield Mosaic Test; the 1-minute naming test from the Binet, plus various interview activities. In selecting the Gesell Copy Forms as a part of this study, the researchers state:

> Dr. Gesell's original Copy Forms test shows how simple a test can be and still be revealing. He merely seriated six forms in increasing difficulty moving from circle to cross to square to triangle to divided rectangle, and finally to diamond. We still use this Copy Forms test in its original form. . . . We have steadily come to realize that the significance of such a test is not simply in the process of copying. It is the way the child copies, the size form he makes, the place on the paper where he chooses to draw his forms, all these and many more qualifying categories that tell us more fully about the child than do merely his success or failure in copying the forms in question.[30]

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[30] Ibid., p. 34.

Combining all of the earlier findings of Gesell (previously cited) with the results of the longitudinal Weston study, Ilg and Ames were able to make a finer analysis of the developmental aspects regarding the copying abilities of the pre-school and early elementary school age child. As an example, the following table taken from their book illustrates the many development facets looked at in the making of a circle; similar tables on the developmental aspects of the cross, triangle, square, divided rectangle and vertical and horizontal diamond are recorded in the book.

Ilg and Ames further analyzed the organization of the forms upon the page by looking at specific characteristics such as: the space used to copy the forms, the placement of the forms on the paper, the arrangement of the forms, the relative size of the forms, and the quality of the strokes. In all of these factors developmental levels were noted:

> The shifts from age to age can be so significant and revealing that it is fortunate when yearly records for any one child can be taken so that he can be seen in movement, revealing increment from age to age. . . . In general, there is fairly steady improvement in that children, with increasing age, use less of the page in copying forms, and improve from random order to the use of three horizontal rows, and from large uneven figures to medium-sized even figures.[31]

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[31] Ibid., p. 127.

(Percentage of Occurrence)[32]

	4½ yrs. G	4½ yrs. B	5 yrs. G	5 yrs. B	5½ yrs. G	5½ yrs. B	6 yrs. G	6 yrs. B	7 yrs. G	7 yrs. B	8 yrs. G	8 yrs. B	9 yrs. G	9 yrs. B	10 yrs. G	10 yrs. B	A Adult
Starting point																	
Bottom	40	72	18	48	14	26	4	20	0	4	0	2	0	4	0	0	
Top	40	18	66	28	82	56	90	66	100	94	98	96	92	94	96	98	100
Right side	4	4	4	8	2	8	6	10	0	2	2	0	6	2	4	2	
Left side	14	6	12	16	2	10	0	4	0	0	0	2	2	0	0	0	
Number of lines																	
1	96	96	98	100	96	98	98	96	92	100	98	84	92	100	94	88	100
2	2	2	2	0	4	2	2	4	8	0	2	14	8	0	6	10	
3	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
Direction																	
CW	52	70	40	60	24	40	16	36	6	18	8	10	8	8	12	6	
CCW	46	30	58	40	72	58	82	60	86	82	90	74	84	92	82	82	100
2 lines CCW and CW or CW and CCW	0	0	2	0	4	0	2	4	6	0	2	14	6	0	4	12	
2 lines CCW and CCW	0	0	0	0	0	2	0	0	2	0	0	2	2	0	2	0	
						Qualitative Aspects											
Well-proportioned 	10	10	44	44	52	30	56	58	84	76	82	64	94	84	90	92	
Oval	20	20	16	30	16	42	18	14	4	12	8	14	0	10	2	6	
Lopsided 	36	44	26	14	20	10	8	14	6	2	0	4	0	2	0	0	
Open space at closure point 	10	4	8	6	8	6	6	8	0	4	0	8	0	2	4	0	
Overlapping 	6	12	4	0	4	8	2	2	0	2	0	4	0	0	2	2	
Wobbly 	10	6	2	6	0	4	0	0	0	0	0	0	0	0	0	0	
Apple-shaped 	6	4	0	0	0	0	10	4	6	4	10	6	6	2	2	0	

[32] Ibid., p. 69.

It would appear from the research cited on the copying ability of children that the developmental aspects of this skill have been established. There appears also, ample evidence to show that there is a significant relationship between copying abilities, chronological age, and intellectual ability in children, at least through the early elementary school years. The question then is: to what extent do teachers understand the development of these copy abilities in the light of the research cited, and how might teacher evaluations effect the child and his ability to learn? Hurlock speaks of the psychological damage of awkwardness or perceived awkwardness and uncoordination:

> Some adults, parents and teachers, expect a child's motor skills to approach the level of perfection more characteristic of adult skills. They push the child into a learning situation before he is ready, and they expect him to learn specific movements before the gross movements have been perfected. Because this is too complicated for him, he becomes discouraged and rebellious. Later, when he is physically and neurologically ready, he resists learning. As a result, he lags behind other children of his age and begins to think of himself as inferior to them.[33]

The Effects of Teacher Expectations and Attitudes on Learning

Ample evidence now exists, through the work of child psychologists and researchers in the area of mental health, that establish the importance of the adults' attitudes and

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[33]Hurlock, op. cit., p. 201.

expectations in the formation of the child's self-concept. The theory behind this area of research assumes that the person begins to regard himself as manifesting the foibles and virtues attributed to him. This image of himself becomes his self-concept. The standards by which he judges himself and his fellows are the standards he has unwittingly incorporated from the significant others with whom he interacts. Ausubel,[34] Jourard and Remy[35] are among the few investigators who have reported results which support these theoretical contentions.

Teachers, as one of the early and persistent "significant others" encountered by a child, have been shown to play a large part in the establishment of a pupil's perception of himself--both as a person and a learner. Jensen[36] criticizes the educational process for its repeated inappropriate and unrewarding experiences early in a child's schooling which may act as insurmountable barriers for children whom, through a different approach and better understanding, might be capable of achieving a rewarding education. He

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[34]D. P. Ausubel et al., "Perceived Parent Attitudes as Determinants of Children's Ego Structure," Child Development, XXVIII (1954), 173-183.

[35]S. M. Jourard and R. M. Remy, "Perceived Parental Attitudes, the Self, and Security," Journal of Consulting Psychology, XIX (1955), 364-366.

[36]Arthur R. Jensen, "Social Class, Race and Genetics; Implications for Education," American Educational Research Journal, V, No. 1 (January 1968), 42.

adds that insistence upon surmounting uniform requirements, such as acquiring the "three R's" at an early state of schooling, could screen out some children from ever entering upon any path of educational fulfillment. Jersild, in his study When Teachers Face Themselves,[37] specifically pinpoints the role of the teacher as a "significant other" by saying:

> What the teacher does strongly affects the pupil's attitudes regarding his worth as a person since, as has been noted, life at school is heavily invested with praise and blame, pride and shame, acceptance and rejection, success and failure. Everything in relation between a teacher and a student has or might have a significant affect on what a child thinks and feels about himself.[38]

According to Horney's concept,[39] there is a basic anxiety linked to a child's helplessness when he has to deal with a world that is hostile, unjust, and unaccepting, and with an environment that blocks the free use of his energies and hinders his efforts to be himself. Horney explains that the conditions that interfere with the child's freedom to grow do not arise simply because his elders are malicious or harsh or wish to do him harm. They may occur partly because these persons are so absorbed in their own problems or in

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[37]Arthur T. Jersild, When Teachers Face Themselves (New York: Teachers College, Columbia University, 1955).

[38]Ibid., p. 82.

[39]K. Horney, Our Inner Conflicts (New York: Norton, 1945).

their own anxieties that even though they love the child they still do not have the inner freedom to notice, accept, and encourage him.

Sullivan's theory,[40] like Horney's, takes into account the concept of the developing self and the child's dependence upon others. Anxiety, according to Sullivan, has its roots in the disapproval of people who are significant in the child's interpersonal world. The child's earliest appraisal of himself is in terms of what others think and feel about him. The attitudes that prevail in the child's interpersonal relations become a part of his concept of self.

Empirical research which tests the theory of the pupil's self concept and it's relationship to the attitudes and expectations of the teacher within the school setting has been surprisingly meager until recently.

In a systematic study designed to determine the extent of teacher's "unconscious discrimination against lower-class children," Hoehn[41] found no relationship between the frequency of teacher contacts and social class positions of the children. Children of low social class status were

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[40] H. S. Sullivan, The Meaning of Anxiety in Psychology and in Life (New York: William Alanson White Institute of Psychiatry, 1948).

[41] A. J. Hoehn, "A Study of Social Status Differentiation in the Classroom Behavior of Nineteen Third Grade Teachers," Journal of Social Psychology, XXXIX (1954), 269-292.

just as likely to receive the teacher's attention as those of high social class position. Some differentiations were noted, however, with respect to the kind of contact involved. Hoehn reported that low achievers received a greater share of the teacher contacts but also a greater proportion of the "less favorable" kinds of contacts (dominative and conflictful) than high achievers. Hoehn was considerably impressed by the extent of the teacher's discriminatory behavior. On the basis of his inspection of the data, he noted that some teachers did not discriminate consistently between either groups of pupils, other teachers consistently favored the high social class children, and in one classroom the teacher consistently favored the low social class pupils.

Hoehn's study ties in with a long line of research on the implications of teacher-pupil interaction for promoting a healthy learning environment in the classroom. Flanders' classroom interaction analysis,[42] the responses of teachers to the Minnesota Teachers Attitude Inventory,[43] teacher responses to the California F Scale,[44] and the work

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[42]N. A. Flanders, "Teacher Influence, Pupil Attitudes and Achievement (Minneapolis: University of Minnesota, College of Education, November 30, 1960; Final Report, Cooperative Research Project No. 397, U.S. Office of Education).

[43]W. W. Cook, C. H. Leeds, and R. Callis, The Minnesota Teacher Attitude Inventory (New York: Psychological Corporation, 1951).

[44]H. M. McGee, "Measurement of Authoritarianism and Its Relationship to Teacher's Classroom Behavior," Genetic Psychology Monograph, 1955, pp. 89-146.

of Ryans who developed a Teacher Characteristic Schedule,[45] have all been utilized as tools in research studies which give evidence of a positive correlation between the attitudes and expectations of teachers and their effect upon the attitudes, behavior and achievement of their pupils.

Investigating the role of anxiety in elementary school children Sarason concluded:

> Whether wittingly or not, each teacher engenders in her classroom attitudes towards learning, tests, failure and success.
>
> From our observations we have concluded that one of the most important dimensions on which teachers vary is the degree to which they establish an atmosphere in which the child's sense of security and level of self-esteem are very much determined by the adequacy of his performance.
>
> From the standpoint of the child, what he thinks is the teacher's attitude toward him is of great moment to him, particularly if he likes the teacher and wants to be liked by her.[46]

Davison and Lang[47] found that children's perceptions of their teacher's feelings toward them correlated positively and significantly with their self-perception. Also,

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[45] D. G. Ryans, Characteristics of Teachers (Washington, D.C.: American Council on Education, 1960).

[46] S. Sarason, F. Davidson, R. Lighhall, R. Waite, and B. Ruebush, Anxiety in Elementary School Children (New York: John Wiley & Sons, Inc., 1960), p. 272.

[47] H. Davidson and C. Lang, "Children's Perceptions of Their Teacher's Feelings Toward Them Related to Self-Perception, School Achievement and Behavior," Journal of Experimental Education, XXIX (December 1960), 107-118.

the more positive the child's perception of his teacher's feelings, the better was his academic achievement and the more desirable his classroom behavior as rated by the teacher.

Gathering data from ten elementary schools in a California suburb, involving children in fourth through sixth grades, Spaulding[48] found that his data showed a significant positive relationship between height of self-concept and the degree to which teachers were calm and acceptant in an atmosphere where there was a socially integrated learner-centered group.

Two recently published studies give important clues to pupil success and failure. The first study, conducted by the New Jersey Department of Education,[49] concentrated on ninth-grade pupils. It was found that very little was expected of the school failures, by the parents or teachers--or by the students themselves. The second study, completed by Robert Rosenthal of Harvard University and Lenore Jacobson

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[48]R. Spaulding, "Achievement, Creativity, and Self-Concept Correlates of Teacher-Pupil Transactions in Elementary Schools," Readings in Child Behavior and Development, ed. by C. Standler (2nd ed.; New York: Harcourt, Brace and World, Inc., 1964), p. 313.

[49]Reported in Education USA (Washington, D.C.: National School Public Relations Association, September 1967), p. 19.

of the San Francisco Unified School District,[50] begun by deliberately misinforming the teachers in the school about the abilities of their pupils. In the spring of 1964 the researchers gave the Flanagan Test of General Abilities to all the pupils in the Kindergarten and first five grades of a San Francisco school of 650 students. The teachers were told that the test was a new one called the "Harvard Test of Inflected Acquisition" (a false title) and that it was designed to predict academic "blooming" or intellectual potential. Within each of the school's 18 classrooms an average of 20 per cent of the children, selected at random, were reported to the classroom teacher as showing "unusual" potential for intellectual growth.

A year later, when all the children still in school were retested, the "spurters" showed an average I.Q. gain of 12.22 points, compared with 8.42 for a control group representing the rest of the student body. The dramatic gains came only in grades one and two; an increase of 27.4 in the first grade and 16.5 in the second grade for the "spurters." The control group rose only 12 points in the first grade and 7 points in the second. A surprising 79 per cent of the "spurters" and 49 per cent of the control group showed absolute gains of 10 I.Q. points or more in the first two

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[50] "Keeping Abreast in Research," Phi Delta Kappan, XLIX, No. 3 (November 1967), 158.

grades. Contrary to Rosenthal's expectations, children in the school's "slow" track did not make the most significant gains. After two years the children of the medium track very clearly showed the greatest benefits from having had favorable expectations of their intellectual performances. It would appear that it is the "average" child who stands to benefit the most from his teacher's improved expectations.

Chapter Summary

Two areas of research and literature have been reviewed in this chapter. The first area dealt with the developmental aspects of the copying skills of early elementary children; the second area illustrated the extent to which the attitudes and expectations of classroom teachers related to the behavior, feelings of self and achievement of the learner.

The research indicates that the ability to copy certain specific geometric forms is developmental in nature, and generally does not culminate in maturation until between eight to ten years of age. The research on the effects of classroom teacher attitudes and expectations (though somewhat limited in empirical studies) regarding children's behavior, feelings and achievement indicates that there is a positive correlation between these attitudes and expectations on the part of the teacher and the behavior, feelings about self, and achievement on the part of the student.

Although the two areas of research reviewed may appear to be unrelated, it is the purpose of this thesis to find out what the expectations of classroom teachers are relative to a specific developmental skill (copying), through their actual evaluations of children's copy work, and to further hypothesis about the effects of these expectations of copying ability as they might relate to the child in the learning situation.

CHAPTER III

DEVELOPMENT AND PRESENTATION OF DATA

As indicated in the "Statement of the Problem" in the introductory chapter, the purpose of this study was to compare the evaluations of kindergarten, first and second grade teachers and child growth and development specialists on selected eye-hand coordination skills of kindergarten children. Therefore, any tasks selected for teacher evaluations required that they be tasks which had already been developed and normed on large groups of children of this age by recognized authorities in the field of child growth and development.

Selection of Eye-Hand Coordination Tasks

A review of the literature was made to find a selection of eye-hand coordination tasks which best met these requirements:

1. Tasks with school-related characteristics.
2. Tasks which had been normed on large groups of kindergarten age children by specialists in the field of child growth and development.

From the literature and research in child development relevant to this problem, the Gesell Copy Forms met part of these requirements (see Chapter II). These Copy Forms are considered more representative of growth and development (maturation) than of specific classroom skills. The mechanics involved in evaluating them do not allow for ease of specific scoring. Ilg and Ames,[51] however, have developed guidelines and copying characteristic charts relative to the specific age group of children with which this study is concerned. These guidelines for evaluating the Copy Forms appear in Appendix C.

Further investigation revealed that the Ten-Dot Gestalt (Sub-test III) and the Sentence Gestalt (Sub-test IV) of the Anton Brenner Developmental Gestalt Test of School Readiness were also appropriate tasks for this study. This test has been normed on more than 700 children in the Detroit, Dearborn, Greenfield Village, and Albion schools, and used on more than 5,000 children since 1954.

The Ten-Dot Gestalt and Sentence Gestalt sub-tests are copying tasks more related to probable classroom activities of the kindergarten age child than the Gesell Copy Forms. An objective scoring procedure has already been developed for these tasks by Dr. Brenner (see Appendix C). Personal inquiry was made to Dr. Brenner regarding norms for

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[51] F. Ilg and L. B. Ames, op. cit.

these sub-tests. His reply (see Appendix A) stated that no norms had been established for these sub-tests, but with the objective scoring procedure, and a sufficient sample of children's work, norms could be established by the researcher of this project.

A comprehensive sampling of kindergarten children's production in eye-hand coordination skills was planned using the seven geometric shapes of the Gesell Copy Forms and the Ten-Dot Gestalt and Sentence Gestalt sub-tests of the Anton Brenner Developmental Gestalt Test of School Readiness.

