PRE-KINDERGARTEN READINESS TESTING PROGRAM CHARACTERISTICS IN SOUTHERN MICHIGAN SCHOOL DISTRICTS USING THE ABC INVENTORY

By

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ABSTRACT

PRE-KINDERGARTEN READINESS TESTING PROGRAM CHARACTERISTICS IN SOUTHERN MICHIGAN SCHOOL DISTRICTS USING THE ABC INVENTORY

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In this study the author sought to describe pre-kindergarten readiness testing program characteristics in school districts in Southern Michigan which use the ABC Inventory and to investigate administrative and kindergarten staff perceptions of and involvement in selected program aspects. The characteristics of interest in the study were:

(1) Initiation of the testing program.

(2) Test selection and composition of the program.

(3) Test administration and post-administrative decision making.

(4) Uses made of testing data.

(5) Evaluation of the testing program.

(6) Strengths and weaknesses of the testing program.

A sample of seven school districts was randomly selected from a population of 44 districts in Southern Michigan. The school districts in the population satisfied the criteria of (1) comprehensiveness and (2) use of the ABC Inventory.

The population districts were determined by responses to mailed questionnaires to 94 districts identified as potential users of the ABC Inventory. A comprehensive testing program was one designed to assess the school readiness of all entering kindergarten students. A population district was one which used the ABC Inventory as a testing measure in its assessment program. The sample was stratified by selecting 25 per cent of the population of districts in each of three community types: (1) town, (2) urban fringe, and (3) rural. The Southern Michigan and community type criteria were determined from the Michigan Department of Education publication Levels of Educational Performance and Related Factors in Michigan, 1970 - Assessment Report No. 4.

Personal interviews were conducted with one elementary building principal and two kindergarten teachers in each of the sample districts for a total respondent number of 21 (14 teachers and seven principals). Responses to 16 questions were recorded on tape and transcribed to a standard interview form. The narrative responses were summarized, grouped into frequencies, and tabled for each of the interview questions. An interview was conducted with the co-author of the ABC Inventory, Mr. Normand Adair, to gather information about the test design, rationale behind the test development, the test usage in Michigan and elsewhere, and current research with the instrument. The results of this interview are treated separately in Chapter V of the study.

It can be concluded that in the sample school districts included in this study, the testing programs consisted almost exclusively of the ABC Inventory. The test was given for purposes of screening out the immature and was not used, to any great extent, for program planning. It was selected for use for administrative reasons (i.e.: short, inexpensive, norms, etc.), not through a systematic, thorough evaluation process. Decisions made about children rely heavily upon input from the ABC Inventory and are made by county diagnosticians primarily with help from staff and administration in advisory roles. The use of the ABC Inventory information is limited after the immature are identified. Curricular changes toward more individualization of instruction are not evident, even though the testing program is considered valuable for this reason. Some respondents feel that the program has resulted in a keener awareness of the differences in children, although evidence of translation into instructional action was not found. There has been no formal evaluation of the testing programs conducted, nor does there seem to be a significant concern to initiate such evaluation.

DEDICATION

To my wonderful wife, Susan, and our sons, Bert and David. Words cannot express my love for them - they are my life.

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-- Dr. Normand Adair, co-author of the ABC Inventory, who provided invaluable assistance identifying the population school districts, candidly supplied information about the development of the test instrument, and allowed me to reproduce his experimental "An

Explanation of ABC Inventory Section Scores and Their Use to Instruction," contained in Chapter V.

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CHAPTER I

NEED FOR THE STUDY

"A good beginning has no end."[1]

This statement says much about the importance of the quality of first experiences and their lasting effects. The author here was speaking to the issue of early education, particularly nursery school and kindergarten experiences, and how such experiences leave an indelible impression upon the child. One could just as easily substitute the word poor for good in this statement without disturbing its validity.

> Possibly the greatest single contribution which can be made toward guaranteeing that each individual child will get the most possible out of his school experience is to make certain that he starts that school experience at what is for him the "right" time.[2]

If one accepts the concept that the timing of a child's exposure to a learning situation is important and that the "right" time for him is a constant and dictated by his individual readiness or maturational level then

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[1]Lawrence K. Frank, "A Good Beginning Has No End," Childhood Education, Vol. 36, No. 1 (September, 1959), 2.

[2]Francis L. Ilg and Louis Bates Ames, School Readiness (New York: Harper and Row, 1965), p. 14.

either one or both of the following is necessary:

(1) Adjusting the learning experience to his readiness level.

(2) Postponing exposure to a given experience to provide time for the child to mature to the appropriate level at which the experience (instruction) would be profitable.

It would not be too difficult to build a case that neither of the above is being done to any substantial degree. The number of children recommended for repetition of kindergarten, or at least judged to be not ready for the first grade experience, would indicate that the child is being expected to adjust to the program, not vice versa.

As for the second alternative, postponement of instruction, a research report published by the National Education Association in 1969 indicated that out of a large sample of kindergartens surveyed nationwide, 97 per cent of those responding used chronological age as the only criterion for school entrance.[3] This implies that a chronological age of five years (by December 1 of the year of kindergarten entrance in Michigan -- the legal age varies from state to state) is the right time for every child. Put another way, the assumption underlying this practice is that all five year old children are at the same readiness or maturational level.

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[3] Kindergarten Education in Public Schools 1967-68 (National Education Association - Research Report 1969-R6).

Ilg and Ames disagree with the current school entrance practices which assume that a chronological age of five guarantees five year old behavior. They prefer to view five year-oldness in behavioral, not chronological, terms, and assign the total child's behavior level as a manifestation of his developmental level -- the only measure valid in determining readiness for school entrance.[4]

A commitment to providing learning experiences at the right time for each child (either through adjusting the instructional program or by postponing instruction) presupposes that it is possible to determine readiness levels. Some method of assessing or measuring readiness for the kindergarten experience is the next logical extension of this assumption. The assumption no longer is a matter of conjecture, as witnessed by the number of pre-school measures of readiness now in use as part of various programs. The publication Current Research in Early Childhood Education lists some 30 tests used in pre-school program research, several of which are of the readiness variety.[5] There is a need to investigate the characteristics of current pre-kindergarten readiness testing programs since they reflect attempts to deal with the questions of assessing the readiness levels of entering students and appropriate actions to

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[4]Ilg and Ames, op. cit., p. 18.

[5]Annie L. Butler, Current Research in Early Childhood Education (Washington: American Association of Elementary-Kindergarten-Nursery Educators, 1970), pp. 184-185.

be taken based upon measurement information. There seems to be no research of a descriptive nature analyzing the current state of affairs in the area of ongoing readiness testing programs. It is hoped that this study will provide a base of operations from which further research may embark.

Purpose of the Study

The purpose of this study is to describe pre-kindergarten readiness testing program characteristics in school districts in Southern Michigan which use the ABC Inventory and to investigate administrative and kindergarten staff perceptions of and involvement in selected program aspects. The characteristics of interest in this study will be:

(1) Initiation of testing program
(2) Test selection and composition of the program
(3) Test administration and post-administrative decision making
(4) Uses of testing data
(5) Evaluation of the testing program
(6) Strengths and weaknesses of the testing program

Hypotheses (Questions)

Since a descriptive study does not lend itself to hypothesis testing, a listing of questions appropriate to the research is substituted. The questions of import to this investigation are:

(1) Initiation

a. Why was the testing program initiated? (rationale)

b. Who was responsible for the testing program initiation? (Idea conception and/or initial impetus)

c. How did the testing program come about? (Process)

(2) Test Selection and Composition of the Program

a. What readiness measures (tests) were considered for the testing program?

b. Why was the ABC Inventory considered the best of those surveyed?

c. What other measures are used (or parts of) in the testing program?

(3) Test Administration and Post-Administration Decision Making

a. Who is involved in the actual administration and/or scoring process?

b. What are the decision-making roles about the readiness of children tested?

(4) Uses of Testing Data

a. What is done with the testing data (on individual child and/or over-all basis) after the test has been given? (How are the data used?)

b. What have been the effects of the testing program upon the kindergarten program? (curriculum changes)

c. What have been the effects of the testing program upon personal philosophies of teachers and administrators?

d. Who is involved in communicating with interested parties about the testing program and/or individual children tested?

(5) Evaluation

a. What kinds of evaluations have been implemented on the readiness testing programs?

b. Who is involved in the evaluation process?

(6) Strengths and Weaknesses of the Program

a. What are the perceptions about the worthwhileness of the testing program? (value)

b. What changes in the testing program are recommended?

Interest in the responses to these specific questions categorized under the broader testing program characteristics lies with the fact that it is possible to describe kindergarten teaching and administrative perceptions about and involvement in these program aspects. These perceptions will provide the base for a description of readiness testing program characteristics viewed from the school district perspective as well.

Definition of Terms

Pre-Kindergarten Readiness Testing

School districts that conduct testing programs for all or most entering kindergarten students and that use the ABC Inventory as one test instrument qualify as "testing districts" for the purposes of this study. Districts must conduct a program that is designed to screen each entering kindergarten child for purposes of determining school readiness. It is possible that within a particular school district a testing program exists that is designed to screen all or most entering students, but only for the children entering certain buildings within that district. For purposes of this study such districts are considered testing districts. Since school districts will conduct such testing during the spring or summer immediately prior to the new school year of interest or during the fall of the new school year, it would be impossible to insist upon all children being tested to qualify as a testing district. If a testing program exists that is designed to reach all students and the ABC Inventory is used, then this district qualifies even though some children may not be tested. The term "most" is used to excuse events such as late transfers into the district, lack of complete communication about the testing program, or parental refusal to allow such testing.