Sampling

Kindergarten children, from whom samples were to be gathered, were selected from three representative school areas within the Ingham Intermediate District. This study excluded the school district of the City of Lansing. One Kindergarten group of 25 children was selected from the Mason School District, Mason, Michigan. This group of children represented a cross-section of town, rural, and suburban residential backgrounds. One group of 23 kindergarten children was selected from the Okemos School District, Okemos, Michigan. This group represented a totally suburban population. Two kindergarten groups, totaling 56 children, were selected from the Leslie School District, Leslie, Michigan. This group of children represented a village and rural residential population. Samples were collected from a total of 104 kindergarten children.

Chronological age of the children, at the time of testing, ranged from 65 months to 83 months, with a Mean of 72.7 months and a Standard Deviation of 3.7 months. The total group included 50 boys and 54 girls. Testing was done within the last two weeks of May, 1967. All children tested had completed one full school year of kindergarten experience. No children who had been retained in kindergarten for a second year, nor any who had known physical or mental handicaps were included within the sample.

Testing Procedure

An initial contact, for the purpose of explaining the testing project, was made with each building Principal of the selected schools. Administrative approval for the project was followed by kindergarten teacher contacts during which the investigator and the teacher discussed the general kinds of tasks required of the children and set up a schedule of testing which would be convenient for all concerned. The investigator was introduced to the children of each selected classroom by the classroom teacher. The children were told that in the near future each child would have an opportunity to "visit" with the investigator, and to draw some pictures for her.

Each child within the sample group was tested individually by the investigator. In each school testing took place in an isolated area where there were no outside distractions. The tester gave the child a sheet of 8½" x 11"

white, unlined paper and a pencil, with the general instructions:

> I am going to show you some pictures, and I would like to have you make some just like them on your paper.

The Gesell Copy Forms were then individually presented to the child in the following order: circle, cross, triangle, square, divided rectangle, vertical diamond, and horizontal diamond. Each presentation was accompanied by the directions, "Do you see this picture? Will you please make one like it on your paper?"

A Ten-Dot Gestalt test form was then presented to the child (Appendix B). The pencil was substituted for a black crayon for this task. Directions which accompanied this task were from the BGT Manual:

> Here is a picture made of dots . . . and here is an empty space. In this space I want you to make a picture just like this one. Look at it carefully and draw the picture here. Be sure to draw it exactly as it looks.[52]

The Sentence Gestalt test employing the sentence, "FRED IS HERE," was presented in a like manner: as a picture to be copied, not as letters, words, nor a configuration to be recognized or read.

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[52] A. Brenner, Anton Brenner Developmental Gestalt Test of School Readiness Manual (Beverly Hills, California: Western Psychological Services, 1964), p. 11.

Scoring Procedures

Three experienced, certified School Diagnosticians from the Ingham Intermediate District staff were selected to individually evaluate all test results. The samples of children's work which would ultimately be presented for evaluation to the early elementary teachers within the Intermediate District would be selected from only those samples upon which all three School Diagnosticians had agreed as to performance ratings and/or scores.

The Copy Forms portion of the tests were evaluated individually by each School Diagnostician who ascribed a performance rating of High, Average, Low, or Unacceptable performance to each sample. Ratings were based on the guidelines developed from the Ilg and Ames research studies[53] on this task (see Appendix C). As experienced Diagnosticians, long familiar with the Copy Forms in other contexts (Bender-Gestalt Test, Stanford-Binet, and Winter Haven Tests) the gestalt characteristics of this task were also familiar to them and included in their total ratings.

It was anticipated that, because of the larger number of subjective evaluations necessary to the scoring of this task, there would be fewer total agreements among the three scorers. This proved to be true: of the 104 samples of children's work submitted for evaluation of the Copy Form

[53] Ilg and Ames, School Readiness, op. cit.

task, the scorers agreed upon 37 samples, falling into the following performance rating categories:

Table 1. Agreed ratings of three scorers from 104 samples, Copy Forms task

Rating	No. of Samples
High Performance	7
Average Performance	18
Low Performance	10
Unacceptable Performance	2
Total	37

A test-retest procedure, which would have provided a means of testing for stability of judgment of the scorers (School Diagnosticians) on the Copy Forms tasks submitted for their evaluation was not administered.

Standard Scoring directions from the Anton Brenner Developmental Gestalt Test for School Readiness Manual were followed for evaluating the Ten-Dot Gestalt and Sentence Gestalt tests (see Appendix C). The range of possible scores on the Ten-Dot Gestalt is from +9 to -9. Of the 104 samples, the three scorers agreed upon the scores for 94 samples. The scores of these 94 samples ranged from +9 to -9, with a Mean of +5.02 and a Standard Deviation of 5.13 as computed by the following formula:[54]

[54]George Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw-Hill Book Co., 1959), Formula 4.4a, p. 56.

$$SD = \sqrt{\frac{N\Sigma X^2 - (\Sigma X^2)}{N}}$$

In order to convert the scores of the Ten-Dot Gestalt into a rating compatible to the High, Average, Low, and Unacceptable Performance ratings of the Copy Form test, the Mean and Standard Deviation of the scores were used.

Table 2. Derived ratings of Ten-Dot Gestalt task*

Scores	Rating	No. of Samples
+9	High Performance	42
+7, +5, +3	Average Performance	29
+1, 0, -1	Low Performance	11
-3, -7, -9	Unacceptable Performance	12
Total		94

*Based on Mean of +5.02; Standard Deviation of 5.13.

The Sentence Gestalt test was similarly handled. Possible scores for this task ranged from a +12 to -12. Of the 104 samples of this task scored, 94 had full agreement by the three scorers. (The 94 agreements on this task were not the same 94 agreements as on the Ten-Dot Gestalt Test.) The range of scores of the samples of the Sentence Gestalt task was +12 to +3, with a Mean of +9.5 and a Standard Deviation 2.4. These figures were computed by the same formula previously mentioned. Using the Mean and SD of scores as a base, the scores were converted into performance ratings

similar to the Ten-Dot Gestalt task and compatible to the Copy Forms task.

Table 3. Derived ratings of Sentence Gestalt task

Scores	Rating	No. of Samples
+11, +12	High Performance	33
+9, +10	Average Performance	28
+7, +8	Low Performance	23
+3, +5, +6	Unacceptable Performance	10
Total		94

*Based on Mean of +9.5; Standard Deviation of 2.4.

Test-retest procedures for the purpose of testing the scorers (School Diagnosticians) for stability of judgment on the Copy Dot and Copy Sentence tasks submitted for their evaluation were not administered.

Fifteen samples of each of the three tasks, Copy Forms, Ten-Dot Gestalt, and Sentence Gestalt, ranging from High through Unacceptable performance ratings were randomly selected for reproduction and presentation to the classroom teachers for their evaluations.

Gathering the Data

Early in September, 1967, the investigator introduced the research project to the superintendents of all the school districts within the Ingham Intermediate District, excluding the City of Lansing. The proposal was accepted

by this administrative group and their individual school district cooperation was approved. The research project then became known as the Ingham Intermediate Cooperative Research Project for the 1967-68 school year.

The investigator contacted each building principal of the 37 elementary schools within the Ingham Intermediate District for the purpose of reviewing the project and seeking their administrative cooperation. In most cases, these administrators assisted the investigator in the random selection of one kindergarten teacher, one first grade teacher, and one second grade teacher from within each school to whom the samples of children's work would be submitted for evaluation. Three booklets, each containing 15 samples of children's work per task, (1) Copy Forms, (2) Ten-Dot Gestalt, (3) Sentence Gestalt (see Appendix E), were submitted to these teachers along with basic information concerning the project and the children represented within the sample. Teachers were asked to rate each sample in terms of their own evaluation as to it being High, Average, Low, or Unacceptable performance for a child of kindergarten age (see Appendix D).

Teachers were also requested to give the following information:

1. Total number of years of teaching experience.
2. Number of years of teaching experience at present grade level.
3. Level of academic training.

A total of 111 teachers were involved in this study: 37 at the kindergarten level, 37 at the first grade level, and 37 at the second grade level. Samples were submitted for teacher evaluations in October, 1967. In order to test for reliability a second evaluation period, utilizing the same samples and the same teachers, was administered in May, 1968.

Statistical Procedure

As soon as the October 1967 teacher evaluation data had been collected and recorded, an extensive search and consultation was carried out for an appropriate statistical analysis of the survey. The initial concern was a direct comparison, or the extent of agreement between classroom teacher's evaluations of the eye-hand coordination skills of Kindergarten children with those of specialists within the field of Child Growth and Development.

The prime problem was to obtain a measure of the extent of association or agreement between the two groups. However, in order to accomplish this, it was necessary to determine the association within the three teacher groups per task, as well as between the teachers and the specialists. In essence, then, two major measures became involved. The first would note the association or agreement among the teachers as a group. The second measure was concerned with the extent of association or agreement between the teachers, as one group, and the specialists in Child Growth and Development, as a second group.

After a thorough examination of the data, the Chi-Square Test of Significance was selected as the most appropriate statistical means for determining the extent of association or agreement between the three teacher groups. An .05 Level of Significance was appropriate to the study. A direct enumerative technique, specially designed for this study was selected as a means of meeting the requirements of the second measure. This computational technique was designed not only to give a measure of association or agreement between the two groups (teachers and specialists), but to also indicate the direction of disagreement. Data gathered from each of the two evaluation periods (October 1967 and May 1968) was analyzed separately, then compared for reliability purposes prior to the final analysis of association between the teacher and specialists groups.

Chapter Summary and Statement of Hypothesis

The investigator worked with large numbers of kindergarten children, early elementary classroom teachers, school administrators and specialists in the areas of Child Growth and Development in order to develop a means by which the classroom teacher could evaluate eye-hand coordination skills of kindergarten children. Consultations with School Diagnosticians, educational researchers and statisticians were held for the purpose of facilitating the project. Through the cooperative efforts of the Ingham Intermediate

District Special Education staff and the local school district personnel data was collected. Finally, the Chi Square method of statistical analysis was selected.

In order to explore similarities and differences in the evaluations of early elementary teachers and Child Growth and Development specialists concerning the eye-hand coordination skills of kindergarten children, specific hypotheses are stated to give direction to the study.

H_1 Early elementary classroom teachers do not agree with specialists from the field of Child Growth and Development in the evaluations of the eye-hand coordination skills of kindergarten children.

H_2 Early elementary teachers will agree less with Child Growth and Development specialists on Task I (Copy Forms) than on Task II and Task III.

H_3 Early elementary teachers will be in more agreement with Child Growth and Development specialists on Task II (Copy Dots) than on Task I.

H_4 Early elementary teachers will be in more agreement with Child Growth and Development specialists on Task III (Copy Sentence) than on Task I and Task II.

H_5 The evaluations of kindergarten and first grade teachers will have a higher degree of agreement with

Child Growth and Development specialists than will those of second grade teachers.

H_6 The number of years of teaching experience at grade level per teacher will not be a significant factor in the degree to which a teacher agrees with the specialist on children's performances.

H_7 The more formal education (the more academic training) of the teacher the greater the degree of agreement between the teacher and the specialist.

H_8 Where disagreement exists between the teacher and Child Growth and Development specialists, the direction of disagreement is more apt to be one of underrating children's performance on the part of the teacher.

The results of the study, through the testing of the hypotheses, will be presented in Chapter IV. Conclusions and observations related to the direction of disagreement, and assumptions as to the effect of disagreement on the learner will be discussed in Chapter V.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of the study was to compare the evaluations of Kindergarten, First Grade, and Second Grade Teachers with the evaluations of Child Growth and Development specialists on selected eye-hand coordination skills of Kindergarten children. The eye-hand coordination activities selected for these evaluations were copying tasks which had been normed on large groups of the same aged children by researchers in the field of Child Growth and Development. Three tasks, Copy Forms, Copy Dots, and Copy Sentence were used for this purpose. Fifteen samples of each task, randomly selected from samples gathered from 104 Kindergarten children, were reproduced and presented to one Kindergarten, one First Grade, and one Second Grade teacher in each of the 37 elementary schools within Ingham County (excluding the City of Lansing). These teachers were asked to evaluate this children's material on the basis of rating them as being of "High," "Average," "Low," or "Unacceptable" performance for children of this age. The same teachers were asked to evaluate the same children's material twice during the 1967-68 school year; once in October and again in May.

The general hypothesis of the project, as presented in Chapter I, was that the expectations of the school, as reflected in the evaluations of early elementary teachers, regarding the eye-hand coordination development of Kindergarten children, would not be congruent with the evaluations of this skill development derived from research by Child Growth and Development authorities. This hypothesis was further refined for testing purposes in Chapter III, in which the statement was made that "early elementary classroom teachers do not agree with specialists from the field of Child Growth and Development in the evaluation of eye-hand coordination skills of Kindergarten children." The meaning of the term "agreement" was interpreted as a 50 per cent or better correlation between the teacher and specialist evaluations on all three eye-hand coordination tasks selected for use in this project.

Further hypothesis concerning anticipated differences in teacher evaluations due to differing experience; academic training and grade level of the teachers, as well as the varying degrees of anticipated teacher familiarity with the eye-hand coordination tasks were tested. The results and the analysis of the data gathered in this study will be present in the order of the hypothesis as stated in Chapter III.

Results of Testing for Hypothesis One

H_1 Early elementary classroom teachers do not agree with specialists from the field of Child Growth and Development in the evaluation of the eye-hand coordination skills of Kindergarten children.

Using the definition of the term "agreement" as previously stated (50 per cent or better coorelation between teachers and specialists on all three tasks) the results of the data indicate that Hypothesis One is valid. The percentage distribution of the teacher evaluations, based on an average of the two evaluation periods, compared to criterion (specialists) on all tasks indicates that composite agreements are less than 50 per cent. Table 4 indicates the percentage of teacher agreement with criterion per task per evaluation period.

Table 4. Percentage of teacher agreement

Task	Kindergarten Oct.	Kindergarten May	First Grade Oct.	First Grade May	Second Grade Oct.	Second Grade May	Composite Mean
Copy Form	48.3	46.8	48.5	51.3	49.8	52.5	
Mean	47.5		49.9		51.1		49.5
Copy Dot	40.2	41.7	41.9	44.4	39.7	39.7	
Mean	40.8		43.1		39.7		41.0
Copy Sentence	50.3	48.6	47.2	46.9	52.7	53.9	
Mean	49.4		47.0		53.3		49.9

The composite mean per cent of agreement of the teacher evaluations, as compared to the specialists, range from 41 per cent on the Copy Dot task to 49.9 per cent on the Copy Sentence task. An item by item analysis of teacher agreement, per task, for each evaluation period is presented in Table 5a, 5b, and 5c.

On the basis of the evidence presented, Hypothesis One concerning the lack of agreement between early elementary teachers and specialists regarding the eye-hand coordination development of Kindergarten children, as tested within the limits of this study, is valid.

Results of Testing for Hypotheses Two, Three, and Four

H_2 Early elementary teachers will agree less with Child Growth and Development specialists on Task I (Copy Forms) than on Task II and Task III.

H_3 Early elementary teachers will be in more agreement with Child Growth and Development specialists on Task II (Copy Dots) than on Task I.

H_4 Early elementary teachers will be in more agreement with Child Growth and Development specialists on Task III (Copy Sentence) than on Task I and Task II.

Hypotheses Two, Three, and Four focused on the nature of the tasks presented to the teachers for evaluation. It was felt that the more "school-related" the task, the more

Table 5a. Distribution of teacher evaluations,[a] Copy Form--Task I

Item	SR[b]	Kindergarten +	Kindergarten 0	Kindergarten -	First Grade +	First Grade 0	First Grade -	Second Grade +	Second Grade 0	Second Grade -
October Evaluations:										
1	H	..	27	10	..	28	9	..	30	6
2	A	8	22	7	9	24	4	10	21	5
3	A	5	23	9	3	23	11	4	23	8
4	A	3	22	12	5	20	12	3	22	11
5	L	2	7	28	1	8	28	1	14	21
6	A	..	17	20	..	16	21	1	9	26
7	L	7	20	10	7	14	16	4	19	13
8	H	..	23	14	..	25	12	..	22	14
9	A	..	15	22	1	14	22	1	15	20
10	L	8	18	10	12	18	7	11	22	3
11	U	8	29	..	10	27	..	9	27	..
12	H	..	1	35	..	5	32	..	4	32
13	A	..	22	15	1	20	16	1	21	13
14	L	13	17	7	16	19	2	13	19	4
15	A	..	4	33	..	8	29	..	..	36
Total		54	267	232	65	269	221	58	268	212
Percent		10.2	48.3	41.9	11.7	48.5	39.8	10.8	49.8	39.4
May Evaluations:										
1	H	..	22	14	..	29	8	..	27	8
2	A	5	24	7	2	29	6	7	21	7
3	A	1	21	13	5	21	11	7	22	6
4	A	4	22	10	4	20	13	2	24	9
5	L	..	7	29	3	10	24	3	18	14
6	A	..	13	23	..	15	22	1	14	20
7	L	5	19	11	7	22	8	8	20	7
8	H	..	21	15	..	26	11	..	24	11
9	A	..	12	24	1	17	19	1	19	15
10	L	6	23	7	9	25	3	17	16	2
11	U	9	27	..	10	27	..	9	26	..
12	H	..	4	32	..	3	34	..	5	30
13	A	1	16	19	1	21	15	3	20	12
14	L	11	19	6	19	13	5	19	15	1
15	A	..	3	33	..	7	30	..	5	30
Total		42	253	243	61	285	209	77	276	172
Percent		7.8	46.8	45.1	10.9	51.3	37.6	14.6	52.5	32.7

[a]SR = Specialist's Rating; 0 = number of teachers agreeing with SR; + = number of teachers rating above SR; - = number of teachers rating below SR.

[b]H = High performance; A = Average performance; L = Low performance; and U = Unacceptable performance.

Table 5b. Distribution of teacher evaluations,[a] Copy Dots--Task II

Item	SR[b]	Kindergarten			First Grade			Second Grade		
		+	0	-	+	0	-	+	0	-
October Evaluations:										
1	U	9	28	..	15	22	..	9	27	..
2	A	36	1	..	37	..	..	33	3	..
3	H	..	11	26	..	20	17	..	15	21
4	A	..	11	26	..	9	28	..	10	26
5	L	6	22	9	6	20	11	7	18	11
6	A	29	7	..	31	6	..	31	5	..
7	U	28	9	..	27	10	..	26	10	..
8	H	..	17	20	..	17	20	..	11	25
9	A	23	13	1	21	16	..	20	16	..
10	H	..	24	13	..	22	15	..	21	15
11	L	29	8	..	24	13	..	30	6	..
12	H	..	23	14	..	22	15	..	22	14
13	U	..	37	..	..	37	..	..	35	..
14	H	..	12	25	..	19	18	..	15	21
15	U	37	..	..	37	..	..	36	..	..
Total		197	223	135	198	233	124	192	214	133
Percent		34.0	40.2	24.0	35.7	41.9	22.3	35.6	39.7	24.7
May Evaluations:										
1	U	10	26	..	16	21	..	15	19	..
2	A	32	4	..	34	3	..	32	3	1
3	H	..	8	28	..	21	16	..	16	19
4	A	..	10	26	1	11	25	1	10	24
5	L	9	15	12	6	21	9	11	17	6
6	A	27	8	..	33	4	..	28	6	1
7	U	23	13	..	25	12	..	25	10	..
8	H	..	14	22	..	23	14	..	16	19
9	A	16	18	2	21	15	1	24	11	..
10	H	..	22	14	..	25	12	..	27	8
11	L	26	9	1	32	5	..	31	4	..
12	H	..	22	14	..	28	9	..	20	15
13	U	1	35	..	..	37	..	3	32	..
14	H	..	20	16	..	20	17	..	16	19
15	U	35	1	..	37	..	..	34	1	..
Total		179	225	135	205	246	103	204	208	112
Percent		33.2	41.7	25.0	37.0	44.4	18.5	38.9	39.7	21.3

[a]SR = Specialist's Rating; 0 = number of teachers agreeing with SR; + = number of teachers rating above SR; - = number of teachers rating below SR.

[b]H = High performance; A = Average performance; L = Low performance; and U = Unacceptable performance.

Table 5c. Distribution of teacher evaluations,[a] Copy Sentence--Task III

Item	SR[b]	Kindergarten +	Kindergarten 0	Kindergarten -	First Grade +	First Grade 0	First Grade -	Second Grade +	Second Grade 0	Second Grade -
October Evaluations:										
1	A	17	18	2	15	20	2	13	23	..
2	H	..	31	6	..	31	5	..	31	4
3	U	13	24	..	20	17	..	12	24	..
4	A	4	31	2	13	21	3	5	26	5
5	L	28	7	..	29	8	..	28	7	1
6	A	..	12	25	..	15	22	1	13	22
7	A	4	27	6	5	27	5	6	24	6
8	L	33	4	..	36	1	..	35	1	..
9	A	1	6	30	1	8	28	..	6	30
10	L	7	25	5	16	20	1	13	23	..
11	H	..	21	16	..	25	12	..	27	9
12	H	..	10	27	..	10	27	..	14	22
13	L	8	17	12	15	20	2	9	24	3
14	H	..	11	26	..	11	26	..	12	24
15	U	3	34	..	9	28	..	7	29	..
Total		118	278	157	159	262	133	129	284	126
Percent		21.3	50.3	27.3	28.7	47.2	24.0	23.9	52.7	23.4
May Evaluations:										
1	A	11	25	..	13	22	2	13	21	1
2	H	..	23	13	..	29	8	..	28	7
3	U	16	20	..	11	26	..	9	26	..
4	A	3	26	7	8	24	5	3	28	4
5	L	22	13	1	29	7	..	27	8	..
6	A	..	11	25	..	11	26	..	11	24
7	A	2	26	8	4	24	9	5	26	4
8	L	29	7	..	34	3	..	33	2	..
9	A	..	4	31	..	6	31	1	4	30
10	L	11	20	5	10	23	4	10	24	1
11	H	..	21	15	..	24	13	..	26	9
12	H	..	4	32	..	7	30	..	11	24
13	L	8	21	7	16	16	5	6	26	3
14	H	..	9	27	..	7	30	..	11	24
15	U	3	32	..	6	31	..	4	31	..
Total		105	262	171	131	260	163	111	283	131
Percent		19.5	48.6	31.7	23.6	46.9	29.4	21.1	53.9	24.9

[a]SR = Specialist's Rating; 0 = number of teachers agreeing with SR; + = number of teachers rating above SR; - = number of teachers rating below SR.

[b]H = High performance; A = Average performance; L = Low performance; and U = Unacceptable performance.

familiar teachers would be with it and, thus, the more frequently they would make judgments which would agree with criterion. The Copy Sentence (Task III) of the eye-hand coordination tasks was perceived as being the most "school-related" of the three activities presented to the teachers for evaluation. Conversely, the Copy Forms (Task I) was perceived as being the least "school-related," hence it was assumed that teacher familiarity with this copy task and their experience in making critical judgments regarding it was limited. Using the above assumptions as a rationale, the hypotheses concerning the nature of the tasks and teacher responses to them were developed. These hypotheses were developed individually in order that they might be discussed individually if the data so warranted.

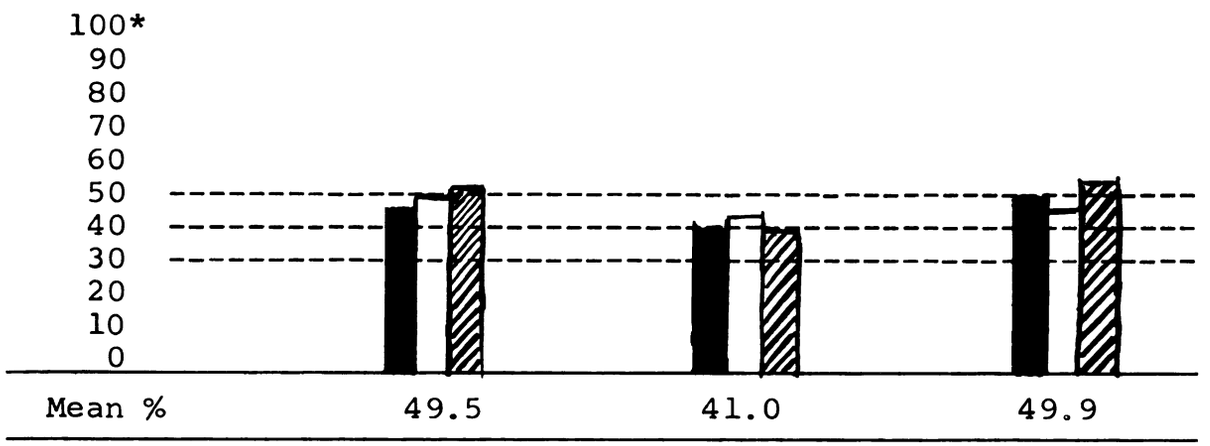
The results of an analysis of the teacher evaluations per task, per evaluation period, indicate some minor differentiations in response to the individual tasks. These differences may exist, but it appears they would be so small as not to be considered statistically or educationally significant. A detailed analysis of the teacher evaluations, per task, is given in Tables 5a, 5b, and 5c. The Mean percentage of teacher agreement with criterion (specialist) ranges from 47.5 to 51.1 per cent on the Copy Form task, 39.7 to 43.1 per cent on the Copy Dot task, and 47.0 to 53.3 per cent on the Copy Sentence task.

According to H_2 it was anticipated that early elementary teachers would agree less with the specialists on their evaluations of children's work on the Copy Form task than on any of the other tasks presented for their evaluation. The results indicate that this hypothesis was not supported by the data. As a group, the teachers tended to agree more with the specialists on the Copy Form task than had been anticipated. The degree of teacher agreement on the Copy Form task very nearly equalled the degree of their agreement on the Copy Sentence task.

H_3, relating to the Copy Dots task, was anticipated to produce a greater degree of agreement between the teachers and the specialists than would Copy Forms. The evidence does not support this hypothesis. The results indicate that there was less agreement between the teachers and specialists on the Copy Dot task than on either of the other two tasks.

It was anticipated that the degree of agreement between the teachers and specialists would be greatest on the Copy Sentence task than on either of the two previous tasks (H_4). The range in the degree of teacher agreement on the Copy Sentence task is somewhat larger than that on the Copy Form task, however the difference is so small as not to be considered significant. Hypothesis Four is valid, but the evidence provides little statistical or educational significance for strong support. Table 6 presents a graphic illustration of the degree of teacher agreement per task.

Table 6. Per cent of teacher agreement per task[a]



*Criterion/Specialists.

[a]Key: Kdgn. ■ ; 1st Grade ▭ ; 2nd Grade ▨ .

The evidence indicates that there is a significant difference between the evaluations of Child Growth and Development specialists and early elementary classroom teachers on the selected eye-hand coordination tasks of this study. The data also indicate that there is little difference between the evaluations of the teachers of the three grade levels on each of the tasks involved in this study. In essence, the results show that although the teachers do not agree with the specialists on the performance ratings of these children's work, the teachers do agree almost completely among themselves. Where differences do exist between the three teacher groups, the range is so small that it would not make a difference in educational implications.

Results of Testing for Hypothesis Five

H_5 The evaluations of Kindergarten and First Grade teachers will have a higher degree of agreement with Child Growth and Development specialists than will those of Second Grade teachers.

The teacher evaluations were analyzed for significant differences relative to the grade level groupings of the teachers. An item by item analysis was made using the Chi Square Test of Significance for determining the extent of association or agreement between the three groups (K, 1st, and 2nd) of teachers. Results of this analysis indicate that there are no differences at the .05 Level of Significance in the distribution of the ratings given by teachers at the different grade levels. The exceptions to this statement are: Item 11 in Copy Dot, and Items 4 and 13 in the Copy Sentence tasks of the October evaluations, and Items 5 and 10 of the Copy Forms, Item 3 in the Copy Dot, and Item 14 in the Copy Sentence in the May evaluations. Further investigation of the exceptional items listed above resulted in no further information relative to grade level differences. There was no correlation between the exceptional items of the October and May evaluation periods. Thus, the evidence shows that there are no significant differences in the teacher evaluations compared to criterion (specialists) relative to the teacher grade level variable.

As there is no evidence to support any significant differences between the evaluations of teachers of the three grade levels, thus there is no evidence to support the hypothesis that Kindergarten and First Grade teachers had a greater degree of agreement with the criterion (specialists) than did Second Grade teachers. Hypothesis Five is not valid on the basis of these results. Figures indicating the per cent of agreement with criterion on each item within each task, per grade level group are presented in Tables 5a, 5b, and 5c. Table 6 also illustrates the close agreement between the teachers of the three grade levels on each of the three tasks.

Results of Testing for Hypothesis Six

H_6 The total number of years of teaching experience at the present grade level will not be a significant factor in the degree to which a teacher agrees with the specialists on children's performances.

When completing the evaluation forms for both the October and May evaluation periods each teacher was asked to indicate the number of years of teaching experience at their present grade level. A tabulation of this information is presented in Table 7.

Table 7. Teaching experience at grade level

Experience at Grade Level	Number of Teachers		
	Kdgn.	First	Second
1-2 yrs.	17	19	14
3-5 yrs.	5	9	8
6-9 yrs.	5	4	6
10+ yrs.	8	5	8
Total[a]	35	37	36

[a]Two Kindergarten teachers and one Second Grade teacher did not respond to this item.

It was hypothesized that the number of years of teaching experience at the present grade level would not be a significant variable in the degree to which teachers agreed with criterion (specialists) in their evaluations of these eye-hand coordination skills. An item analysis was made using the Chi Square Test of Significance for determining the extent of association or agreement between the levels of teaching experience and the teacher evaluations compared to criterion. Results of this analysis indicate that there are no differences, at the .05 Level of Significance, in the distribution of teacher evaluations on the basis of experience except on Item 8 and 9 in the Copy Forms, and Item 4 and 15 in the Copy Dots for the October evaluation period only. Analysis revealed no exceptional items in this category in the May evaluations.

On the basis of the results obtained, Hypothesis Six is valid. The number of years of teaching at the present grade level is not a factor in the degree of agreement between the evaluations of early elementary classroom teachers and Child Growth and Development specialists.

Results of Testing for Hypothesis Seven

H_7 The more formal education (the more academic training) of the teacher, the greater the degree of agreement between the teacher and the specialist.

The teachers involved in this study were asked to indicate their level of formal education, by academic degree obtained, at the time of evaluations. Table 8 presents the formal education distribution of the teachers involved in this study.

Table 8. Formal education

	Number of Teachers		
Academic Degree	Kdgn.	First	Second
B.A.	28	26	28
M.A.	7	6	6
M.A. + 30/45 hr.	1	1	3
Other	1 (special)	3 (EIP)	
Total[a]	37	36	37

[a]One First Grade teacher did not respond.

It was hypothesized that the more formal education on the part of the teacher, the greater would be the degree of agreement between the evaluations of the teacher and the specialists. An item analysis was done, using the Chi Square Test of Significance, for the purpose of obtaining the extent of agreement between the levels of academic training of the teachers and their evaluations as compared to the specialists. The results of this analysis indicate that there is no difference at the .05 Level of Significance, in teacher evaluations based on academic training as compared to the evaluations of the specialists. Exceptions to this statement are Items 2, 5, 7, and 11 of the Copy Sentence task in the October evaluations, and Item 10 in the Copy Dots and Items 1, 8, and 13 in the Copy Sentence task in the May evaluations. Detailed investigation into the exceptional items listed above did not give further clarification, nor did it refute the general findings relative to this hypothesis. The data support the general statement that academic training makes no significant difference in the way in which these teachers evaluated the eye-hand coordination skills of Kindergarten children as compared to the evaluations of Child Growth and Development specialists. Hypothesis 7 is not valid on the basis of these results.

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Results of Testing for Hypothesis Eight

H_8 Where disagreement exists between the evaluations of the teacher and Child Growth and Development specialists, the direction of disagreement is more apt to be one of under-rating the children's performance on the part of the teacher.

Two enumerative procedures were used to test for this hypothesis. Tables 5a, 5b, and 5c represent the first computational approach for the testing of Hypothesis 8. The number of teachers agreeing with the specialist's evaluations on each sample item were tabulated and placed under an "0" category. All teachers evaluating performance above the specialist's evaluations on a sample item were placed under a "+" category. All teachers who evaluated performance below the specialist's evaluations were placed in a "-" category. These tables were designed to illustrate the differences between response to items, tasks by the grade level of the teachers, the evaluation periods, the degree of agreement with criterion (specialists) and the direction of disagreement. The totals of these columns, as well as the corresponding percentage figures, give indication of the degree of agreement between teachers and specialists and the direction of disagreement when such exists.

Table 5a indicates that, in evaluating the Copy Forms task, the general tendency in all three grade level

groups was to heavily under-rate the children's performance on this particular task. The Copy Dots evaluations, Table 5b, indicates a trend toward over-rating the children's performances rather than under-rating them. The Copy Sentence evaluations, Table 5c, are more evenly divided between the over-rating and under-rating categories. It is interesting to note that, according to the results tabulated, the Kindergarten teachers show a tendency to under-rate the performance of Kindergarten children more frequently than do teachers of the First and Second Grades. It is also, perhaps, relevant to the issue to point out that Kindergarten teachers showed an increase in their percentage of under-rating on all tasks from the October to the May evaluations. Teachers of the First and Second Grades showed a decrease in their under-rating of children's performances on the Copy Form and Copy Dot tasks between the October and May evaluations. All three teaching levels scored more strictly (negatively) on the Copy Sentence task in the May evaluations.