A school district is considered to be a "non-testing" district if it does not satisfy the above-stated criteria. A non-testing district would fall into one of the following categories:

1. A district which has a testing program for only a certain segment of the entering kindergarten children. Some districts, for example, test only those youngsters with five year birthdays late in the year (i.e., from September 1 to December 1).
2. A district which tests children only on a referral basis. Some districts will test individual students upon teacher request, parental request, upon the direction of other concerned persons generally in a school or school-related capacity.
3. A school district which has no provision for school readiness testing, whether it be on a group or individual referral basis.
4. A school district which does not use the ABC Inventory as part of its testing program.

Kindergarten Teachers

The grade designated as kindergarten is a reflection of a fairly consistent and stable set of criteria in the state of Michigan. A teacher qualifies as a kindergarten teacher in this study if the teacher is charged with the teaching of a class established for the child in his initial year of school under the public school auspices preceding

the grade normally called "first grade." In Michigan, such classes include the old four year old, five year old, and young six year old child. A grade qualifies as a kindergarten even though it may carry a different name (i.e., readiness room) if it satisfies the above criteria, since this grade may have been established as a result of readiness testing, which is within the legitimate concern of this study.

Administrator

For purposes of this study the term "administrator" means the building principal charged with administrative responsibility which includes the kindergarten program being studied. This will be the first person on the administrative level carrying the position description of "principal," to whom the kindergarten teacher of concern reports.

Readiness

The term readiness will be used interchangeably with the term maturity. Readiness (as defined by Webster's Seventh New Collegiate Dictionary) means "the state of being ready." Ready (from the same source) is defined as "prepared mentally or physically for some experience or action." Maturity (Webster) is defined as the state of "having completed natural growth and development." This is done with the knowledge that readiness is a more inclusive term,

since it is reflected by cultivated as well as natural growth and development.

This term is defined to differentiate it from the term intelligence, which carries the dictionary definition of "the capacity to apprehend facts and propositions and their relations and to reason about them."

Intelligence and readiness are not, however, independent. This study was designed around the Ilg and Ames viewpoint on readiness that it is a child's developmental status and to measure this development necessitates knowledge of how he is behaving as a total organism, both mentally and physically redundant. Ilg and Ames substantiate this difference in their Weston study by pointing to the number of students of clearly superior intelligence who were behind others of the same age in physical and/or behavioral maturity. This type of child was referred to as the "superior-immature."[6]

Involvement

Involvement is defined, since much of the focus of this study is centered upon whether or not kindergarten teachers and administrators are involved in various testing program aspects and the nature of this involvement. Involvement is described as the roles the respondents report they play in the program aspects of interest.

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[1]Ilg and Ames, op. cit., p. 17.

Perceptions

A clear understanding of the source of input solicited and used in this study is critical and, therefore, included here. All of the information gathered for this investigation can be categorized as perceptually based. The respondents were asked in interviews to respond to a series of questions which called for their personal opinion. The factual base to these opinions will vary, but all require an awareness of past circumstances, and current situations. The variance in the clarity of awarenesses (perceptions) will be evident from the reported findings.

Southern Michigan

Southern Michigan is that part of the state of Michigan south of the counties of Oceana, Newaygo, Mecosta, Isabella, Gladwin, and Arenac, excluding Wayne, Oakland, and Macomb counties. This designation is taken from the definition of region two in the Michigan Department of Education Assessment Report No. 4 (1970), Levels of Educational Performance and Related Factors in Michigan, and was considered appropriate in terms of the population of school districts of interest.[7]

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[7]Michigan Department of Education, Levels of Educational Performance and Related Factors in Michigan, Assessment Report No. 4 (1970).

The ABC Inventory

The ABC Inventory is a published test designed to determine kindergarten and school readiness, copyright 1965, authored by Mr. Normand Adair and Mr. George Blesch of Muskegon, Michigan, and distributed by Educational Studies and Development of Muskegon, Michigan. The ABC Inventory is divided into four sections as follows: (1) draw-a-man (socio-motor), (2) communication (verbal), (3) cause and effect relationships (relevance), and (4) following directions and motor coordination (motivation).

The test reliability was established by matching comparable groups and assuming group equivalency. Scores for children of the same age enrolled in the same school district in 1962 and 1964 were compared with the following results: mean difference 1.20, standard error 2.08, and critical ratio .58. A copy of the test manual and a copy of the ABC Inventory are included in Appendix C.

The validity of the ABC Inventory was determined by comparing "pass-fail" features between children in the upper and lower half of the score distribution. Eighty-three in the standardization group obtained scores 68 and above, while 83 scored below 68. Forty-three children failed their first year of school. Of those failing, 37 or 68 per cent were identified accurately. Seventy-seven or 63 per cent passing, scored above 68 (tetrachoric correlation = .70).

Delimitation of the Study

The investigation is limited to school districts within Southern Michigan as previously noted in the definition of terms.

The study is also limited to the school districts using the ABC Inventory to assess school readiness within the community types: town, urban fringe, and rural as defined in the Assessment Report No. 4.[8]

The descriptions of the readiness testing program characteristics and involvement levels of teachers and administrators are based upon the answers given by them to inquiries through the interview method. Two teachers and one administrator in each of the sample school districts served as the sources of input for the information gathered. The perceptual base of these data has already been noted in the definition of terms and need not be repeated here. A more detailed discussion is included in the description of the sample in Chapter III, and is mentioned here for initial orientation purposes.

This study cannot be classified as a case study in the strictest sense, since the case study method generally assumes an extensive and exhaustive view of the unit of interest, in this case the sample school districts. Their criteria have been met only insofar as the interviews conducted were as probing and thorough as possible.

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[8] Ibid.

The delimitations noted resulted in the author using caution when generalizing the study results beyond the population boundaries established.

Theory

There is, by no means, agreement on the whole issue of readiness. In fact, it appears that in the view of some, there is no such thing as readiness. Bruner, for example, states that "The foundations of any subject may be taught to anybody at any age in some form."[9]

One view, which is undoubtedly the oldest, is that of the progressive emergence of inherent abilities. This perspective implies that development is independent of instruction and that learning depends entirely upon the maturation of the individual. Learning cannot take place until a stage of maturity necessary for its attainment has been reached; "development is something which takes place within the organism and is governed by its own laws and conditions, quite apart from outside influences."[10]

Washburne[11] apparently subscribed to this view in encouraging the postponement of instruction until a necessary "ripeness" has been attained.

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[9] Jerome S. Bruner, The Process of Education (Cambridge: Harvard University Press, 1960), p. 12.

[10] Harry S. Broudy, et al., "A New Look at Readiness," School and Society, Vol. 91 (December 28, 1963), 424.

[11] Carleton Washburne, "Ripeness," Progressive Education, Vol. 31, No. 2 (February, 1936), 127.

Another view is that learning and development are identical. The development of an individual comes about through an increase in the number of associations among ideas built up through experiences. Development here is viewed as a gradual additive of learnings process.[12]

Broudy[13] states that neither view is satisfactory since:

> The ability to learn to do certain things is obviously dependent upon the maturation of neural structures. But at the same time, the behavior which the individual takes on is not entirely determined by the development of such structures.

The case of synchronizing instruction and development is summed up by Broudy[14] as follows:

> Maturation and learning are both necessary factors in the growth of the individual, and acquired behavior consists in the coordination of these two factors. Neither by itself is a sufficient condition of human development.

Tyler[15] concurs with Broudy, stating that:

> Structures, dependent primarily upon "maturation," must be developed to the point where they can function for any given type of learning activity; but this development, which primarily is the result of "maturation," is also dependent to some degree upon the use of the structures themselves.

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[12] Broudy, et al., op. cit., p. 425.

[13] Ibid.

[14] Ibid.

[15] Frederick T. Tyler, "Issues Related to Readiness to Learn," Theories of Learning and Instruction, Sixty-Third Yearbook of the National Society for the Study of Education (Chicago: University of Chicago Press, 1964), p. 237.

Ilg and Ames[16] tend to emphasize the view that children progress through developmental stages relatively independent of the environment. While they do not categorically dismiss the influence of experiences on growth, their constant stress upon accommodating the environment to the child's developmental capacity to receive, relegates the learning component in development to a lesser role.

Regardless of which theory one wishes to accept, it is not within the capacity of this investigation to settle the issue. This study is based upon the theory that growth stages do exist and are manifested by certain behavioral components. A concern for individual differences among children admits the necessity for settling upon some sort of "average" behavioral or developmental age, either in specific aspects or viewed more globally. The concept that each child must be judged against himself is nice, but too often causes a paralysis of action since a starting point for each child is difficult to determine. Children come to school at various stages of development, and the school must operate effectively from this point on. Research should not cease to attempt to settle the argument about the relative roles of learning and natural development, but whichever theory turns out to be truth, the child comes to school as he is and education cannot wait until the issue is determined to move.

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[16]Ilg and Ames, op. cit., pp. 5-7.

This study is based upon the theory that readiness can be assessed. Readiness for instructional purposes includes a variety of components, and because of this diversity indices of general readiness are not very useful. In order to accommodate the learning experience to the individual learner, the multitude of readinesses must be considered and measured.

It is not a sound policy to postpone instruction until a specific developmental level has been attained, since this practice implies that development is independent of experiences. Rather, it is the position of this study that the latter does affect the former, and that gearing instruction to the various readiness stages maximizes the potential development of the child.