The second analytic procedure used to test Hypothesis Eight was a tabulation of each teacher's evaluations grouped according to the number of "High," "Average," "Low," and "Unacceptable" performance ratings given by the teacher in each task. This number of performance ratings was compared to the number of similar performance ratings given by the specialists in each task. The ratings of "High,"

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"Average," and "Low," as derived from the specialist's evaluations, were considered to be within the range of acceptable or "normal" performance for children of this age. The rating of "Unacceptable" implied that performance was outside or below the range of acceptability. Therefore, it appeared important to more clearly identify the number of children's performances rated in this latter category by the teachers of the three grade levels involved in this study. The results of the analytical procedure described above made it possible to identify the specific number of children's performances which were rated as "Unacceptable" by teachers beyond the number which were found to be "Unacceptable" by the specialists. Table 9 represents the results of this tabulation.

Comparison of the data represented in Tables 5a, 5b, 5c, and Table 9 indicates that although there was a general tendency which increased the percentage of under-rating of children's performances between the October and May evaluations, the actual number of children evaluated as having "Unacceptable" performances decreased slightly between the two evaluation periods.

The same method of analysis was used to tabulate the number of performances per task which the teachers rated as "High" compared to the number of such ratings given by the specialists. Table 10 represents the results of this tabulation.

Table 9. Teacher "U" ratings compared to specialist "U" ratings per task

Task	No. of Teachers		Teacher "U" Ratings		Specialist "U" Ratings
	Oct.	May	Oct.	May	
Kindergarten:					
Copy Forms	28	27	96	84	1
Copy Dots	3	6	4	6	4
Copy Sentence	14	10	23	21	2
Total	45	43	123	111	7
First Grade:					
Copy Forms	28	27	70	57	1
Copy Dots	2	2	2	2	4
Copy Sentence	5	10	7	16	2
Total	35	39	79	75	7
Second Grade:					
Copy Forms	24	17	63	39	1
Copy Dots	2	3	2	3	4
Copy Sentence	4	5	6	7	2
Total	30	25	71	49	7
Total			273	235	

The results of Table 10 indicate that, generally, there were fewer teachers who over-rated at the "High" performance level, and fewer children involved in this rating, than those involved in under-rating, as shown in Table 9. With the exception of the number of children receiving a "High" performance rating at the Second Grade teacher level, all other figures indicate a decrease in both the number of teachers and children involved in over-rating between the October and May evaluation periods.

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Table 10. Teacher "H" ratings compared to specialist "H" ratings per task

Task	No. of Teachers		Teacher "H" Ratings		Specialist "H" Ratings
	Oct.	May	Oct.	May	
Kindergarten:					
Copy Forms	2	2	3	5	3
Copy Dots	16	11	47	38	5
Copy Sentence	8	5	17	11	4
Total	26	18	67	44	12
First Grade:					
Copy Forms	6	3	10	6	3
Copy Dots	18	18	54	59	5
Copy Sentence	15	6	30	15	4
Total	39	27	94	80	12
Second Grade:					
Copy Forms	5	6	8	13	3
Copy Dots	14	16	32	41	5
Copy Sentence	8	9	24	21	4
Total	37	31	64	75	12
Total			225	199	

The results of these two investigations concerned with teacher evaluations at either end of the performance scale, as illustrated in Table 9 and Table 10, give some indication of a certain degree of consistency of evaluations within a portion of the teachers involved in this study. Individual teacher stability in evaluations over time (October-May) was checked for reliability purposes by a Correlation Matrix Scale. The result of this test-retest correlation method was low, indicating that the correlation between teacher responses at the two evaluation periods was

at about the same level as could be expected between two individual test items.

The results of the study, as given in Tables 5a, 5b, 5c, and Tables 9 and 10, support the hypothesis that where disagreement exists between the way in which teachers and specialists evaluate the eye-hand coordination skills of Kindergarten children, the direction of disagreement is more apt to be one of under-rating these skills on the part of the teacher.

Summary

The general hypothesis that the evaluations of early elementary teachers on the eye-hand coordination skill development of Kindergarten children would not agree with the evaluations of specialists in the field of Child Growth and Development was supported by the data. The highest Mean percentage of agreement of these teachers, as a group, with the specialists was 49.9 per cent on the Copy Sentence task. Agreement, as defined, was a minimum of 50 per cent or better on all tasks.

Of the three hypotheses which focused on teacher familiarity with the copy tasks (H_2, H_3, and H_4) only H_4 concerning a higher degree of agreement between the evaluations of the teachers and the specialists on the Copy Sentence task was valid.

The hypotheses dealing with the teacher variables of grade level (H_5), years of teaching experience at grade

level (H_6), and academic training (H_7), and the degree of agreement between these variables and the evaluations of teachers as compared to those of specialists did not differentiate at the .05 Level of Significance when tested by the Chi Square Test of Significance. That is, the results of analysis of the data relative to these three variables indicated that, for the purpose of this study, all the teachers involved in the project could be considered collectively as one group. The grade level at which the teacher taught, the number of years of teaching experience at grade level, and academic training made no significant difference in the way in which teachers evaluated the eye-hand coordination skills of Kindergarten children.

The last hypothesis relating to the nature of teacher disagreement from criterion (specialists' evaluations) was accepted on the basis of the data presented. Where disagreement existed between teachers and specialists, the nature of disagreement was more apt to be negative, or one of underrating the child's performance, on the part of the teacher.

The following table presents a brief summary of the status of the tested hypotheses as a result of the accumulated and analyzed data.

Table 11. Summary of tested hypotheses

Hypothesis	Focus	Status
One	Teachers do not agree with specialists	Accepted
Two	Teachers agree less on Copy Form task	Rejected
Three	Teachers agree more on Copy Dots task	Rejected
Four	Teachers agree most on Copy Sentence task	Accepted
Five	Kindergarten and First Grade teachers agree most with specialists	Rejected
Six	Experience at grade level will not be significant	Accepted
Seven	Academic training will be significant	Rejected
Eight	In disagreement, teachers will be more negative	Accepted

Conclusions, implications of the research findings and further discussion concerning the results and assumptions relating to the results, with suggestions for future investigations within this area of study will be presented in Chapter V.

Conclusions

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CHAPTER V

CONCLUSIONS AND IMPLICATIONS

Conclusions

Within the limitations imposed on this investigation and defined in Chapter I, the following conclusions appear to be justified:

1. Early elementary classroom teachers do not agree with Child Growth and Development specialists in their evaluations of the eye-hand coordination skill development of Kindergarten children. Agreement on the evaluation of these skills between the teachers and specialists was less than 50 per cent. The composite Mean percentage of agreement, over the two evaluation periods, ranged from 41 per cent on the Copy Dots task to 49.9 per cent on the Copy Sentence task.
2. Kindergarten, First and Second Grade teachers are consistent within themselves in their evaluations of eye-hand coordination skills, inferring a uniform standard of evaluation within themselves and/or the educational establishment. The factor of grade level differences was tested by the Chi-Square Test

of Significance and found not significant at the .05 level. Less than a 4 per cent difference existed between the evaluations of the three grade level groups. This small degree of difference between grade level evaluations was consistent on all three tasks.

3. The extent of formal education and teaching experience appear to have no relationship to the degree in which early elementary teacher evaluations agree with specialists on the eye-hand coordination skills of Kindergarten children. The variables of years of teaching experience at grade level and academic training were tested by the Chi Square Test of Significance and found not significant at the .05 level.
4. Early elementary teachers have a tendency to evaluate negatively the performance abilities of Kindergarten children on eye-hand coordination tasks. Where disagreement existed between the teacher evaluations and those of the specialists, the percentage of teacher responses which under-rated children's performances ranged from 18.5 per cent on the Copy Dot task to 45.1 per cent on the Copy Form task with a composite Mean (over all tasks on both evaluation periods) of 29.6 per cent. The percentage of teacher responses which rated performance above the specialists' ratings ranged from 7.8 per cent on the

Copy Form task to 38.9 on the Copy Dot task, with a composite Mean of 23.2 per cent.

5. Kindergarten teachers show a tendency to evaluate negatively the performance abilities of Kindergarten children on eye-hand coordination tasks more frequently than do First and Second Grade teachers. Kindergarten teachers showed a higher percentage of under-rating of children's performances on all tasks during both evaluation periods, with the exception of the Copy Dot task in the October evaluation period, than did teachers of the first and second grades. Kindergarten teachers showed an increase in the number of under-ratings (negative evaluations) over time. First and Second grade teachers showed a decrease in the number of under-rated performances over time.

6. Over time the teacher evaluations on these eye-hand coordination skills showed a decrease in the number of ratings at either end of the performance scale ("High" and "Unacceptable"), inferring a greater clustering around some expected or uniform standard of their own devising. The number of "Unacceptable" performance ratings dropped from 273 in the October evaluation period to 235 in the May evaluation. The number of "High" performance ratings dropped from

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225 in the October evaluation period to 199 in the May evaluation.

Educational Implications and Discussion

The data gathered from this investigation comparing the evaluations of early elementary teachers and Child Growth and Development specialists on the eye-hand coordination skill development of Kindergarten children appears to have possible implications for several facets of the educational process.

Research has established, fairly conclusively, that the ability to coordinate a visual stimuli with a motor response is a developmental skill, culminating generally at eight to ten years of age. This particular aspect of child development is not a new nor recent finding as indicated by Gesell's early work and publications in this area. The results of this investigation indicate that the expectations of the teacher and the school concerning the eye-hand coordination ability of these Kindergarten children appear higher than might be expected if the research on this skill development from Child Growth and Development specialists were used as a criteria. It is difficult to ascertain whether the wide discrepancy between the way in which teachers evaluate these skills, as compared to the specialists' evaluations, is due to lack of information concerning the developmental aspects of this ability, or due to their succumbance to the

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This study indicated that neither the number of years of formal education nor the number of years of teaching experience at present grade level were significant factors in the way in which teachers evaluated the performance abilities of these children. Thus, it cannot be assumed that education courses, per se, nor teaching experience will automatically produce educators knowledgeable in the various areas of study concerned with how children grow and learn. If it can be assumed that lack of information is a factor in the way in which these teachers evaluated these developmental skills, then it would appear that there is need for more and/or better experiences in the study of Child Growth and Development at the teacher education level. Deliberate focus on and application of these knowledges appear to be essential in both the pre-teaching and in-service teacher education programs.

A second implication, as the result of this study, has to do with the role of the educator in our society. If the assumption can be made that the wide discrepancy between the evaluations of the teachers and specialists is due, at least in part, to a surrendering to the pressures of academic acceleration on the part of the teachers, then some discussion concerning the role and influence of the teacher in our society appears relevant. Hilda Taba, in her 1964

ASCD Convention address,[55] pointed out three broad areas of educational commitment; to perpetuate the culture, to advance the culture, and to serve as a "countervailing force" against those pressures which would be harmful to human development within the culture. She states that the educator has been primarily concerned with his role in the first commitment, is becoming more concerned with his role in the second commitment, and generally, has not seen himself as having a role in the third commitment. The swift technological advancements of our current society have created this new role function for educators. To stand firm in the face of national and community pressures, to serve as a protectorate of the welfare of children as well as an advocate of appropriate progress requires the use of the best available knowledges concerning all facets of education, and particularly that which relates to the child himself--how he grows and learns. Furthermore, these knowledges and their relationship to the school curriculum must be extended into the home and community by the educator. Archibald MacLeish, in his article "The Great American Frustration,"[56] appears to substantiate Taba's argument by saying that the

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[55]Hilda Taba, "The Child in a Technological Society," tape recording (Denver, Colorado: 20th Annual Conference of the Association for Supervision and Curriculum Development, March 1964).

[56]Archibald MacLeish, "The Great American Frustration," Saturday Review, July 13, 1968, pp. 13-16.

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educator today is behaving as a "consumer" of a technological society, responding mechanically to established educational functions and standards with a fatalistic attitude concerning man's future ability to exert any influence or control over his own destiny. MacLeish further states that it is the educator, above all others, who has the knowledges (or should have) and the opportunity to become the "pioneer" or "shaper" of a humanitarian culture. These new demands upon the role and function of educators require competencies in the area of knowledges (Child Growth and Development) with which this study has been concerned.

The results of this investigation indicated that although these early elementary teachers did not agree with the specialists on their evaluations of the eye-hand coordination skills of Kindergarten children, they did agree almost completely among themselves. This finding appears to imply either a mutually-perceived performance standard that has developed within themselves as a group, or an institutional expectation to which they are mutually adhering. Warner, in his studies concerning the disadvantages faced by the lower-class child when competing academically with children from the middle class, feels that both the teacher and the school are significant factors in evaluative judgments. He states:

> The teacher's judgements of children and of standards of performance are inevitably based

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> upon their own personal standards, buttressed by those set by the school as an institution.[57]

The teachers involved within this study represented three different grade levels, in 37 different elementary school settings within 11 different school districts of the Ingham Intermediate District, yet the evaluation standards of these teachers were surprisingly uniform. What, then, might be the possible sources or basis for this uniformity of evaluation?

Hurlock mentions, as quoted in Chapter II, that children's performance skills are too frequently evaluated on the basis of perfected performance abilities as perceived and accomplished by adults. It might also be assumed that another possible source of these uniform performance standards lies in the generally accepted published materials and teaching methods utilized within the schools of this area. Textbooks, workbooks, and teaching activities requiring the use of specific skills might imply to the classroom teacher that such skill development is normal and to be expected for a particular age/grade child. Whether this implication is valid or not, the teacher or school may incorporate this performance expectation within their own performance standards and, thus, develop or strengthen both uniform personal and institutional evaluation standards. As the materials

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[57] W. L. Warner, American Life: Dream and Reality (Chicago: University of Chicago Press, 1953), p. 177.

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and methods used within the school districts involved in this study are little different from those accepted for use throughout the state and nation, it is conceivable that the evaluations of these early elementary teachers concerning the eye-hand coordination skill development of Kindergarten children might reflect similar evaluations or performance expectations of a broader teacher population than the one tested here. If the data collected and analyzed within the limitations of this study reflect, (with a degree of reliability) the way in which teachers generally evaluate the eye-hand coordination skills of Kindergarten children, and if these evaluations represent a level or standard of judgment which may be similar to those of a larger teacher population, what implications does this have for a multitude of early school learners?

The results of the present investigation indicated that where there was a discrepancy between the evaluations of teachers and specialists, the direction of disagreement tended to be one of under-rating or negatively evaluating the child's performance on the part of the teacher. Kindergarten teachers showed the highest percentage of negative evaluations among the three teacher groups. It is understood that eye-hand coordination tasks at this age/grade level account for only a portion of the activities upon which a Kindergarten child is evaluated, however, the fact that these activities are considered important enough to be

included, in one form or another, in most reliable school readiness and mental maturity tests indicates their relationship to learning ability and academic success. Although the selected tasks used for comparative purposes within this study are limited in number, these kinds of activities are considered to be highly significant in a teacher's total evaluation of a child's abilities within the school setting. Thus, if the teacher or school performance standards for these tasks are higher than standards based on research findings from Child Growth and Development specialists, then the cut-off point between what is perceived as being "Acceptable" and "Unacceptable" performance in these skills will unjustly affect a large group of children.

Reviewing the findings of the present research investigation from the viewpoint of its relationship to the above information, it is very possible that a large number of children who might otherwise be perceived as performing within the normal or acceptable range of ability on these eye-hand coordination tasks are being under-rated and, consequently, found (consciously or unconsciously) less acceptable by the teacher. Research studies, previously reported, indicate that the attitudes of the teacher toward the child and his performance ability can make significant differences in the way in which the child comes to perceive himself as a person and a learner. These studies also show a positive correlation between an accepting attitude on the part of the

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teacher and a positive self-concept on the part of the child. Several studies further indicate that where performance is not "up to expectation" the kind of attention given the child by the teacher can have derogatory effects upon future learning experiences of the child. Allinsmith and Goethals, in their report of the findings of the Joint Commission on Mental Illness and Health, found that when a student presented problems to the school or challenged its preconceived standards or functions some kind of action seemed to be required. They add:

> Action is most usually desired from pressures on the child to change his behavior rather than on teachers to change their behavior. . . . The first step is often to segregate the pupil through separate classes, separate schools or separate periods of special instruction.[58]

With the current impetus on the early identification of the child with "learning disabilities" or "potential disabilities" it is conceivable that a portion of the children represented in the present study, may be erroneously labeled and referred for special attention by these classroom teachers. This can be a humiliating and dehabilitating experience for the beginning school child. Dinkmeyer reinforces this point by saying:

> Because of the potency of the desire to be accepted as a participating member of the group, it is a painful experience for any child to feel

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[58] W. Allinsmith and G. W. Geothals, The Role of Schools in Mental Health, Joint Commission on Mental Illness and Health (New York: Basic Books, Inc., 1962), p. 39.