CHAPTER II

REVIEW OF THE LITERATURE

The Dimensions of Readiness

> Readiness is a condition that affects teaching and learning for all educational goals, at all educational levels, and in all types of curricula. A specific curricular sequence, a prescribed instructional methodology, a fixed rate of presentation will fail to provide optimal learning opportunities for a given group of children. The range of individual differences is extensive, and the variability within an individual is almost as great, so that homogeneous grouping based on some measure of ability will not guarantee a homogeneous group for some other measure. Readiness can be assessed more reliably by specific diagnostic tests than by broad, general measures. Diagnoses will vary considerably from pupil to pupil; prescriptions will be equally variable. More attention needs to be directed toward the problems of individualizing instruction if each learner is to have an opportunity to reach toward his potential.[17]
>
> Frederick T. Tyler
> University of Victoria, Canada

Concern among educators over the issue of readiness is not new. The literature in this field is replete with studies and research designed to define what it means, how it can be assessed, and its implications for learning. Much of the literature shows a redundant concern over specific aspects of readiness, especially the obsession with early

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[17]Frederick T. Tyler, "Readiness," Encyclopedia of Educational Research (Toronto: The Macmillan Co., 1960), p. 1068.

school admission of mentally advanced children. The past decade has given cause for hope, with the emergence of a growing realization of the complexity of the whole issue of readiness and its application for all children, not just a chosen few. Another encouraging sign is the broadening view of readiness to include more than a child's ability to cope with particular subject disciplines. Methods of assessing readiness have also matured by moving away from measurement of mental age to include other dimensions of maturity.

Readiness has been defined a variety of ways. Attempts to wrestle with the concept of readiness fluctuate between those narrowly conceived and those of a more global nature. Early concepts of readiness were not so much definitions as they were statements about the factors necessary for readiness, as witnessed by Harrison's reporting that "The single factor which most accurately determines readiness to read is that of mental age."[18] This narrow definition is included, not to imply that mental age was the criterion for readiness in early writings, but to demonstrate its priority among other factors which usually received rather casual mention by comparison. Hausman, in fact, speaks of other factors in determining readiness, such as physical development, emotional stability, and adjustment

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[18] M. Lucille Harrison, Reading Readiness (New York: Houghton-Mifflin Company, 1936), p. 5.

to school, but the impression left is that these aspects are afterthoughts.[19]

An example of the current view of readiness is provided by Keliher, who states that:

> Readiness is a complex of many readinesses. Vision, hearing, nutrition, physical coordination, mental ability, experience with language, self-confidence, alert curiosity -- all are items to be considered in assessing readiness for reading.[20]

Brenner gives a comprehensive view of readiness by analyzing it as a highly complex, multidimensional relationship phenomenon of individual and task dimensions as follows:

Individual Dimensions

1. Individuals differ as to the time when they are ready for a given task: Some earlier, some later, some at about the same time: One and the same individual is ready for one task now, but not yet for another task.
2. Individuals differ in latitude or breadth of readiness, having a wide or narrow range of interests, skills, vocabulary, knowledge, and such at their disposal at any given time.
3. Individuals differ in dynamic variability in their flexibility to adjust to a task.

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[19]Estelle J. Hausman, "Ready for First Grade," School Executive, Vol. 59, No. 6 (February, 1940), 25.

[20]Alice V. Keliher, "Many Dimensions of Readiness," Childhood Education, Vol. 43, No. 8 (April, 1967), 443.

4. Individuals differ in the degree of intensity or depth of their various readinesses.
5. Individuals differ in "composition," the blending of personality traits which make them ready or not ready.
6. They differ in inner motivation, self-motivation, self-selection, seeking behavior, will to learn, or achievement motivation.

Task Dimensions

1. Tasks vary in time (when they appear during a life span; how much time is needed or given for their solution).
2. They vary in magnitude, complexity, structure, kind, and degree of difficulty (composite of the four other dimensions).
3. Tasks vary in motivational power or valence, which varies for different individuals or for one individual at different times.[21]

The individual dimensions apply equally to the cognitive, emotional, and social aspects of an individual. When these dimensions combine, they form unique individual patterns of readiness.[22]

The differences in the historical view of readiness and its assessment and the current perspective on these

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[21]Anton Breuner, "Re-Examining Readiness," Childhood Education, Vol. 43, No. 8 (April, 1967), 454.

[22]Ibid.

issues are brought into focus as the review of the literature proceeds.

Underage School Enrollees

The decades of the 1930's and 1940's saw a concern over readiness manifested by research into underage school enrollees. The emphasis was on chronological and mental age readiness and the progress of children who were admitted to school early (in actual age) because of high measured mental ability.

A study reported by Morphet and Washburne in 1931 comparing reading progress with mental age showed:

1. Correlations between mental age and the ability to read showed a fairly high degree of relationship (from .50 to .56).
2. Correlations between mental age and reading progress were higher when mental age was measured by the Detroit first-grade intelligence test than when mental age was measured by the Stanford revision of the Binet-Simon scale.
3. Mental age alone showed a larger degree of correlation with reading progress than did the intelligence quotient or the average of mental and chronological ages.
4. When the Detroit test was used for determining mental age groups, the children who had a mental age of six years and six months made far better progress than

did the less mature children, and practically as satisfactory progress as did the children of a higher mental age.

5. When mental age was measured by the Stanford revision of the Binet-Simon scale, the children with a mental age of six years and six months again made very much better progress than did those of less maturity, but they made less satisfactory progress than did those whose mental age was six months greater. The gain in ability up to six years and six months of mental age, however, was much greater than the subsequent gain.
6. A repetition of the experiment in 1929-30 with different teachers, different children, and different tests confirmed the earlier experiment in all its basic conclusions.

The conclusions of the study were that postponing reading until children reached a mental age of six and one-half years can decrease child failure and discouragement and increase teacher efficiency.[23]

Bigelow's study comparing achievement at the fourth grade level of two groups, one group who entered school before age six and one group who entered school between six and six years and four months concluded:

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[23]Mabel V. Morphet and Carleton Washburne, "When Should Children Begin to Read," Elementary School Journal, Vol. 31, No. 7 (March, 1931), 502-503.

1. If a child is chronologically between six years old and six years and four months old and has an intelligence quotient of 110 or over, he is practically certain to succeed in school.
2. A child less than six years old chronologically with an intelligence quotient of 120 or over will probably succeed, but personality factors should also be considered.
3. If a child is below six years old chronologically and has an intelligence quotient below 110, his chance of success is small. It would be much better for such children not to attempt the work of Grade 1 until later. The same is true of children chronologically between six years old and six years and four months old with intelligence quotients below 100.
4. Children below six years old chronologically with intelligence quotients of 110-119, inclusive, and children chronologically between six years old and six years and four months old with intelligence quotients of 100-109, inclusive, have a fair chance of success. Children in this group should be studied carefully, consideration being given to their social, emotional, and physical development; home conditions; etc. Children already seriously handicapped should not be allowed to enter Grade 1 until later.

5. If a child is below six years old chronologically and has a mental age of six years and ten months or above, he is practically certain to succee[d] in school. If his mental age is between six years and eight months and six years and nine months, inclusive, he has a good chance of success.
6. A child chronologically between six years and six years and four months of age has a good chance of success if his mental age is six years and four months or above.
7. A child who is chronologically below six years and four months of age and whose mental age is below six years has practically no chance of success.
8. A child chronologically below six years of age with mental age between six years and six years and seven months, or a child chronologically between six years and six years and four months of age with mental age between six years and six years and three months, inclusive, has some chance of success if he is sufficiently mature physically, socially, and emotionally. These cases should receive careful consideration.[24]

Gates casts doubt on the recommendations made by Morphet and Washburne that reading should be postponed

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[24]Elizabeth Bigelow, "School Progress of Underage Children," Elementary School Journal, Vol. 36, No. 3 (November, 1934), 192.

until a child reaches a mental age of six years and six months. In an experiment conducted with four groups of children with varying teaching technique, materials, and teacher ability, he concluded that this mental age minimum does not apply for all school methods and organization, or all types of teaching skills and procedures. He presented evidence to substantiate the claim that the magnitude of the correlation between mental age and reading progress varies directly with the effectiveness of the provision for individual differences in the classroom. The importance of the mental age variable was not deemed insignificant by Gates, but it was considered vital to view this variable in relation to particular programs into which pupils are to be improved.[25]

Manuel and Voyer, four years earlier, had questioned the delay of the instruction pending a particular mental age minimum by stating:

> Does this mean that school entrance should be delayed to such an age that nearly all beginners should be ready for reading? Not at all, for much that is important in education can be accomplished before a child learns to read.[26]

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[25]Arthur I. Gates, "Mental Age for Beginning Reading," Elementary School Journal, Vol. 37, No. 7 (March, 1937), 506-507.

[26]Herschel T. Manuel and Mary Thompson Voyer, "What Shall We Expect of a Child Who Enters School at Six Years?" Educational Administration and Supervision, Vol. 19, No. 7 (October, 1933), 521-528.

It is interesting to contrast Gates and Manuel on this issue. Gates feels reading profitably can be taught and learned at varying mental ages through manipulation of technique, materials, and teacher's expertise, while Manuel advocates substitution of another kind of learning experience in lieu of reading until a prerequisite mental age is attained.

In 1948, Hobson recommended a plan for admitting children to kindergarten and first grade using mental age and chronological age as criteria, but with some built-in flexibility to allow for individual differences. The plan called for a minimum chronological age of four years and nine months for kindergarten entrance and five years and nine months for first grade entrance. The flexibility was provided by proposing that children between the ages of four years three months and four years nine months (kindergarten) and those between the ages of five years three months and five years nine months (grade one) be allowed to start school on a conditional basis if they had tested mental age of at least five years two months and six years two months, respectively.[27]

It is a source of continuing amazement in reviewing the studies and research on mental age, and to a lesser extent chronological age, as the villain of school failure,

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[27]James R. Hobson, "Mental Age--A Criterion for School Admission," Elementary School Journal, Vol. 48, No. 6 (February, 1968), 320-321.

how little attention is paid to the school program as the guilty party. As early as 1932 Otto made a strong case by saying that school failure and individualization cannot exist together. His argument is that if minimum mental ages are required for success in school, the curriculum is assumed to be fixed and that failure must be attributed to the system of education, not children. Otto cites a survey of some 500 school superintendents who indicated that the major criterion for promotion from kindergarten to first grade was chronological age, while the criterion for movement from first to second grade was reading ability. This shift from a child-centered kindergarten to a more content-centered first grade made failure of children with lower mental ages inevitable. He demonstrates an enlightened view of suggesting children be admitted on a chronological basis while adjusting the curriculum to individual needs.[28]

A number of studies during the decade of the 1950's were conducted to assess the effects of early school admission of mentally advanced children on adjustment to school, achievement, grade promotion trends, and the like, with some widely different conclusions about the wisdom of early entrance. Hamalainen surveyed 33 school districts in Nassau County, New York, to determine practices relating

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[28]Henry J. Otto, "Implications for Administration and Teaching Growing Out of Pupil Failures in First Grade," Elementary School Journal, Vol. 33, No. 1 (September, 1932), 25-32.

to entrance age, grade placement, and promotion for kindergarten, first, and second grades. Some of the findings as they relate to age of kindergarten admission and school adjustment were:

1. Twenty-four per cent of the children entering kindergarten under a September age of four years and nine months had difficulty in adjusting to school, as compared with 6 per cent of the normal-age children who had difficulty.
2. Both under-age and over-age children face more school problems than children of normal age. Their problems are principally in the area of social and emotional adjustment.[29]

A study by King comparing the achievement records of one group of 54 children who entered first grade between the chronological ages of five years eight months and five years eleven months with another group of 50 who entered first grade between the ages of six years five months and six years eight months concluded:

1. Younger entrants will have difficulty attaining up to grade level in academic skills, and a large portion of them may fall far below grade-level standards. Older entrants are more likely to achieve up to and beyond grade-level standards.

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[29]Arthur E. Hamalainen, "Kindergarten-Primary Entrance Age in Relation to Later School Adjustment," Elementary School Journal, Vol. 52, No. 7 (March, 1952), 411.

2. A larger number of the younger entrants will have to repeat a grade.
3. More boys than girls will repeat a grade.
4. Average daily attendance will be lower among younger entrants.
5. Younger entrants are likely to show more indications of poor personal and social adjustment in school.[30]

For accuracy in comparison of conclusions, it should be noted that the findings of King were not based upon young children of advanced mental ability. The Hamalainen research did include some mentally advanced students, but not exclusively.

An ongoing process of admitting young, gifted children early that has gained "classic" status by now is that conducted in Brookline, Massachusetts. Cone reported the findings of this early admission policy in 1955 -- a policy which at that time had been in effect for 23 years.

Children in the Brookline School District who are between the ages of four years three months and four years nine months are admitted to kindergarten if their tested mental age is at least five years two months. First grade applicants are enrolled if they are between the ages of five years three months and five years nine months if they test at least six years two months. The first ten-year

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[30]Inez B. King, "Effect of Age of Entrance into Grade One Upon Achievement in Elementary School," Elementary School Journal, Vol. 55, No. 6 (February, 1955), 336.

report indicated that:

1. Academic marks awarded the underage children began to surpass those earned by the older children in first grade and that the margin of superiority increased progressively through grade eight.
2. Grade failure rate among the older children was 6 per cent; among those under age, it was only 1 per cent.
3. The underage showed histories of leadership in student affairs, good deportment, and infrequent social, emotional, and personality maladjustment.[31]

Birch reported on the school progress of 43 mentally advanced students accelerated by one year through being admitted to grade one early over the years 1951-1953. They were selected by psychologists' ratings of advanced status in mental ability, social maturity, emotional maturity, health, and reading aptitude. Thirty of these were subsequently rated positive during their subsequent few years in school. While a few were rated positive questionable, negative questionable, or negative initially, these ratings swung toward the positive side as they progressed through school.[32]

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[31]Herbert R. Cone, "Brookline Admits Them Early," Nation's Schools, Vol. 55, No. 3 (March, 1955), 46-47.

[32]Jack W. Birch, "Early School Admission for Mentally Advanced Children," Exceptional Children, Vol. 21, No. 3 (December, 1954), 84-87.

A comprehensive study reported by DeVault assessed the academic achievement, personal and social adjustment, and work-study skills of 553 mentally advanced underage school enrollees in grades two, four, and six, and concluded:

1. Pupils in the upper IQ or MA levels had higher academic and adjustment scores than pupils in the middle or lower levels.
2. The academic areas of reading, arithmetic, total achievement, and work-study skills were more significantly related to IQ and MA than were the areas of sociometric status, personal adjustment, social adjustment, and total personality adjustment.
3. Pupils more than two months underage had lower reading achievement scores than older pupils with similar IQ's.
4. Pupils more than two months underage sometimes had reading achievement scores as high as normal age pupils with the same mental age. When younger pupils have mental ages equal to those of older pupils they have IQ's higher than these older pupils.
5. There was a small amount of evidence to indicate that girls had higher reading achievement scores than boys.
6. Normal age pupils and those not more than two months underage tended to have higher arithmetic achievement scores than pupils who were more than two months underage.

7. There was evidence to indicate that groups of pupils more than two months underage seldom had total achievement scores as high as older groups of pupils.
8. Girls consistently had higher total achievement scores than boys.
9. Underage pupils tended to have better work-study skills scores than older children of similar mental age.
10. There was no evidence that underage pupils were handicapped with low work-study skills.
11. Pupils not more than two months underage tended to have higher sociometric status scores than younger pupils.
12. There was only slight evidence that personal, social, or total personality adjustment as measured by the California Test of Personality was related to chronological age.[33]

These findings are limited, since all of the children studied were from middle to upper status Anglo-American neighborhoods.

A follow-up study of pupils of advanced mental age enrolled in 1954 and 1955 was conducted in Nebraska and their school achievement studied in relation to their

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[33]M. Vere DeVault, et al., Underage First Grade Enrollees (Austin: University of Texas, 1957), pp. 117-118.

pre-school mental age. Their achievement was measured in grade three, based upon performance on standardized tests. The results indicated the students had an average IQ of 121 and were scholastically over a half year above the mean achievement of third graders according to national norms for achievement tests. Stake, in this report, concludes that "children who are very intelligent are likely to be among the top achievers even when they are the youngest in the class."[34]

A more recent report by Birch in 1964 describing the Warren Demonstration Project advocates early admission because able children, properly selected, have demonstrated their ability to successfully enter school at an age earlier than the usual admission age. The first 19 kindergarten children studied in the project showed:

1. Adjustment equal to that of the other regular pupils;
2. Successful promotion to first grade and satisfactory progress in all cases except one; and
3. Sociometric ratings that indicate they are not treated as outsiders by their older classmates.[35]

It is admitted that the research cited is not all-inclusive, but it seems sufficient to establish the pattern

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[34]Robert Stake, "Predicting Success of the Early Starter," Overview, Vol. 1 (November, 1960), 32-33.

[35]Jack W. Birch, et al., "Early Admission of Able Children to School," School Life, Vol. 46, No. 7 (June, 1964), 8.

of study on early school admission for mentally advanced children. Reynolds' book on this same issue concludes a review of the research with the following statement:

> It may be concluded . . . that early admission to school of mentally advanced children who are within a year of the ordinary school entrance age and who are generally mature is to their advantage. Although there are needs for further research, there are few issues in education on which research evidence now available is so clear and so universally favorable to a particular solution.[36]

As might be expected, this statement is not without detractors. Weiss challenges most research comparisons made between normal-age children and bright, mature children on school adjustment and achievement. She accuses the researchers of untested judgment, theory, and experience statements, and finds little precise, experimental data as a sound foundation for conclusions about mentally advanced underage school enrollees. In order to fill this void she matched 35 early-age children with 161 normal-age children on IQ, personality adjustment, and sex to compare achievement and adjustment.

The above-average (IQ) children in the two groups were matched on all three factors, while the average and below-average (IQ) children were matched on only the second two variables. At the end of the year they were compared on a personality test, a sociometric test, and a teacher-rating scale. Her findings were:

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[36]Maynard C. Reynolds, ed., Early School Admission for Mentally Advanced Children, The Council for Exceptional Children, National Education Association, 1963, p. 17.

1. when placed in a regular kindergarten class, early-age children of above-average IQ may be expected to achieve and adjust approximately at the level of the class average; and
2. while the early-age children achieve and adjust better than the normal-age children of below-average IQ, they may be expected to achieve below the level of children of comparable IQ who enter kindergarten as the oldest group.