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> inferior or unacceptable. Such feelings restrict the development of social interest and have a negative effect on the formation of the self-concept.[59]

It may be speculated that either because of a lack of specific knowledge on the part of classroom teachers, concerning how children grow and learn, or a turning of the mind away from the utilization of these knowledges in the face of societal pressures, many children are possibly being confronted with unnecessary feelings of academic failure and unaccepting attitudes within their first year of educational experience.

Summary

Two forces have created concerns, on the part of researchers in Child Growth and Development, for the educational and emotional welfare of the early elementary school child. Societal circumstances appear to be creating pressures on the educational institutions of this country to accelerate the learner and his academic achievements. Commensurate with these pressures for educational acceleration has been an impetus for the early identification of the child who may not be able to keep up this academic pace. It was the purpose of this study to investigate the extent to which some of the expectations of the school compared with similar expectations based on research findings from the

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[59]Don C. Dinkmeyer, Child Development: The Emerging Self (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), p. 208.

field of Child Growth and Development, and to discover the nature of the discrepancy between these two expectations, if such existed.

The eye-hand coordination skill development of Kindergarten children was selected as a focus point for this investigation. Three school-related eye-hand coordination tasks which had been normed on large groups of Kindergarten-age children were selected for use in this project; Gesell's Copy Forms and the Ten-Dot Gestalt and Sentence Gestalt subtests of the Anton Brenner Developmental Gestalt Test for School Readiness. Samples of these tasks were gathered from 104 Kindergarten children within the Ingham Intermediate School District (excluding the City of Lansing) during the spring of 1967. These samples were evaluated by three experienced School Diagnosticians according to criteria established by authorities in Child Growth and Development. Fifteen samples of each of the three tasks, representing a full range of performance ability, were randomly selected and reproduced for presentation to teachers for ther evaluation. One Kindergarten teacher, one First Grade teacher, and one Second Grade teacher from each of the 37 elementary schools within the Ingham Intermediate District were randomly selected to evaluate these samples of children's work. The same samples were evaluated by the same teachers during October and May of the 1967-68 school year. These evaluations were analyzed for differences between the grade levels,

teaching experience at grade level and academic training represented within the teacher group. The teacher evaluations were then compared with the evaluations of the children's work derived from specialists in Child Growth and Development. Where discrepancies in the evaluations of these two groups existed, the nature of the discrepancies were noted.

Significant Findings

Analysis of the data indicates that these early elementary classroom teachers agree less than 50 per cent with specialists on the evaluation of the eye-hand coordination skills of Kindergarten children. The data showed that, although there was a wide discrepancy between the evaluations of the teachers and the specialists, there was little discrepancy among the evaluations of the teachers from the three grade levels. That is, the teachers of these three grade levels evaluated the children's work in much the same manner, as if adhering to a uniform evaluation standard of their own, rather than one more congruent with Child Growth and Development research. The data further indicated that teacher familiarity with the nature of the eye-hand coordination tasks used, proximity to the Kindergarten-age child (grade level of the teacher), teaching experience at grade level, and academic training were not significant as factors which might make a difference in teacher evaluations of children's performances in these selected tasks.

Where discrepancies existed between the evaluations of the teacher group and the specialists, the direction of disagreement was more apt to be one of under-rating the child's performance on the part of the teacher. Kindergarten teachers appeared to be more negative in their evaluations of Kindergarten children's skills than did teachers of the First and Second grade levels. Comparison of the teacher evaluations over time revealed fewer "High" and "Unacceptable" performance ratings in the May evaluation than in October, indicating a tendency, on the part of this teacher group, to respond to fewer differences in children's performance abilities over time.

Implications for Further Research

This study has shown how early elementary teachers evaluate selected eye-hand coordination abilities of Kindergarten children, and compared these evaluations to those of specialists in the field of Child Growth and Development. Duplication of this study and similar kinds of research are needed before more conclusive statements can be made concerning the consistency of evaluation standards within classroom teachers as a group, and between various grade level groups of teachers. Comprehensive research of this nature would first require further investigation on the part of Child Growth and Development authorities into school-related developmental tasks to which teacher evaluations might later be compared. At present, the number of tested and "normed"

school-related developmental activities, similar to the eye-hand coordination tasks used in this study, are limited. Previous investigations have compared teacher expectations (Scholten)[60] and evaluations (Stern, Stern and Bloom)[61] with those of child psychologists, but these investigations have been limited to paper and pencil responses on what teachers would expect, and how they would evaluate children's behavior and abilities. It would appear that further research based on actual teacher behavior towards children's performance abilities, rather than what they say they would do, could be extremely meaningful.

Several studies (Brandt and Perkins; and Haring)[62] report modifications of teacher judgments about pupils toward greater accord with those of child specialists through study and discussion. A replication of this investigation, with the inclusion of teacher study in the areas of Child Growth and Development between the two evaluation

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[60]Eugene Alvin Scholten, "School Readiness, A Study Comparing the Attitudes of School Psychologists and Kindergarten Teachers" (unpublished Ph.D. dissertation, Michigan State University, 1965).

[61]G. G. Stern, M. I. Stern, and B. Bloom, Methods of Personality Assessment (Glencoe, Illinois: Free Press, 1956).

[62]R. M. Brandt and H. V. Perkins, "Research Evaluating a Child Study Program," Monograph of the Study for Research in Child Development, 1956; and N. G. Haring, G. G. Stern, and W. M. Cruickshank, Attitudes of Educators toward Exceptional Children (Syracuse, New York: Syracuse University Press, 1958).

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The present study dealt solely with the results of early elementary teacher evaluations on selected developmental tasks performed by Kindergarten age children. A highly "significant other" in the child's learning environment is the parent. A study investigating parental evaluations of these skills, particularly evaluations from the mothers of Kindergarten, First and Second grade children, might give pertinent information relative to community expectations regarding this skill development. Most certainly, the results of a similar study designed to elicit parental evaluations of children's abilities, would indicate some general parental understandings concerning the growth and development of their own children, and possibly indicate some of the parental pressures which might be imposed on the child and sequentially upon the teacher and school.

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APPENDICES

APPENDIX A

LETTER FROM A. BRENNER

Miss Jane
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APPENDIX A

THE MERRILL-PALMER INSTITUTE OF
HUMAN DEVELOPMENT AND FAMILY LIFE
71 East Ferry Avenue
Detroit, Michigan 48202
June 14, 1967

Miss Jane Scandary, Board of Education
Ingham Intermediate School District
Division of Special Education
147 West Maple Street
Mason, Michigan 48854

Dear Miss Scandary:

I apologize for the delay of my reply to your letter of May 31. We had the end of the semester, faculty meetings and new students coming in.

Here is what I think:

1. I agree with you that the current pressures for acceleration, etc., may lead to unrealistic expectations. Read some of my concerns in the forthcoming 1966 Collected Papers of the Inter-Institutional Seminar in Child Development which probably also will have an article by Dr. Sause.

2. There are not only two sub-tests of my Gestalt Test which assess perceptual development - 10 Dot and Sentence - and later on have an extremely strong perceptual component, especially also the number reproducing activity. Read and study the manual carefully and you will agree with me.

3. If you want to study age in relation to each sub-test performance, you can (a) do this for yourself by studying large populations which you can test in a short time because the performance on the Gestalt Test requires only five minutes per child as an average. For a doctoral dissertation you can manage a sizeable number of children in a relatively short time. (b) I have away over 1,000 case informations

If I can
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about children from various school systems which would allow you to develop age norms empirically. If you are interested I think I can make the data available to you.

4. In case you don't have a manual or the Test and would like to place an order, the enclosed sheet gives you the necessary information.

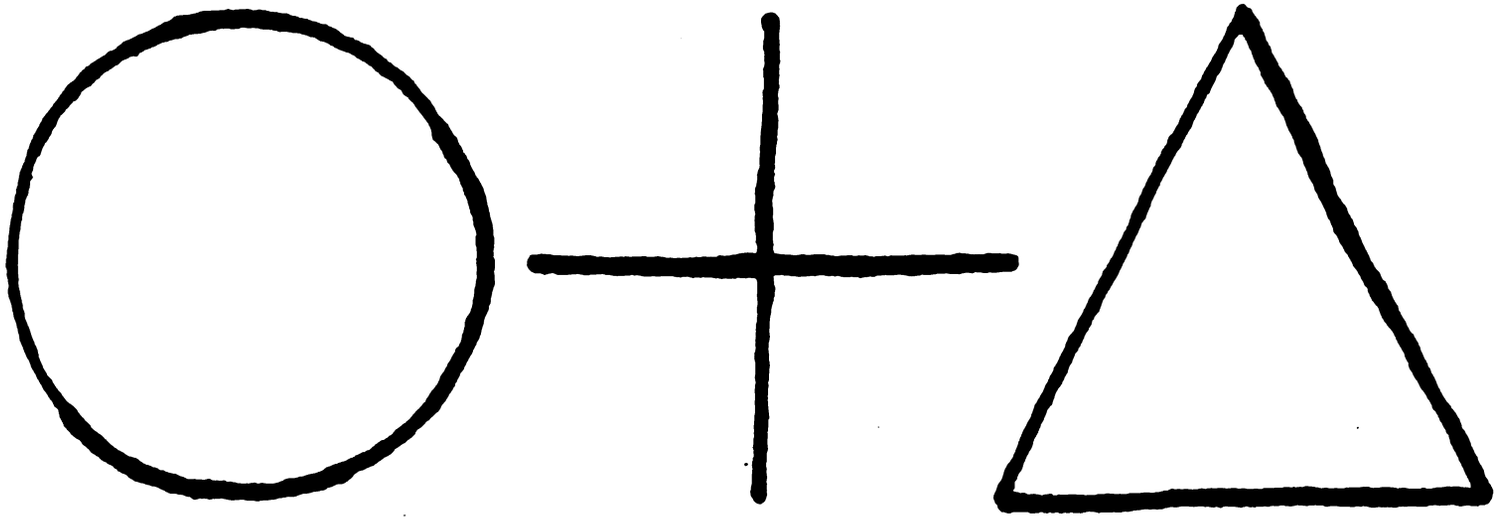
If I can be of further help please let me know. Also, give my best regards to Dr. Sause.

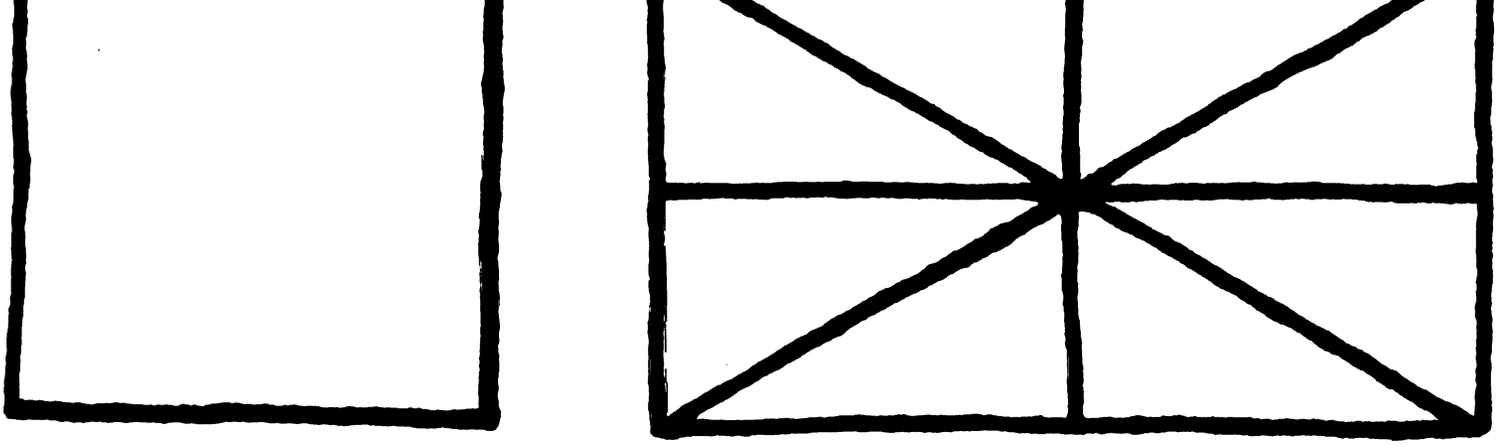
Sincerely yours,

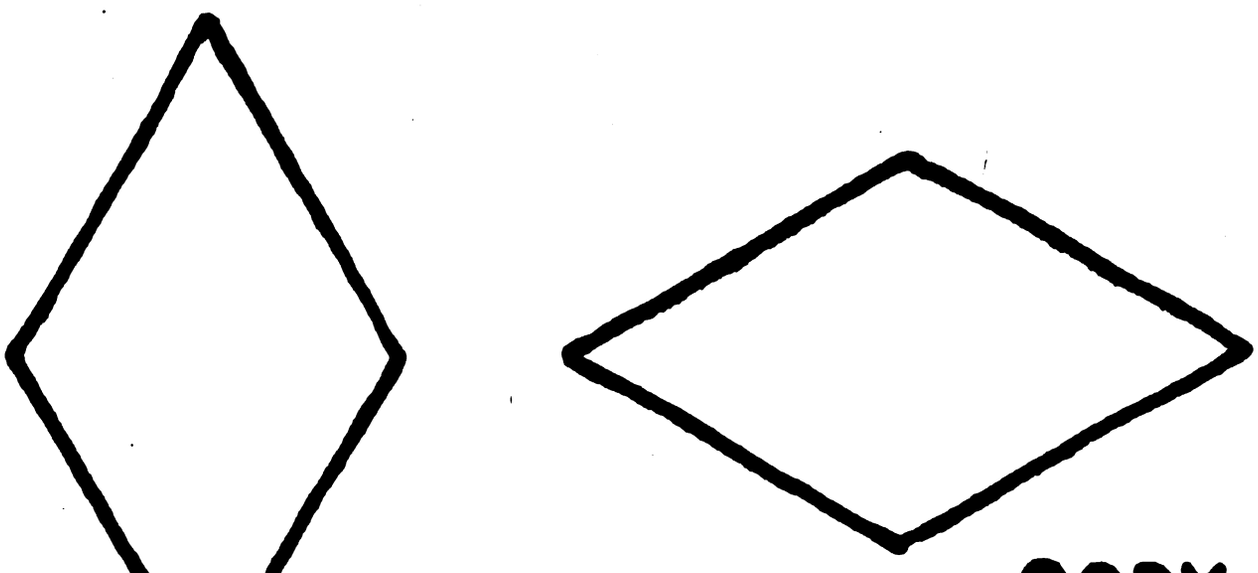
Anton Brenner

APPENDIX B

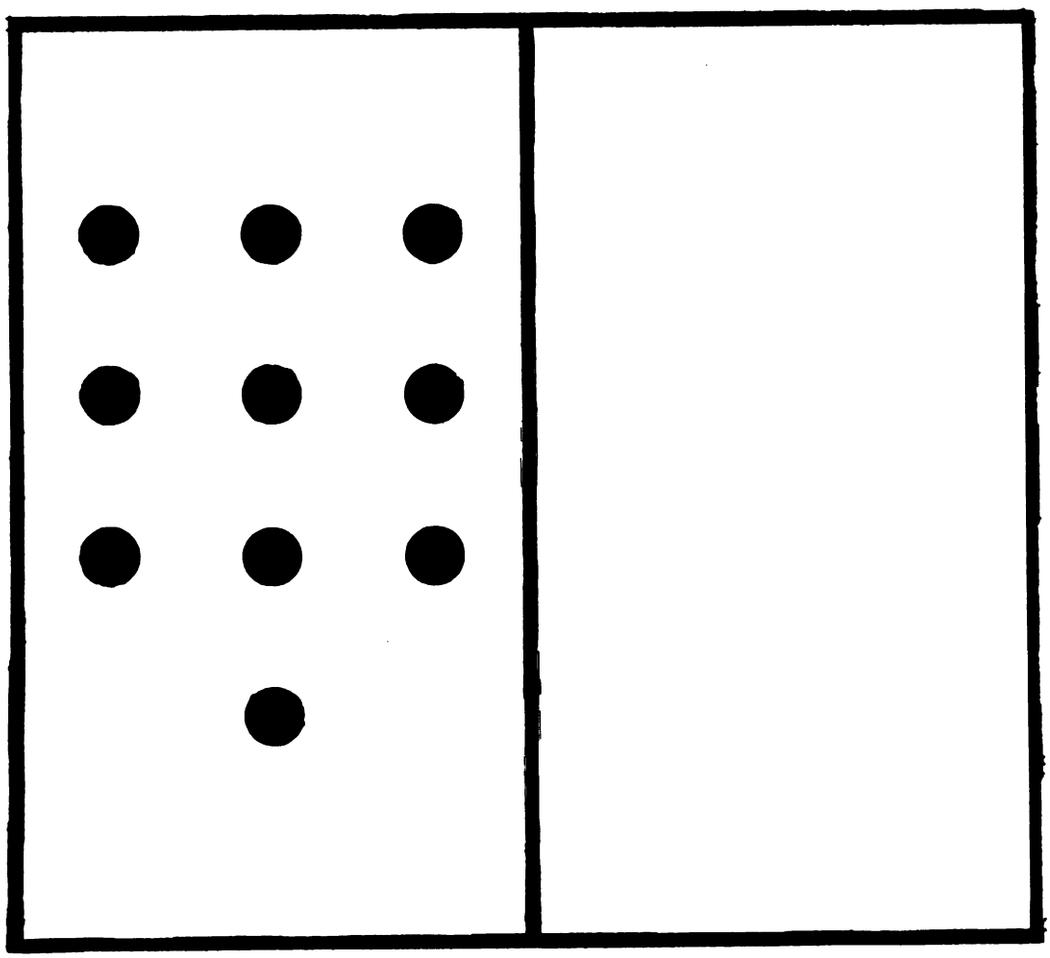
SAMPLE TASKS GIVEN TO KINDERGARTEN CHILDREN







Section I - COPY FORMS



Section II - COPY DOTS

Fred is here

Section III - COPY SENTENCE

APPENDIX C

SCORING RATIONALE AND CRITERIA FOR SCHOOL DIAGNOSTICIAN EVALUATIONS OF CHILDREN'S MATERIAL

APPENDIX C

RATIONALE AND SCORING CRITERIA

GESELL COPY FORMS

The Gesell Copy Forms are considered to be more representative of growth and development (maturation) than of specific classroom training. Furthermore, the mechanics involved do not allow for ease of specific scoring. The Gesell Copy Forms, therefore, will be judged on an gestalt impression and interpretation of growth level within the following guidelines.

Circle

1. Most girls by age 5½ and boys by age 7 should begin their circle at the top.
2. Most girls and boys by age 5½ should use only one continuous line.
3. Most girls by age 6 and boys by age 7 should perform in a counter clockwise direction.
4. Gross distortions of shape are unacceptable.

Cross

1. Most boys and girls should make their vertical line from top to bottom by age 5½.
2. Most boys and girls should make their horizontal line from left to right by age 5½.

3. Most boys and girls should use only two lines by age 5½.
4. Gross distortions are unacceptable.

Square

1. The approach incorporated by most children is so varied that specific procedural guidelines cannot be established.
2. Gross distortions are unacceptable.

Triangle

1. The approach incorporated by most children is so varied that specific procedural guidelines cannot be established.
2. Most 5½ year olds experience some, even though it may be limited, success.

Divided Rectangle

1. The approach incorporated by most children is so varied that specific procedural guidelines cannot be established.
2. Only two out of three 5½ year olds use one kind or another of internal crossover pattern.

Diamond

1. The reproductions of most children are exceedingly varied both in procedure and in quality. For a 5½

or 6 year old child almost any production is acceptable (F. Ilg and L. Ames, School Readiness).

Scoring criteria for Brenner material is listed on a separate sheet.

ANTON BRENNER DEVELOPMENTAL GESTALT TEST

FOR SCHOOL READINESS, TEST MANUAL

Sub-Test II

+ Response: correct identification of all dot groups with same number of dots: all 1's, all 2's, all 3's, all 4's, all 5's, all 6's.

- Response: if one or more groups with same number of dots are wrong or not answered. Range of Scores is +6 to -6.

Sub-Test III

Suggestion: Open BGT Protocol Booklet so Ten Dot Gestalt and sentence "FRED IS HERE" is on left, and page with scoring system is on right.

Scoring must be done with care and accuracy.

There are nine scorable parts:

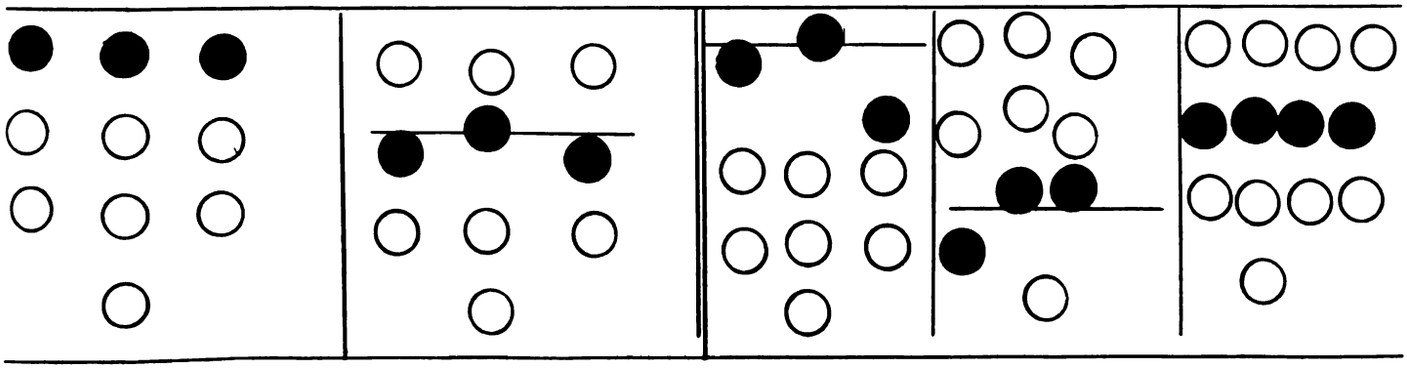
1-2-3. The three horizontal groups of three dots each are scored separately. A + is given if there are three dots and the three dots satisfy the condition of linearity: no dot is so out of line that a portion of that dot does not touch a line connecting the surfaces of the other two dots. (See example.) A minus (-) score results if the three dots are not present or linearity is not met.

Horizontal

Solid dots represent group evaluated.

Plus

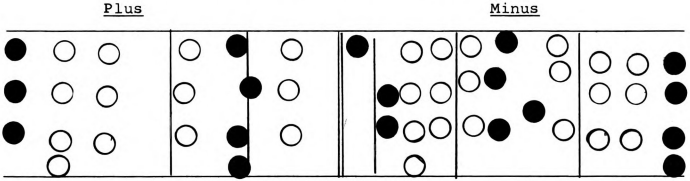
Minus



4-5-6. Each of the three vertical groups of dots is scored separately. A + score is given if there are three dots in an external row and linearity is met; a + score is given if there are four dots in the center row and linearity is met. A - score is given if three dots are not in the external rows or, linearity is not met; a - score is given if four dots are not in the center row or linearity is not met. (See examples.)

Vertical

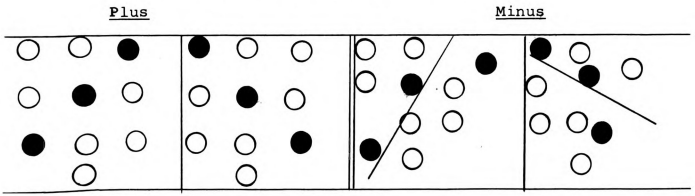
Solid dots represent group evaluated.



7-8. The two diagonal groups of three dots are scored separately. One group contains the lower-left dot, the center dot, and the upper right dot; the other group contains the lower right dot, the center dot, and the upper left dot. A + score is given if there are three dots and linearity; a - score is given if there are not three dots or no linearity. (See examples.)

Diagonal

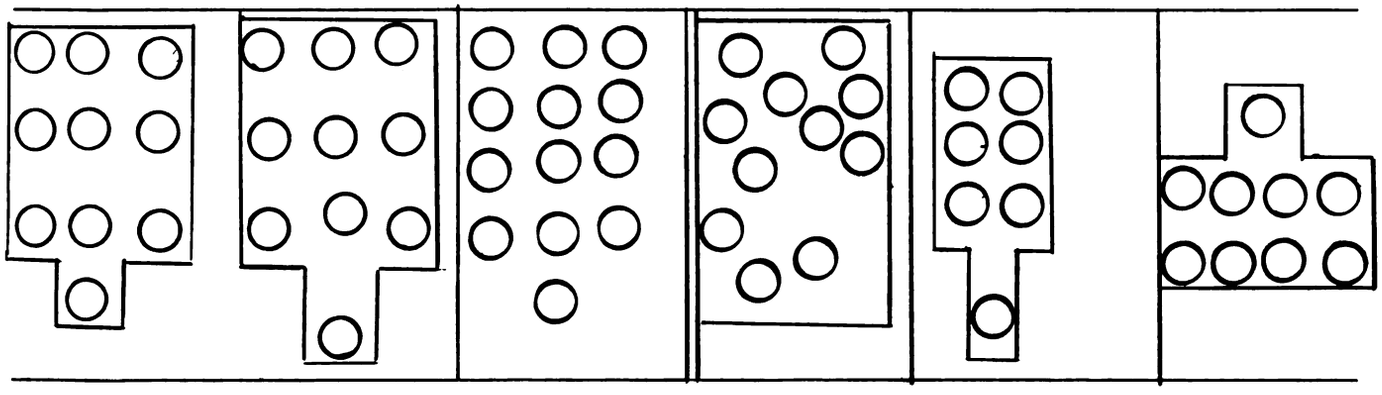
Solid dots represent group evaluated.



9. A + score is given for form or outline of the total dot figure. Configurations formed should approximate a large square with small square attached to the center of the lower boundary. If these conditions are not met, score is a - one. If the four corners roughly form a square, one dot or more inside can be missing--but bottom dot of middle vertical row must be present--a + score is given. (See examples.)

Form

Plus Minus



If there is doubt about scoring, balancing will help. For instance, if one is overly-precise in scoring one item, he can be lenient regarding a doubtful item. Criteria, in general, must be strictly applied.

Range of scores is +9 to -9.

Sub-Test IV

1. Each recognizable letter is a + score.

2. A space between "Fred" and "is" is a + score; if space is omitted, it is a - score.

3. A space between "is" and "here" is a + score; if space is omitted, it is a - score.

4. Each omitted letter is a - score.

5. Inverted, rotated, or reversed letters are scored zero (0).

6. Unrecognizable letters are scored zero (0).

7. Two consecutive letters inverted, rotated or reversed are a - score.

8. Three or more consecutive letters inverted, rotated or reversed are a 2 - score (=).

Zero scores are not counted in totaling + or - scores. Zero scores of reversed or unrecognizable letters suggest a higher development than do omissions, no perceptions, or inability to produce. They are better than minus scores, but not yet at a plus score level.

Range of scores is +12 to -12.

APPENDIX D

LETTER TO PRINCIPAL AND

LETTER AND SCORING SHEET TO TEACHERS

APPENDIX D

INGHAM INTERMEDIATE SCHOOL DISTRICT
Division of Special Education
147 W. Maple Street
Mason, Michigan 48854

Dear Principal:

The material enclosed in this manila envelope has been prepared as a part of an Ingham Intermediate School District Research Project for the 1967-68 school year.

This research project has been presented to your school superintendent and he has given approval for his school district to be included and cooperative in this study.

It is the intent of this project to see how kindergarten, first grade, and second grade teachers evaluate the copying skills of kindergarten children.

This envelope contains three booklets of children's work, project information and evaluation sheets which are to be presented to <u>one</u> kindergarten teacher, <u>one</u> first grade teacher, and <u>one</u> second grade teacher in your school building.

All elementary schools in Ingham County, excluding the City of Lansing, will be involved in this project. There will be 111 teacher participants. Neither the name of the teacher nor the school district is important to the study.

We would be most grateful for your help and cooperation in gathering the necessary data for this project.

Sincerely,

Mrs. Jane Scandary
Director, Research Project
Ingham Intermediate School District

Building Principal Instructions:

1. Randomly select one kindergarten teacher, one first grade teacher, and one second grade teacher as participants for this study. Drawing names out of a hat is an appropriate means of random selection. Where only one teacher per grade exists, there is no question as to selection.

2. Approach the selected teachers and request their cooperation with the study. Give the large manila envelope to one teacher at a time. Information and directions for their use are enclosed for each grade level.

3. Request that each teacher evaluate the samples individually, and return her evaluations in a sealed envelope along with the sample booklets to you as soon as possible--in order that you may present this material to the next teacher selected.

4. The manila envelopes will be picked up two weeks from the time of distribution by a staff member of the Ingham Intermediate School Office.

5. When ready for return, the large manila envelope should contain:

    a. the three sample booklets
        Section I Copy Forms
        Section II Copy Dots
        Section III Copy Sentence
    b. three white sealed envelopes containing the evaluations of
        one kindergarten teacher
        one first grade teacher
        one second grade teacher
        from your building.

For further information or questions concerning this project, please feel free to call the project director:

Mrs. Jane Scandary
Ingham Intermediate School Office
Mason, Michigan
Phone: 677-3481

Home:
3606 Macon Avenue
Lansing, Michigan
Phone: 372-1563

INGHAM INTERMEDIATE SCHOOL DISTRICT
Division of Special Education

April 1, 1968

TO THE PRINCIPAL:

Last fall you helped us immensely in selecting teachers from within your building to take part in this research project. As you will recall, at that time we mentioned that we would be back again for a second evaluation in the spring of this school year (May 1968).

Your help and the cooperation of your teachers has been most encouraging--and we are most grateful for it.

Please follow the same procedures--with the same teachers as you selected for the project last fall.

Results of the project will be made available to you and your teachers by the middle of next fall.

Thank you for your help.

Jane Scandary

JS:bva

INGHAM INTERMEDIATE SCHOOL DISTRICT
Division of Special Education
147 W. Maple Street
Mason, Michigan 48854

Dear Teacher:

The material presented here for your evaluation is part of an Ingham Intermediate School District Research Project. It is the intent of this project to see how teachers of kindergarten, first grade, and second grade evaluate the copying skills (eye-hand coordination) of kindergarten children. We would be most grateful for your help and cooperation in gathering the necessary data for this project.

This material is being presented to one kindergarten teacher, one first grade teacher, and one second grade teacher in each elementary school in Ingham County, excluding the City of Lansing. There will be 111 participants in this study. Neither the name of the teacher nor the school district is important to the study.

Thank you so much for your cooperation, time, and effort in this project.

Sincerely,

Mrs. Jane Scandary
Director, Research Project
Ingham Intermediate Schools

GENERAL INFORMATION:

The material enclosed is presented in three sections, according to the three copy tasks selected for evaluation and study.

Section I	Copy Forms
Section II	Copy Dots
Section III	Copy Sentence

Each section contains 15 samples of children's work on these tasks, representing a full range of skill ability from High through Unacceptable performance skills.

These samples were randomly selected from samples of work done on all three tasks by 104 kindergarten children from various school districts in Ingham County (excluding the City of Lansing). Work samples were collected during the last two weeks of May, 1967.

All 104 kindergarten children had completed one full year of kindergarten experience and were scheduled to enter first grade in the fall of 1967.

The mean age of the children at the time of testing was 6 years-3/4 month, with an age range of 65 months to 83 months.

All sample work was gathered individually. Instructions to the children required that they "Look at the picture" presented before them (whether the Copy Forms, Copy Dots, or Copy Sentence) and "Make one like it." Reading, counting, or other responses were not required.

GENERAL INSTRUCTIONS:

1. It is important that each teacher to whom this material is presented DO HER EVALUATIONS INDIVIDUALLY--and in accord with HER OWN CRITERIA FOR JUDGMENT.

2. Please be sure to complete the questions at the top of the evaluation sheet concerning your teaching assignment and past experience.

3. When the evaluation sheet is completed, please fold and seal it in the envelope provided for you. Return both the sealed envelope and all sample books to your building principal as soon as possible.

4. The booklets of samples may be taken apart for evaluation purposes. When finished, please reassemble the sample material in the correct order before rebinding. Return all sample material in the kit as it was originally presented to you.

SCORING INSTRUCTIONS:

1. There are three sections of copy tasks presented for your evaluation:

Section I	Copy Forms
Section II	Copy Dots
Section III	Copy Sentence

2. Each section contains 15 examples of work done by children who have completed one year of kindergarten experience.

3. Evaluate each sample on the basis of the rating symbols below:

H = High performance
A = Average performance
L = Low performance
U = Unacceptable performance

> Acceptable performance

For example:

Copy Forms, Dots, or Sentence Section I, II, or III

Sample No.	H	A	L	U
1		✓		

4. Please complete all questions and scoring on Evaluation Sheet. Fold the Evaluation Sheet and seal it in the envelope provided (marked with your teaching level on the outside). Place it, along with all sample material, in the large manila envelope and return to your building principal.

INGHAM INTERMEDIATE SCHOOL DISTRICT
Division of Special Education
Research Project

EVALUATION SHEET:

Please complete the following information: Date_____

Present teaching assignment:

Kdng. _____
1st _____
2nd _____

Indicate the number of years you have taught at this level:

1-2 years _____
3-5 years _____
6-9 years _____
10+ years _____

Other grade levels you have taught:_____, _____, _____.

Total number of years of teaching experience: _____.