Weiss interprets these conclusions "to mean that if the early-age children had entered kindergarten a year later in the normal pattern, they would have achieved at a higher level."[37]

The implications of these conclusions were for the motivational level and adjustment of superior, young children. The younger child is at an age handicap when competing for achievement and social status with older, equally intelligent school mates. If the more immature child is not capable of competing to his self-satisfaction he may well develop unfavorable attitudes toward school. If the younger child continues to perform at a level below the superior normal child his lower grades, by comparison, reduce motivation since he is not gaining the satisfaction and success he deserves. In addition, it was found that

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[37]Rosalee G. Weiss, "The Validity of Early Entrance into Kindergarten," Journal of Educational Research, Vol. 56, No. 1 (September, 1962), 53-54.

old normal-age children of average intelligence and all other children with above-average IQ were more popular at the end of the school year than the superior IQ early-age children.[38]

With the importance of IQ, mental age, and chronological age criteria in determining readiness, something needs to be said about the readiness-testing dominance of certain measures and trends toward changing assessment practices.

A Brief History of Tests of School Readiness

The first three decades of the twentieth century were almost completely dominated by the Binet tests. The Binet tests, which include the Binet-Simon (1905), the Kuhlmann-Binet revision of 1912, and the 1916 Stanford-Binet (by Terman), were enjoying popularity and uncritical acceptance as tests of intellignece and mental capacity.[39] Since pre-school testing was almost exclusively done for purposes of admitting advanced children to school early, heavy emphasis was placed upon the intelligence quotient or mental age criterion. The popularity of the Binet tests in the literature seems to indicate that they served this rather restricted view nicely.

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[38]Ibid., p. 54.

[39]Eugene A. Scholten, "School Readiness: A Study Comparing the Attitudes of School Psychologists and Kindergarten Teachers" (unpublished Ed.D. thesis, Michigan State University, 1965), pp. 127-128.

The names Florence Goodenough and Rachel Stutsman appeared on the testing scene during the 1930's as opponents of the Binet tests. Goodenough was critical of the comprehensiveness of the Kuhlmann-Binet, in particular, since she felt it was too short for use at the four and five year old levels.[40] Her response was a co-authorship of the Minnesota Pre-School Scale, which adopted many of the test items from the Kuhlmann-Binet scale, took some from other available scales, and incorporated some original items.[41] Goodenough's Draw-A-Man Test (1926) was published in an effort to move toward a nonlanguage, conceptual, performance-type measurement of readiness and away from the more narrow IQ assessment.[42]

At about the same time, Stutsman developed a test for measuring school readiness, which concentrated on the later pre-school years. Her Merrill-Palmer Pre-School Scale was published in 1931 and, like Goodenough's Draw-A-Man Test, placed more reliance upon performance-type items.[43]

The Stanford-Binet was revised again in 1937, strengthening the two to five year old scales. The addition

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[40]Florence Goodenough, Mental Testing (New York: Rinehart and Co., 1938), p. 68.

[41]Leland H. Stott and Rachel Stutsman Ball, Evaluation of Infant and Pre-School Mental Tests (Detroit: Merrill-Palmer Institute, 1963), p. 100.

[42]Ibid., p. 101.

[43]Rachel Stutsman, Mental Measurement of Pre-School Children (Yonkers-on-Hudson: World Book Co., 1931), Chap. 1.

of these scales to the test largely negated criticisms of the test on the basis of its incompleteness for preschoolers. This revision pre-empted the attempts of other pre-school tests to break the Binet monopoly and has, for the most part, dominated the testing scene ever since.[44]

Studies concerned with the reliability and predictive validity of pre-school tests have not demonstrated entirely consistent findings. Driscoll[45] and Kawin,[46] for instance, report studies which question the reliability and standardization of the Merrill-Palmer, while Teagarden[47] felt that the test was based upon rigid standardization.

Anderson,[48] comparing the Kuhlmann-Binet, Merrill-Palmer, and the Minnesota, suggested that the latter two were inferior due to the variability among the three instruments. DeForest[49] reported quite low correlations between

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[44]Scholten, op. cit., p. 132.

[45]G. P. Driscoll, "The Development Status of the Pre-School Child as a Prognosis of Future Development," Child Development Monograph (Teachers College: Columbia University, 1933), No. 13.

[46]E. Kawin, Children of Pre-School Age (Chicago: University of Chicago Press, 1934).

[47]F. M. Teagarden, "Merrill-Palmer Scale of Mental Tests," in The Mental Measurement Yearbook, 1940, p. 230.

[48]J. E. Anderson, "The Limitations of Pre-School Tests," Journal of Psychology, Vol. 8 (1939), 351.

[49]R. DeForest, "A Study of the Prognostic Value of the Merrill-Palmer Scale of Mental Tests and the Minnesota Pre-School Scale," Journal of Genetic Psychology, Vol. 59, First Half (September, 1941), 219-223.

the Merrill-Palmer and the Stanford-Binet (.55 ± .04), with increasing age of the children lowering the magnitude of the correlations. Levinson[50] reported correlations of only average magnitude between the Binet, the Merrill-Palmer scale, and the Minnesota Pre-School test. Other studies report varying findings, but generally conclude that the Binet maintains a superior position overall and at pre-school levels as well.[51] Notwithstanding the popularity of the Stanford-Binet, questions about the wisdom of using a single test of mental ability as a measure of readiness arose.

The importance of environmental variables in altering intelligence test scores was reported by Bayley in 1937.[52] The work of Gesell brought the issues of maturity, behavior (motor, adaptive, language, and personal-social), and developmental status to the forefront.[53]

The use of geometric figures to assess visual, motor, and perceptual factors as variables in school readiness

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[50]B. M. LEvinson, "Binet Non-Verbal Pre-School Scale," Journal of Clinical Psychology, Vol. 16, No. 1 (January, 1960), 12.

[51]Scholten, op. cit., p. 135.

[52]Nancy Bayley, "Environmental Correlates of Mental and Motor Development," Child Development, Vol. 8, No. 4 (December, 1937), 329.

[53]A. Gesell, The Mental Growth of the Pre-School Child (New York: Macmillan, 1925).

assessment have been introduced as necessary aspects to be considered.[54]

Graudally there has been a movement away on a theoretical shift from mental age and IQ as single measures of school readiness to a broader base of considering such variables as perception,[55] neurological development,[56] physical coordination,[57] and the like. Much of this remains in the realm of conjecture, since many of these studies need replication to substantiate the conclusions. In addition, single tests, particularly the Stanford-Binet, are still in wide use in practical settings, demonstrating the continued reliance on "pure" intelligence tests and the slow adoption of other assessment measures. A survey designed to determine the frequency with which each of the various infant and pre-school mental tests was used in treatment agencies, research centers, and by individual clinicians and researchers found the Stanford-Binet used in 90 per cent of the cases, based upon 217 returned questionnaires and 60 per cent of

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[54]E. M. Koppitz, "Prediction of First Grade Achievement with the B-G Test and Human Figure Drawings," Journal of Educational Psychology, Vol. 52, No. 2 (July, 1960), 80.

[55]F. K. Graham, "Development in Pre-School Children of the Ability to Copy Forms," Child Development, Vol. 31, No. 2 (June, 1960), 339.

[56]Sister Mary DeLourdes, "The Importance of Readiness at the Kindergarten Level," National Catholic Educational Association Bulletin, Vol. 60, No. 1 (August, 1963), 538-539.

[57]M. D. Simon, "Body Configuration and School Readiness," Child Development, Vol. 30 (December, 1959), 493.

the respondents represented educational institutions (nursery schools, kindergartens, day-care centers, etc.).[58]

The reader is referred to Appendix B of the Scholten work and to Chapter III of the Stott and Ball publication for complete discussions of school readiness tests and studies pertinent to issues of reliability and predictive validity.

The Multi-Dimensional View of Readiness

There appears to be confusion and disagreement among educators concerning criteria for school admission. Chronological age and mental age, especially the latter, have had their place "up front" for a long time as the primary determinants of school readiness. Witness the studies cited, as well as those by Hampleman,[59] Bigelow,[60] Baer,[61] and Curry,[62] which dealt with the issue of age and its effect on achievement, progress, and the like. An

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[58] Stott and Ball, op. cit., pp. 225-226.

[59] Richard S. Hampleman, "A Study of the Comparative Reading Achievement of Early and Late School Starters," Elementary English, Vol. 36, No. 5 (May, 1959), 331-334.

[60] Elizabeth Bigelow, "School Progress of Underage Children," Elementary School Journal, Vol. 35, No. 3 (November, 1934), 186-192.

[61] C. J. Baer, "The School Progress and Adjustment of Underage and Overage Students," Journal of Educational Psychology, Vol. 49, No. 1 (February, 1958), 17-19.

[62] Robert L. Curry, "Certain Characteristics of Underachievers and Overachievers," Peabody Journal of Education, Vol. 39, No. 1 (July, 1961), 41-45.

encouraging shift of emphasis is occurring, however, which was latent for a long time and that is the relegation of chronological and mental age to a position of lesser importance. Many additional variables which contribute to school readiness are being recognized as critical for determining how "ready" a given child is for any particular experience.

McCarthy's[63] study is an example of this increasing concern over the multi-faceted characteristic of readiness. He conducted case studies of 80 underage children and compared their school success three years later with the 12 variables of intelligence, reading readiness, home environment, home instruction, sibling relationships, types of group experiences, relationships in groups, self-reliance, emotional stability, health, physical characteristics, and motor coordination. He found varying degrees of significant relations between a number of these variables and school success (defined as academic achievement and social adjustment) for both boys and girls, although his results varied when the sexes were considered separately. McCarthy's main conclusion was that:

> The problem of determining standards for first grade entrance of underage children involved more than considering the intelligence of underage candidates but also involves considering . . . many variables . . . .

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[63]Daniel J. McCarthy, "Pre-Entrance Variables and School Success of Underage Children," Harvard Educational Review - Thesis Abstracts, Vol. 25, No. 4 (Fall, 1955), 266-269.

Kowitz[64] views readiness as three-dimensional, and relates these dimensions to the child's adequacy to profit from a directed learning experience. The child must have achieved adequacy in three ways:

1. Physiology - The physiological mechanisms must be adequately developed so that he is able to make the desired responses.
2. Experience - He must have an adequate repertoire of experiences so that he is able to perceive meaningful patterns in the stimuli presented to him.
3. Stamina - He must have the stamina to sustain the response in a meaningful context long enough for the learning to occur.

Kazienko[65] conducted a study which has meaning for Kowitz's experience dimension, in that he compared three groups of children which had a good beginner grade experience, a poor beginner grade experience, or no beginner grade experience. The beginner grade is a pre-first grade experience. When these three groups were compared on achievement test scores in fourth grade, the findings were:

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[64]Gerald T. Kowitz, "Readiness: Its Three Phases," National Elementary Principal, Vol. 43, No. 4 (February, 1964), 23.

[65]Louis W. Kazienko, "Beginner Grade Influence on School Progress," Educational Administration and Supervision, Vol. 40, No. 4 (April, 1954), 226-227.

1. those children who had the advantage of a beginner grade as compared to those who started school in the first grade made higher scores in achievement in the fourth grade when measured by standardized achievement tests;
2. the achievement of pupils with above-average mental ability (IQ 110 and above) who had beginner instruction, either good or poor, was significantly higher than the achievement of the pupils who started in the first grade;
3. a comparison of achievement of pupils of above-average mental ability who started school under good beginner instruction with pupils who started school under poor beginner instruction showed no significant differences;
4. the achievement of pupils of average mental ability who started school under good beginner instruction was significantly better than the achievement of the pupils who started school in the first grade;
5. the multiple coefficient of correlation between achievement and the factors of chronological age, mental age, and the intelligence quotient combined was found to be .825. Success in the early grades may be explained by the mental readiness of the pupils to undertake the tasks of basic skills;
6. pupils who started school in the first grade were one year retarded in mental readiness to compete

with the other children in tasks taught in the fourth grade;

7. analysis of achievement in the fourth grade with the mental age factor held constant, it was found that the differences in mean performance favored the good beginner instruction group when it was compared with the poor beginner instruction group;
8. with mental age controlled, the differences in achievement between the good beginner group and the first grade group were significantly larger in favor of the good beginner group in each of the selected areas of achievement; and
9. when the poor beginner grade group was compared with the first grade group, with mental age controlled, there were no significant differences in achievement between these two groups in the fourth grade.

Even though mental age is a factor in this study, the quality of pre-first grade experiences influenced the achievement level several years later.

Even in the face of a wealth of studies on minimum mental age for school entrance, necessary minimum chronological age criteria as well as numerous other proposed criteria, the same question keeps coming up over and over again: "When is a child ready?" The literature on school readiness demonstrates the magnitude of concern. Study and research

titles are asking this same question with discouraging repetition.

What is even more disheartening is that in most communities chronological age remains as the criterion used for determining readiness, or at least admission to school.[66] In the few school districts that provide variable admission age for school entrance, few combine early and deferred admission. Most of these programs provide for early admission of advanced children only.[67]

It seems safe to conclude that save for a small number of school districts, the issue of determining readiness is not being faced. The studies which purport to support a certain chronological age for school experiences have apparently lent enough credence to this practice to insure its continuance. The gifted child has received a good share of attention, as the studies cited indicate, but coming to grips with the problem of the immature child of average ability has not kept pace. This is not to be interpreted that there have not been strong challenges to this lopsided situation, but practicing educators have been slow to accept and implement other readiness procedures.

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[66] Richard M. Brandt, "Ready or Not," Childhood Education, Vol. 43, No. 8 (April, 1967), 448.

[67] Thomas D. Rowland and Calvin C. Nelson, "Off to School - At What Age?" Elementary School Journal, Vol. 60, No. 1 (October, 1959), 23.

Ilg and Ames[68] take strong exception to the chronological age criterion by stating that:

> The main weakness of chronological age as a criterion for school admission is that even if we could determine exactly the age at which the average girl or boy is ready to start kindergarten or first grade, any average would still imply that only 50 per cent of any group of children might be expected to fall close enough to this average to insure their reasonable readiness.

Historically, following the advent of formal, compulsory school attendance legislation, schools allowed children to enter first grade at progressively younger ages. This was particularly true in districts without kindergartens. The impetus for moving the admission age downward came primarily from two sources: parental pressure and educators' concern for providing for individual differences among potential school enrollees.

This trend changed when it became obvious that the subsequent rate of failure and strain upon immature students was not worth the price. The age of school entrance, therefore, has steadily increased throughout the United States in response to these problems.[69]

Table 2.1 shows a frequency distribution of the age required by different states for entrance to first grade.

Entrance age policies became more fixed and structured, following increasing evidence of the problems of the

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[68] Ilg and Ames, op. cit., pp. 15-16.

[69] Ibid., p. 15.

immature, which caused increasing demands from parents for exceptions, especially for children who were thought to be advanced mentally, but too young to qualify chronologically. The appearance of intelligence tests on the scene is reported by Ilg and Ames to be a response to this pressure. The belief was that a high IQ would insure that a child could compete with older, less advanced children in school. Ilg and Ames contend that intelligence is only part of the child's total personality, and that:

> A mere intelligence test does not and cannot attempt to measure a child's level of maturity. A child may be of clearly superior intelligence, but may at the same time be behind others of his age in either physical or behavioral maturity.[70]

TABLE 2.1.--Age required by different states for entrance to first grade.

Required Date	Age at Entrance	Number of States
No date set		11
Local decision, no statewide policy		6
6 by January 31	5.7	1
6 by December 31	5.8	11
6 by December 1	5.9	33
6 by sometime in November	5.10	5
6 by sometime in October	5.11	6
6 by September 1 or 15 (or merely 6)	6.0	9
Total		52[a]
Median for those with a statewide date	5.10	
Mean for those with a statewide date	5.9	

[a]This includes District of Columbia and Puerto Rico.[71]

[70] Ibid., pp. 16-17.

[71] Ibid., p. 16.

Various readiness tests, devised especially for reading, correlated highly with intelligence tests, and were found wanting for assessing the total behavioral or developmental level of the child. Thus a child may be performing at or above his age level in a particular discipline while at or below age level in other areas of behavior. The crucial point to all of this is that readiness for school admission is a factor of a child's developmental level. "We need to know at what age he is behaving as a total organism."[72]

Hildreth[73] advocates a number of different methods for determining readiness and mental development, which include:

1. observation and rating of the pupils when they respond in the classroom and on the playground, when they are occupied with play materials, when they are associating with other children, and when they are talking with and responding to the teacher;
2. making reports - school reports and reports of parents concerning the children's home development and out-of-school experiences; and
3. administering tests - primary group intelligence tests suitable for school beginners, general and

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[72] Ibid., p. 17.

[73] Gertrude Hildreth, Readiness for School Beginners (New York: World Book Company, 1950), p. 44.

composite readiness tests, such as the Metropolitan Readiness Tests, and readiness tests for subjects. Some of Hildreth's suggested methods are after the fact in terms of determining readiness for the concept of a total developmental approach.

She specifies traits such as mental maturity, visual comprehension and discrimination, auditory comprehension and discrimination, and motor coordination, which can be rated informally through observation or more formally through readiness tests.[74]

Hildreth[75] devotes an entire chapter in her book to using readiness tests and divides them into intelligence tests, general readiness tests, and readiness tests for specific skills. Features which are important for a good readiness test are:

1. Serves a screening function
2. Objective character
3. Predictive value
4. Normative comparisons
5. Diagnostic

Suggested supplementary tests to assess behavioral maturity, mental maturity and reality, symbolic functioning, perception, and experiential background were the Vineland Social Maturity Scale, drawing tests (i.e. Draw-A-Man), writing

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[74] Ibid., p. 50.

[75] Ibid., pp. 65-73.

tests, figure-copying tests, and picture-naming tests, respectively.[76]

While Brandt[77] sees a need for adequate readiness measures for admission decisions and for instructional purposes and curriculum planning, he hopes for observation of children in their natural play activities as the only reliable measure of behavioral maturity. This follows Hildreth's observation and rating method cited earlier. His observational method is sound, but he makes an indefensible claim that readiness rating scales are not in wide use as selection devices for first grade admission because of their limited usefulness due to lack of objectivity. Tests which seek to get at a wider range of readiness variables are accused of poor reliability or necessitative time-consuming individual administration. These drawbacks are supposed to be supportive of his argument for observation of whether there are other reasons these types of measures are not in wide use.

Cooper[78] states:

> A multiple-testing approach alone can ascertain the child's readiness based on his developmental age, which is seen to be an objective appraisal of observed patterns of behavior in terms of the normative pattern.

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[76] Ibid., pp. 84-86.

[77] Brandt, op. cit., pp. 449-450.

[78] Margery Gascoigne Cooper, "When Is the Child Ready to Begin Schooling," Times Educational Supplement, June 10, 1966, p. 1817.