Academic training: Bachelor's Degree _____
Master's Degree _____
Master's Degree + _____ (30 semester/45 term hrs.)
Other _____

Scoring for Children's Work Samples:

Copy Forms
Section I

Sample No.	H	A	L	U
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Copy Dots
Section II

Sample No.	H	A	L	U
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Copy Sentence
Section III

Sample No.	H	A	L	U
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Comments:

Check to see that information has been completed on this sheet, then fold and put in white envelope provided for you. Seal envelope. Return sealed envelope along with all sample materials in manila envelope to your building principal.

Thank you.

INGHAM INTERMEDIATE SCHOOL DISTRICT
Division of Special Education

April 1, 1968

TO THE TEACHER:

Last fall (October 1967) you were asked to evaluate the enclosed samples of copy skills of Kindergarten children. Your response and interest in this project has been most gratifying and encouraging. The second half of the project calls for a repeat evaluation in May 1968 of the same samples by the same teachers.

We know that participation in this project has taken time on your part and we are truly appreciative of your effort. Results of this project will be printed and available to all participating teachers by the middle of next fall.

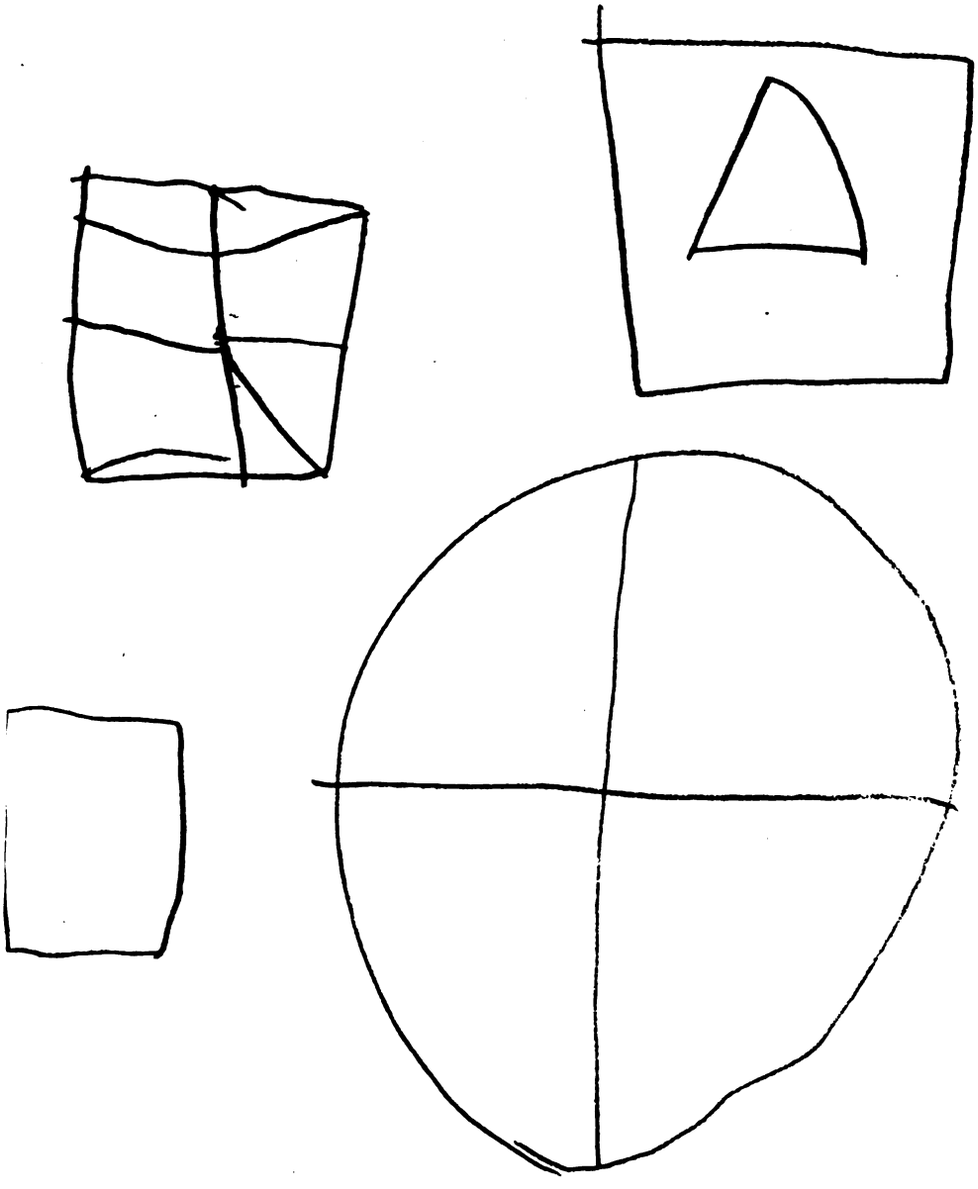
Thank you for your help.

Jane Scandary

APPENDIX E

CHILDREN'S MATERIAL GIVEN TO TEACHERS FOR EVALUATION

5



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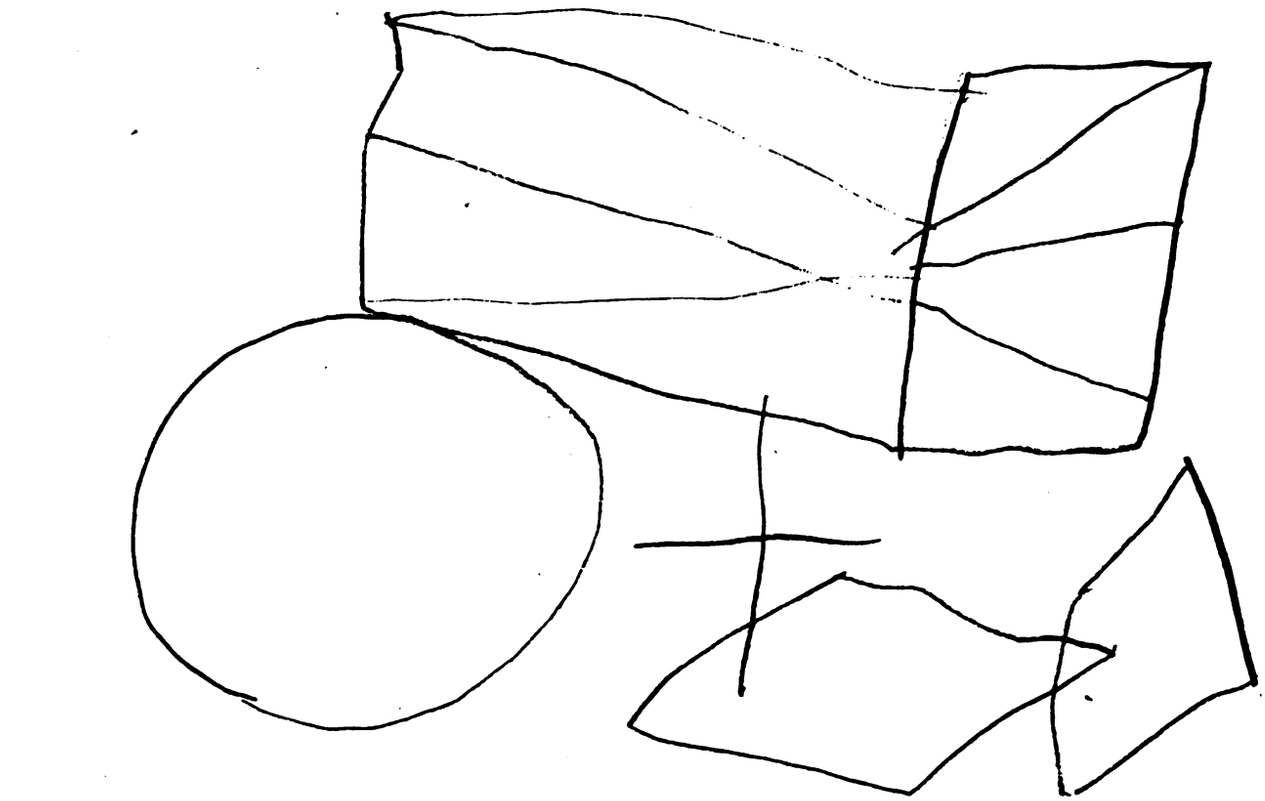

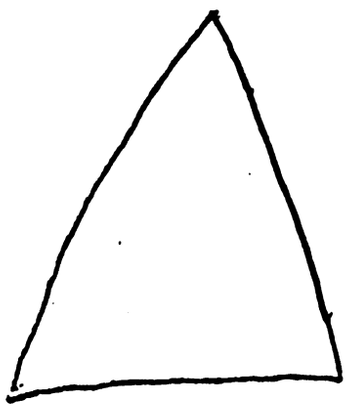

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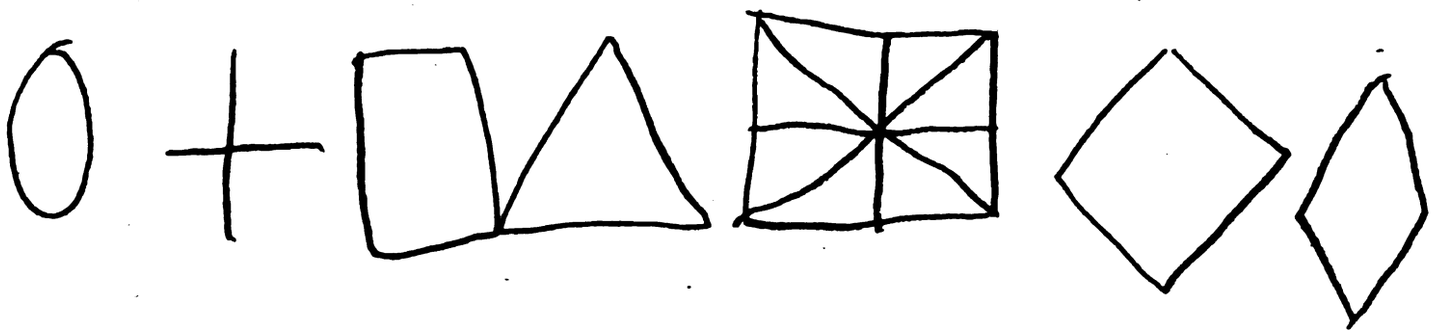