In addition to intelligence, such variables as independence in the physical skills, ability to accept differences in the ways of doing things, interest and pleasure in the company of an increasing number of people, curiosity, and emotional stability are important in assessing total development.[79]

Hymes[80] supports Brandt's contention that observation of the child yields the best input for deciding readiness. He challenges the heavy reliance on group paper and pencil tests for determining reading readiness or readiness for any kind of instruction, since they indicate only what a child can do, not what he does do. He warns, however, that for observation of performance to be meaningful, the child must be surrounded with opportunities to do things and he must be free to respond to that which he wants, not to that to which we want him to respond. Observations of children making completely free choices are the real test of readiness.

Gelles and Coulson quote Ann Starr, formerly of Rutgers University, to support the argument that assessing readiness is a complex, multidimensional task.

> There is no single measure by which to determine the right answer in reference to a particular child. It is not age alone nor physical size, not health,

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[79] Ibid.

[80] James L. Hymes, Jr., "How Can You Tell About Readiness," Grade Teacher, Vol. 80, No. 7 (March, 1963), 84-86.

> nor nursery school experience; neither is it social or emotional maturity alone, but rather a balance of all these working together.[81]

The roles of both psychological tests and observation, conducted by trained personnel, are vital for predicting school readiness. Testing individual children to assess degrees of physical, intellectual, social, and emotional maturity, by a psychologist, clinically evaluates the balance or imbalance of development on a carefully selected sample of behavior, and this type of multiple diagnosis holds promise for determining readiness.[82] A study by Forester[83] demonstrates both the growing discontent with a single dimension for determining readiness (i.e. mental age) and the necessity of taking a look at a child's physical and emotional status. Five hundred pupils were followed through high school to compare the school adjustment and achievement of those falling in predetermined chronological and mental age groupings. The students were assigned to one of six chronological age groupings from very bright to very dull, based upon kindergarten entrance age. The children in the very bright and very young category met with varying degrees of difficulty from junior high school on.

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[81] Herbert M. Gelles and Marion C. Coulson, "At What Age Is a Child Ready for School," School Executive, Vol. 83, Part 1 (August, 1964), 31.

[82] Ibid.

[83] John J. Forester, "At What Age Should a Child Start School?" School Executive, Vol. 74, Part 2 (March, 1955), 80-81.

The lack of scholastic achievement of 50 per cent of these children was judged, by teacher, to be caused by physical immaturity and emotional instability. They were not particularly popular in school, as evidenced by the fact that they were seldom asked to be leaders by their classmates. Forester sums this up by stating that "it is apparent that learning takes place best when there is emotional, physical and social readiness."[84]

It is clear that a single measure such as chronological age or mental age cannot, in good conscience, be used to make decisions about readiness. Even with the disagreement among educators as to the relative merits of each single variable, most would admit that a multi-variable assessment is the best method. Writers in this area consistently mention other readiness dimensions to be considered when assessing readiness. While most would admit that chronological age alone is not a satisfactory guide, with the same being true of mental age, in practice the former is used by all but a small percentage, while the latter is widely accepted in districts with early school admission policies.

An opinion poll conducted nationwide in 1955 evidenced that 53 per cent of the responding superintendents favored basing school entrance on mental age and physical and emotional maturity rather than chronological age.

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[84] Ibid.

While they favored such action, only a very few were doing this in practice.[85] Not much has changed in the 12 years since this poll.[86]

The reluctance of educators to put "their money where their mouth is" may be attributable to a number of causes, but two seem to move to the forefront. One reason is a difference of opinion on measures (tests) which are suitable to accurately determine school readiness. Another reason is the degree of parental objection to a policy which may prevent certain children from entering school.[87] Perhaps it can be hypothesized that the acceptance of parents for school admission of mentally advanced children accounts for the fact that educators are more willing to look after the individual differences of the gifted than the immature child of average mental capacity. The use of standardized intelligence tests, in these cases, does not seem to be quite so objectionable.

The work of Ilg, Ames, Brenner, and others has been directed at trying to break the chronological and mental age barrier as determinants for school entrance. Ilg and Ames[88] refute both these criteria as adequate indices of

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[85]Opinion Poll, Nation's Schools, Vol. 56, No. 2 (August, 1955), 6.

[86]Brandt, op. cit.

[87]Opinion Poll, op. cit.

[88]Louis Bates Ames and Frances L. Ilg, "Every Child in the Right Grade," Instructor, Vol. 73, No. 3 (November, 1963), 7.

readiness. Their argument is that it is a fallacious notion to accept that all children of the same age are at the same developmental or behavioral level, and that this is the primary reason for education overplacement. Their Weston Study concluded that "a child should be behaving like a six-year-old in order to be ready for first grade - as it is usually taught - not merely be six years old in age."

They also take exception to early admission of mentally advanced children, based upon intelligence tests, since "whatever an intelligence test measures, it is only a small part of the total personality. By no means does it measure the child's level of maturity."[89]

Ames and Ilg[90] advocate assessing behavior, or developmental, age through administering a battery of behavior tasks which include:

1. Interview
2. Writing name, address, letters, and numbers
3. Copy forms (geometric)
4. Gesell incomplete man test
5. Right and left tests
6. Monroe Visual I and Visual III
7. Naming animals
8. Giving home and school references
9. Lowenfeld Mosaic Test

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[89] Ibid.

[90] Ibid.

These tests are discussed in depth in their book, School Readiness.[91]

Balinky[92] makes a case for a configuration method of predicting school success as a replacement for the traditional chronological age readiness criterion. Her method was an attempt to use evaluative measures such as verbal ability, visual-motor coordination, abstract abilities, and maturational levels, which had been found to be effective, but to adapt them for group techniques with nonspecialized personnel. This was an attempt to overcome the limited usefulness of these measures due to the lack of trained psychometric personnel in many school systems. The method is based upon the probability of behavioral outcomes, and is described by Balinky as a:

> Technique which permits the prediction of discrete categories of outcomes based upon performance on one or more predictor variables, continuous or discrete, on the basis of the principle of maximum probability. It is based on the concept that in any large sample there will be relatively homogeneous subsamples that will tend to have a high probability of having a similar behavioral outcome. If the original large sample can be divided into subsamples based upon homogeneity of several factors, then the behavioral outcome should be predictable. Further, other cases not included in the original subsample, yet having a similar rating on each of the factors, should tend to behave in a similar manner. If similar subsamples can thus be derived on the basis of a population with known outcome, it should be possible to predict the behavior of future cases.

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[91] Ilg, op. cit.

[92] Jean L. Balinky, "The Application of a Configuration Method to the Prediction of Success in First Grade," Educational and Psychological Measurement, Vol. 25, No. 2 (Summer, 1965), 605-606.

The measures used in the study were the Goodenough "Draw-A-Man" mental age, the Starr Rutgers drawing test, the Metropolitan Readiness Tests, and kindergarten teacher rating (3-point scale), and the configuration was compared to instructional reading level in first grade. The prediction of a success-failure dichotomy was accurate for 74 per cent of the 289 cases, while the three-category prediction (success, doubtful, fair) was accurate for 62 per cent of the cases from the same population.[93]

Koppitz[94] reports the use of a visual-motor test, the Bender Gestalt, to predict learning readiness as well as for diagnosis of children with potential difficulties. She compared the Bender Gestalt with two widely used readiness tests, the Lee-Clark reading readiness test and the Metropolitan Readiness Tests. The three tests, administered to 272 beginning first grade students, were correlated with each other and with end of the year achievement. It was found that the Bender correlates well with the readiness tests and is generally equal in prediction of achievement.

Edmiston and Hollahan,[95] as early as 1946, were examining factors influencing readiness other than mental

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[93] Ibid., pp. 608-611.

[94] Elizabeth M. Koppitz, "Screening School Beginners with the Bender Gestalt Test," Journal of Educational Psychology, Vol. 52, No. 2 (July, 1960), 80-81.

[95] R. W. Edmiston and Catherine E. Hollahan, "Measures Predictive of First-Grade Achievement," School and Society, Vol. 63, No. 1633 (April, 1946), 268.

and chronological age. Questions about the influence of such factors as social adjustment, health, socio-economic background, and motor coordination were being proposed as instrumental in the practice of using a group of measures of factors which would predict successful achievement at the first grade level.

While there is an increasing effort by some to move educators away from single measures in determining readiness, the Rowland and Nelson[96] study showed that schools using a variable school admission age policy still used a single test, usually of the intelligence variety. Of the 66 per cent of the schools in the study which responded that individual psychological examination was the most valuable selection procedure, 72 per cent reported using the Stanford-Binet Scale.

Curricular Implications of Readiness Assessment

The entire issue of readiness and its measurement can be summarized by a relatively simple question, "How can overplacement of children be avoided?" Overplacement here means more than just assignment of a child to the proper grade, but providing the proper experiences regardless of grade. Ames states that research conducted over a 10-year span at the Gesell Institute "reveals that at least one child in three may definitely be overplaced and struggling

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[96]Rowland, op. cit., p. 21.

with the work of a grade which is really beyond his ability."[97] She recommends, as a solution, working on the child's ability to perform rather than altering the curriculum to meet the child's needs. This is a recommendation to change the child's placement rather than change the experiences he is getting in a particular grade.[98] This solution appears to assume a structured, inflexible curriculum and pigeonholing of children in established molds.

Another possible solution to the overplacement problems is the provision of experiences appropriate to a child's readiness or developmental level. This may require alternation of the curriculum and decreases the need for postponement of experiences pending attainment of a certain readiness level.