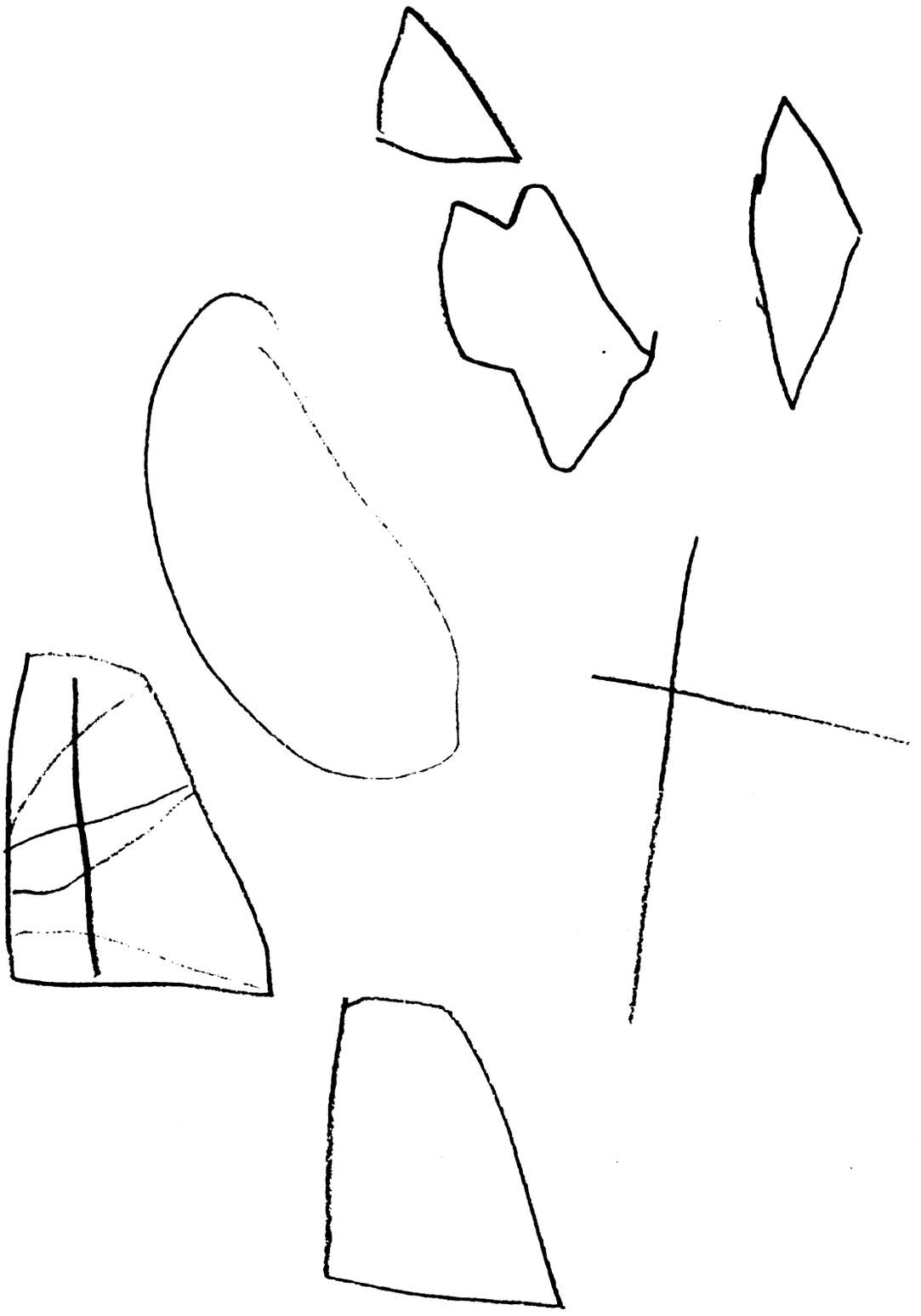

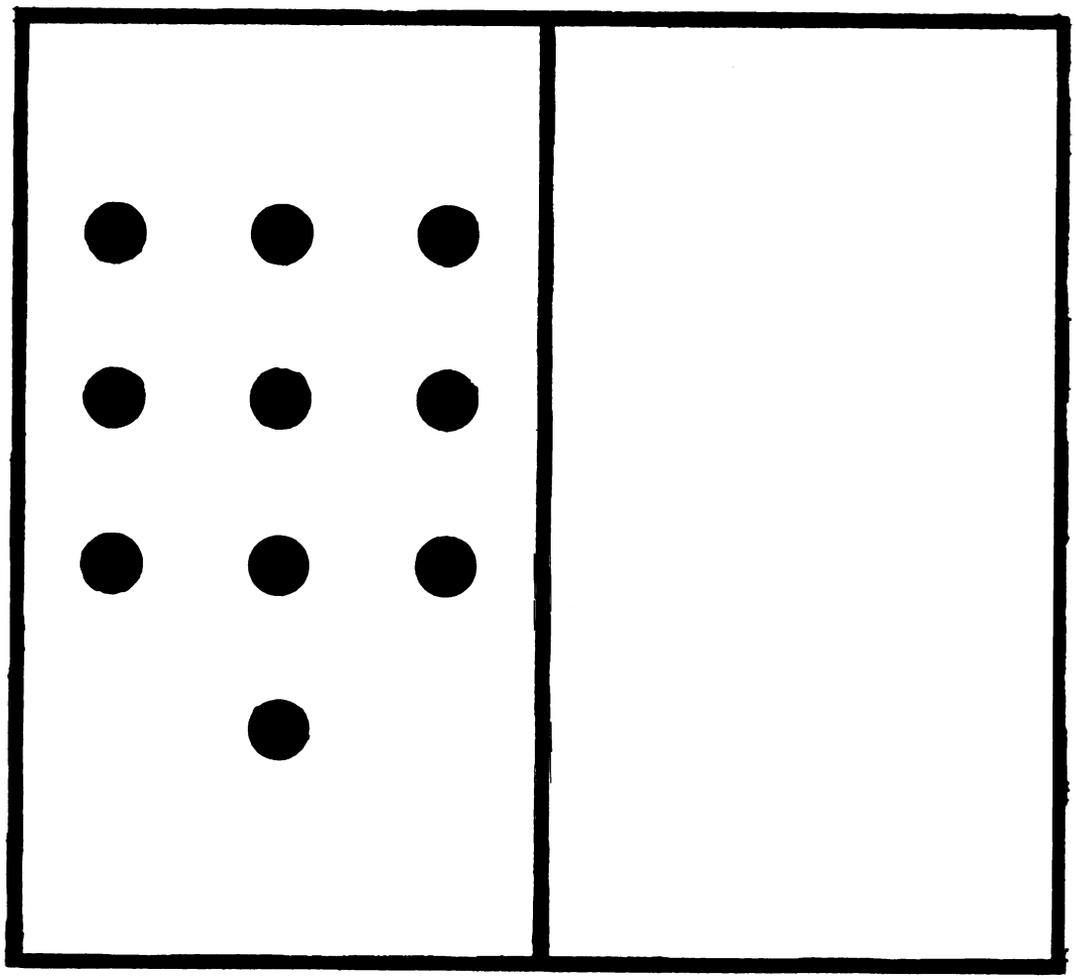

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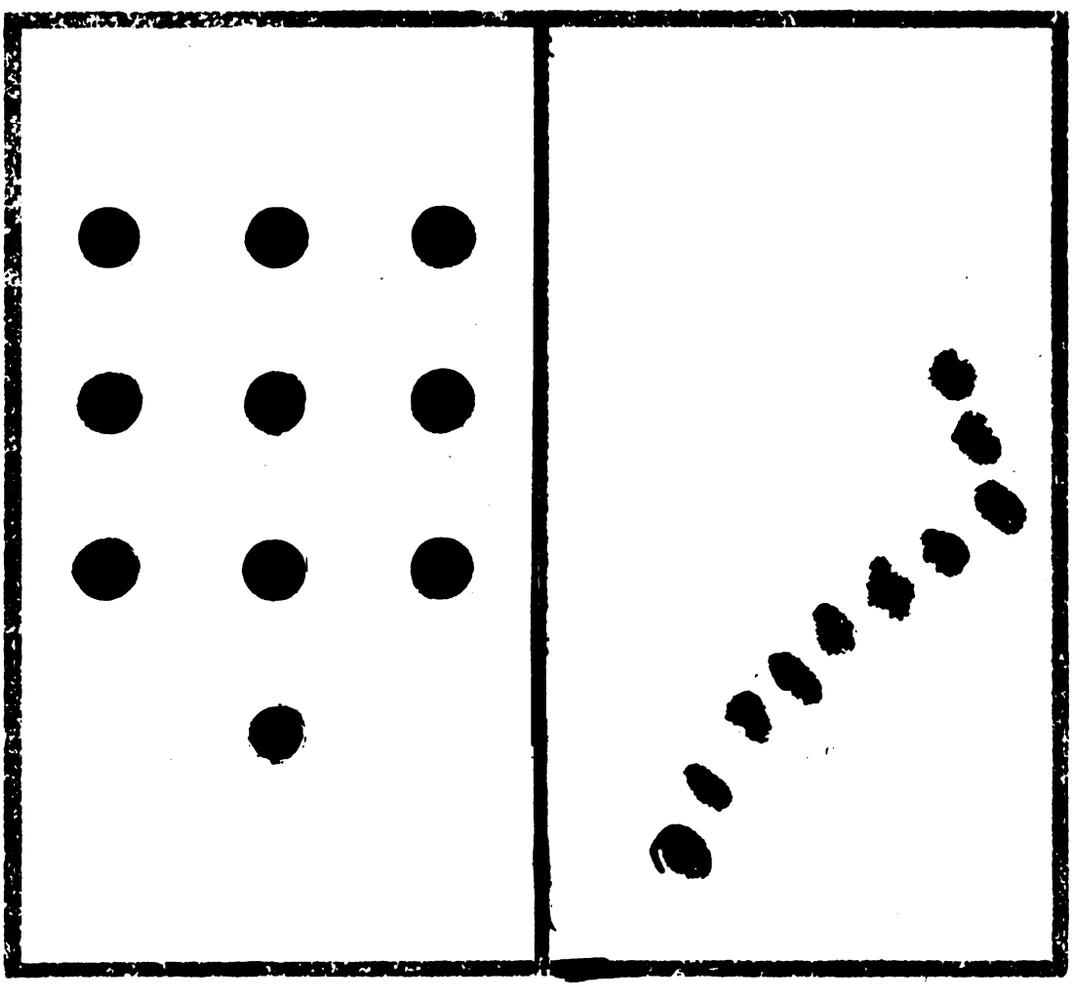

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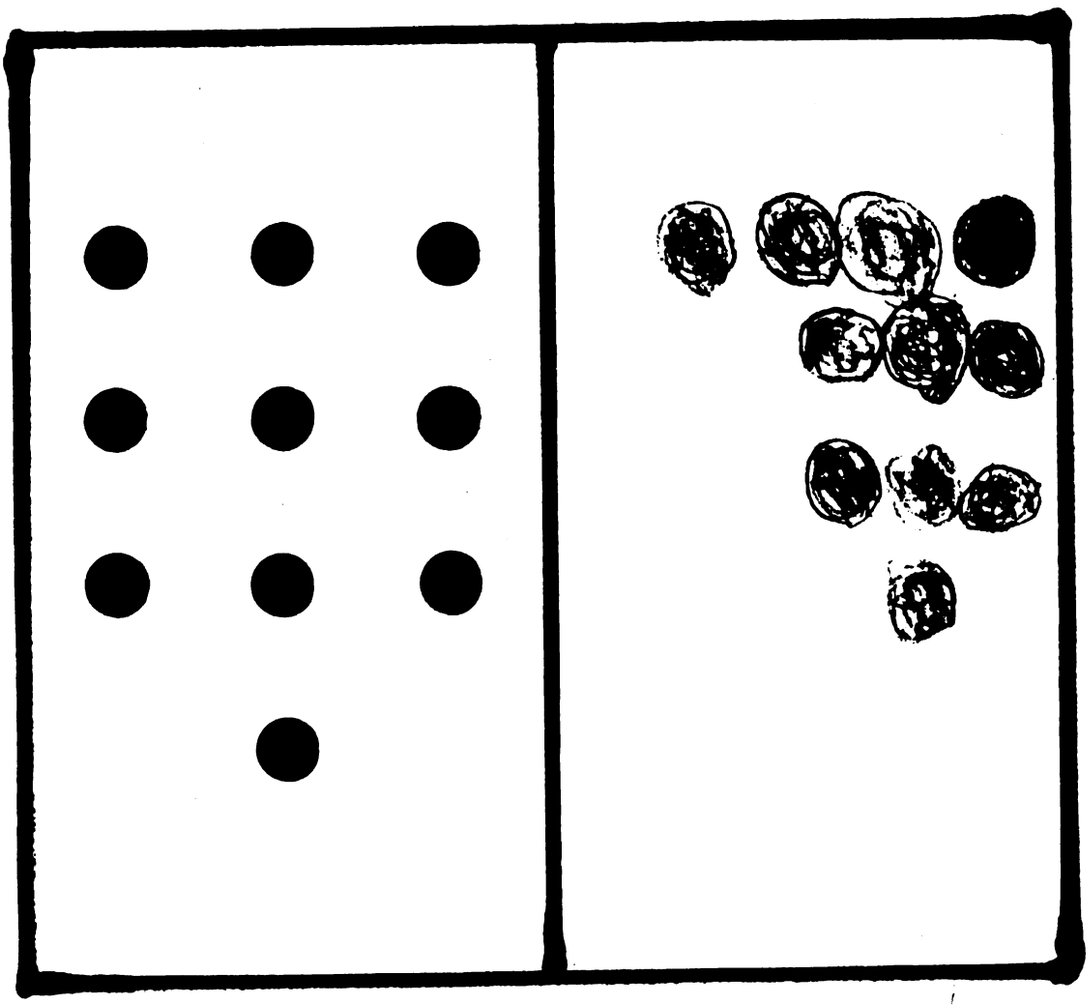

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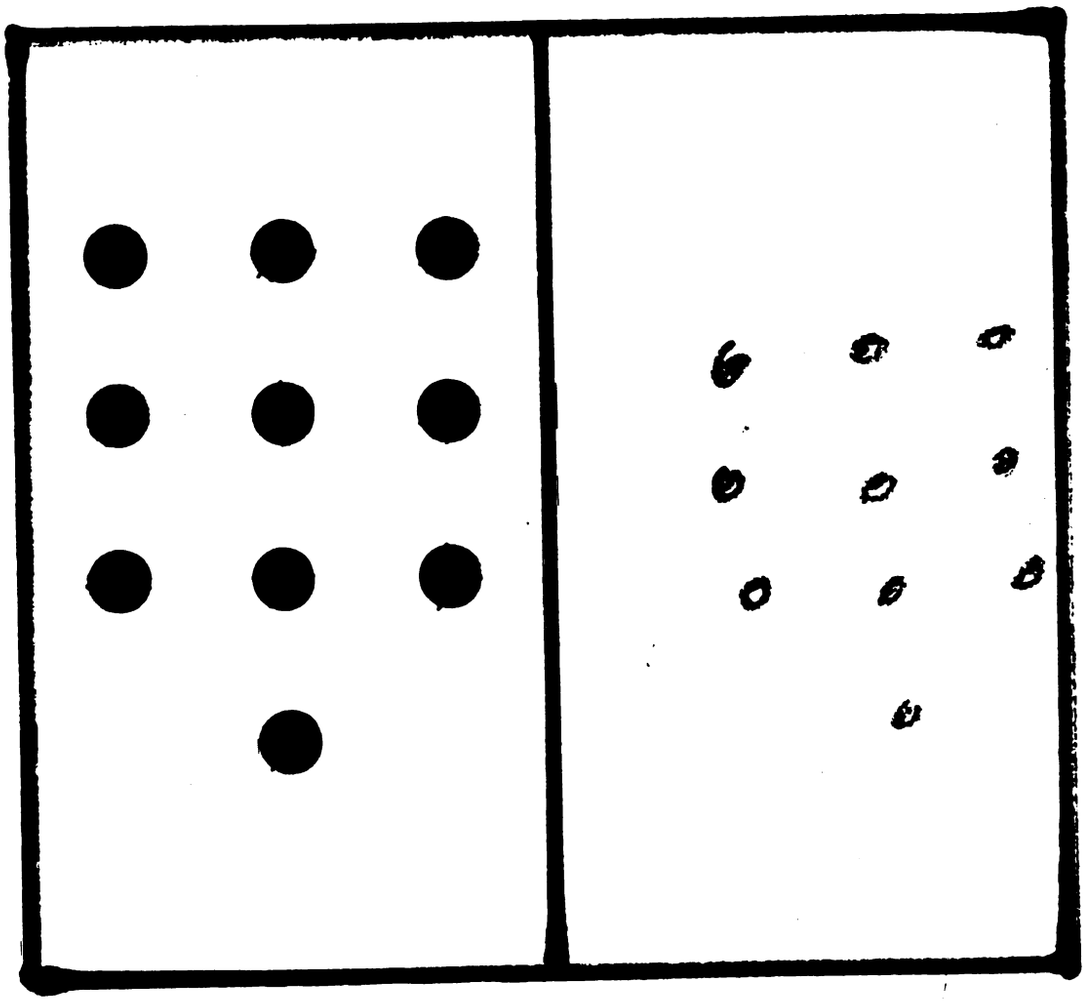

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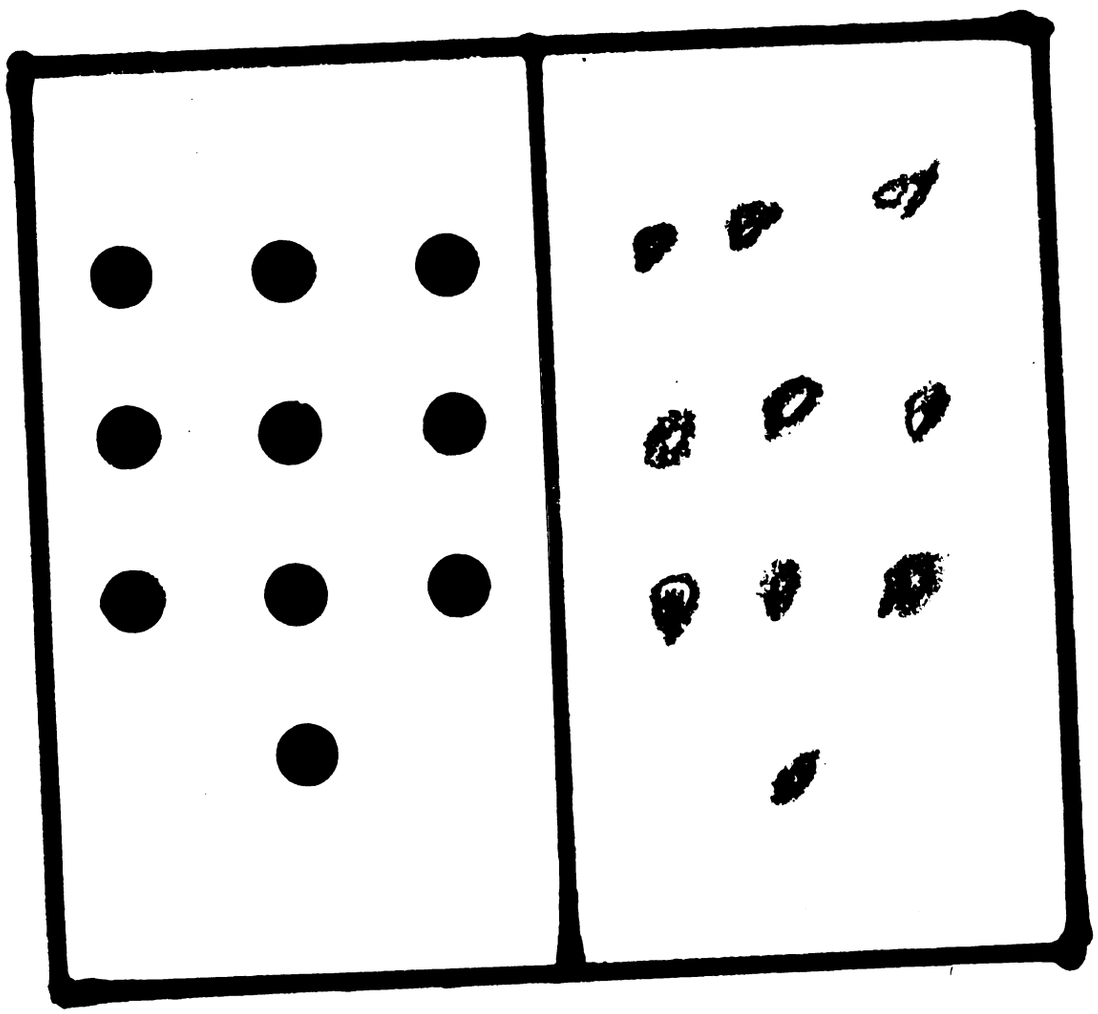

Fred is here

Section III - COPY SENTENCE

Fred is here

2

Fred is here

Fred is here

3

Fred is here

Frej nere

4

Fred is here

Fred is here

5

Fred is here

Fredishere

7

Fred is here

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Fred is here

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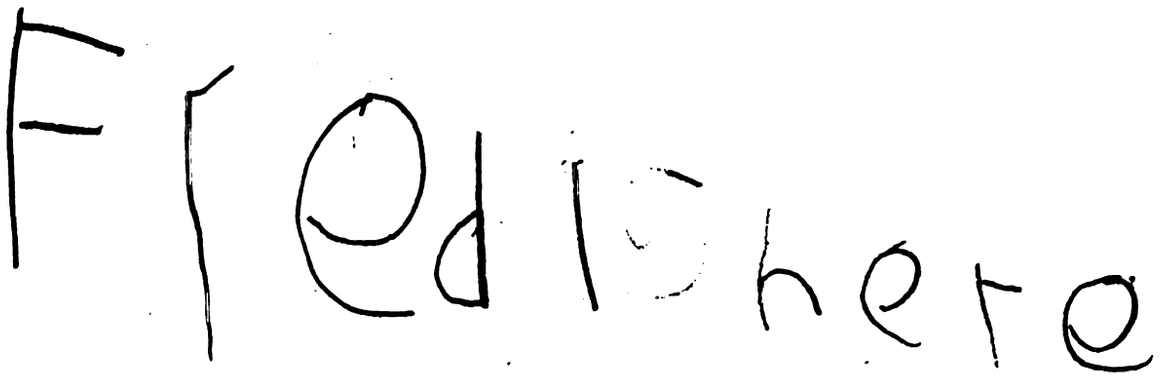

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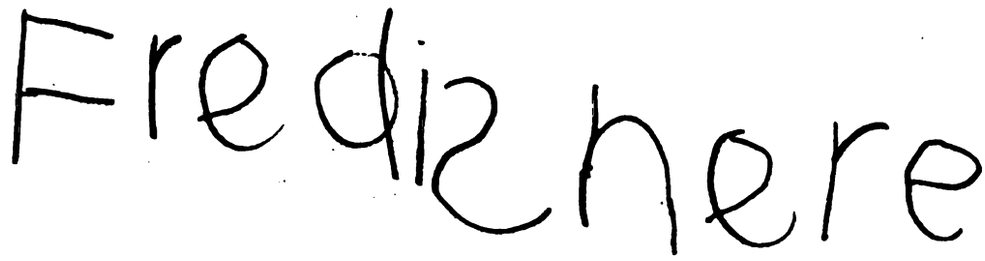
Fred is here



L12

Fred is here

Fred is here

13

Fred is here

Fre is here

14

Fred is here

Fred is here

Fred is here