> Ultimately the nongraded school may be the answer. With a series of opportunities for self-selection in a rich array of learning opportunities children may be allowed to perform comfortably in their many dimensions of readiness.[99]

Baldwin[100] blames inadequate instructional planning and archaic grouping arrangements for the learning problems students encounter in kindergarten. He advocates preventative

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[97]Louis Bates Ames, Is Your Child in the Wrong Grade? (New York: Harper & Row, 1967), p. 3.

[98]Ibid., p. 5.

[99]Keliher, op. cit., p. 443.

[100]Joseph W. Baldwin, "A Good Start in School - A Child's Right," Elementary School Journal, Vol. 68, No. 8 (May, 1968), 387-393.

placement and instruction rather than remediation later. Many problems could be eliminated by assessing the differences in learning patterns early and gearing instruction accordingly. He views readiness as a two-way street: the child's readiness for school and the school's readiness for the child.

As far as the role of readiness tests in preventing overplacement, Brandt summed it up this way:

> Not only could adequate readiness measures be useful in admission programs; they could have perhaps even greater value in providing guidelines for grouping children in instructional purposes and in curricular planning. They are increasingly needed as ungraded-primary replaces traditional grade-level school organization and it becomes essential to know children's developmental status.[101]

Balinky[102] credits the realization that traditional chronological age is an inadequate criterion for readiness for a formal academic program and for the proliferation of ungraded or semi-graded primary school programs. Brenner[103] admonishes educators to attack the readiness problem by building flexibility in the program. Flexibility, he suggests, is needed in school policies, curricula, teacher personalities, instructional materials and methods.

The movement to nongraded schools, readiness kindergartens, transitional rooms, nursery schools, and the like

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[101]Brandt, op. cit., p. 449.

[102]Balinky, op. cit., p. 605.

[103]Brenner, op. cit.

are all attempts to provide learning experiences more in keeping with a child's readiness, development, maturity, or whichever word is used to describe this phenomenon.

Whatever program is designed to accomplish this or to enhance readiness, there is the need to know a given child's total developmental status. The necessity of assessing readiness provides support for the recommendation by Ilg and Ames[104] that a person in each school system be designated to administer batteries of developmental examinations, appraise and diagnose results, and put the findings into operation through coordination with all those involved with the child -- parents, administrators, and teachers. This person would be called a developmental guidance coordinator. The name is not important, but the concept holds promise.

Summary

School readiness has, for the most part, been viewed traditionally as a minimum age, either mentally or chronologically, which one must have attained to meet the academic demands of the first year in school. More often than not this first year has been designated "first grade" rather than "kindergarten."

School admission policies, usually established to admit only those of a certain chronological age or above, have rarely been flexible. Entrance policies which have

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[104] Ilg and Ames, op. cit., p. 37.

been flexible have accommodated the underage mentally advanced child in order to pacify parents and provide for individual differences.

The literature would indicate that the search for some method of assessing a child's capacity to learn, to decide whether to allow him entrance if he was underage, was largely restricted to the intelligence test variety. The Stanford-Binet has had, and still has strong appeal for this purpose and the quality of other tests judged against the Binet has been usually found wanting.

The assumption made in these comparisons is that the Binet measures all that one wants and needs to measure, and that tests which do not measure up are inferior. Perhaps the Binet (or any other "intelligence" test) is designed to assess factors which are not all-inclusive for a multi-dimensional view of readiness. In much of the literature it is still maintained that IQ and/or mental age are the primary considerations for determining readiness. If writers and researchers do not openly advocate this position, their reporting of practice in the field implies that those in education have silently accepted this philosophy.

Recently there has been developing a move to expand the horizon when looking at the whole concept of readiness. Such factors as motor development, visual and auditory perception, social and emotional growth, motivation, and personality, to name a few, are being legitimized as important

component variables. Readiness assessment is now being advocated for all children, not just those of advanced mental capacity. Although the move to discard the chronological age criterion for school admission has progressed very slowly, it is, with increasing frequency, being accepted as sound policy.

The position that curricula need to be flexible in order to accommodate the variety of readiness levels and intra-child differences is gaining favor, even though this, too, is a slow process. The push to get to children through pre-kindergarten programs early, as well as the nongraded movement, presuppose that experiences can affect development and growth, as opposed to delaying learning until a minimum readiness is reached. Testing for readiness, and its components, should carry with it methods for operationalizing findings and diagnosis into the classroom. This investigation is designed to provide information about readiness testing programs in practice to determine why it is done, how testing data are utilized, and their effects upon program and personnel.

CHAPTER III

DESIGN OF THE STUDY

The study sample was randomly selected from a population of school districts that satisfied the following criteria:

1. School districts or district building units that conduct pre-kindergarten readiness testing programs designed to test all or most entering kindergarten students.
2. Districts which use the ABC Inventory as part of the readiness testing program.
3. School districts within Southern Michigan.

Some discussion is appropriate here to give the rationale for isolating the population of school districts of interest as defined. The discussion of the above delimiting criteria will be sequenced in the order shown above.

Rationale I

This investigation is designed to study the characteristics of readiness testing programs as perceived by selected personnel, and the extent of involvement of these personnel. The issue of the comprehensiveness of the testing program was vital to the study, since it was felt that the

program characteristics of interest and degree of personnel involvement would be uniform and maximized in a comprehensive program. A comprehensive testing program speaks to the issue of breadth, not quality, and eliminates districts which test only a select group of children. The comparability from district to district would be impaired also if school districts with a wide variety of program breadth were all a part of the population.

Rationale II

The decision to limit the population of interest to those school districts using the ABC Inventory was to:

1. Achieve uniformity among the districts in at least one characteristic of the testing program (comparability).
2. To insure that all the population districts used at least one standard instrument.
3. Eliminate the complex task of surveying all school districts in Michigan that may have satisfied the criteria of comprehensiveness.

Rationale III

The school districts in the population of interest were limited to Southern Michigan when it was discovered that most districts satisfying the other criteria were located in this geographical part of the state. Time and

cost factors were also a concern here, since the investigative method was one of visitation and interview.

Identification of the Population

A preliminary readiness testing survey form was sent to 94 school districts in the state of Michigan. Since one criterion for a population district was that it use the ABC Inventory, the 94 districts were identified from a list provided by the distributing agency for this test, Educational Studies and Development, of Muskegon, Michigan. The list of school districts included those which had requested the ABC Inventory over the span of two years. This two-year listing was used with the assumption that districts would not be likely to order more than a two-year supply and all districts would, therefore, be identified. Certainty of a complete population cannot be assured since the possibility of districts making their own copies of the instrument is present. This, however, is not considered likely, in view of the comprehensiveness criteria, but should be anticipated, no matter how remote.

The preliminary readiness testing survey form was addressed to the attention of a building principal whose administrative responsibility included the kindergarten grade. In the case of districts where there was only one principal satisfying this criterion, the form was sent in his name for completion. In some instances where there was more than one principal in this category, the principal was

selected who administered the most building units and/or administered the student population of greatest number. If none of these methods designated a specific principal, the selection was done at random. Copies of the instructions and the survey form are included in Appendix A.

An initial return of 72 surveys resulted in 44 school districts or district building units which satisfied the ABC Inventory and comprehensive criteria. A follow-up mailing to the 22 nonresponding school districts resulted in nine additional returns, none of which satisfied both criteria. The 44 testing districts were categorized by community type, using the definitions from the Michigan Department of Education publication, Levels of Educational Performance (and related factors) in Michigan, 1970 - Assessment Report No. 4. The community types and definitions are shown in Table 3.1.

Table 3.1.--Definitions of community types.

Type I	- Metropolitan Core: One or more adjacent cities with a population of 50,000 or more which serve as the economic focal point of their environs.
Type II	- City: Community of 10,000 to 50,000 that serves as the economic focal point of its environs.
Type III	- Town: Community of 2,500 to 10,000 that serves as the economic focal point of its environs.
Type IV	- Urban Fringe: A community of any population size that has as its economic focal point a metropolitan core or a city.
Type V	- Rural Community: A community of less than 2,500.

Thirty of the 44 testing districts were in geographical region two, as defined by the Michigan Department of Education - Assessment Report Number 4. This area of Michigan designated "Southern Michigan" includes all counties south of the counties of Oceana, Newaygo, Mecosta, Isabella, Gladwin, and Arenac, excluding the counties of Wayne, Oakland, and Macomb.

Table 3.2.--School districts in population by community type.

Type	School District Names		
I			(N=0)
II	*Owosso		(N=1)
III	Algonac	Harbor Beach	
	Alma	Lowell	
	Caro	Vassar	
	East China	Whitehall	(N=8)
IV	Beecher	Kentwood	
	Carrollton	Marysville	
	DeWitt	Orchard View	
	Godwin Heights	Vander Cook Lake	(N=8)
V	Ashley	Morrice	
	Byron Center	Pinconning	
	Capac	*Portland	
	Lakewood	Reese	
	Mayville	Saranac	
	Memphis	Yale	
	Meridian		(N=13)

*Districts eliminated from the population.

Two school districts were eliminated from the population: Portland, because of the author's personal association

with the district for three years as an administrator actively involved in the testing program; and Owosso, since it was the only city community type in the population and it was felt that generalizations could not be made back to the population based upon a single sample from a population of one.

The Sample

A stratified random sample was selected by choosing (randomly) 25 per cent from each of the categories--town, urban fringe, and rural. This was done to assure a uniform mixture of school districts from all community types. Two districts and one alternate were selected from the town category, two districts and one alternate from the urban fringe category, and three districts and one alternate from the rural category.

Interview Procedure

Contact was made by phone with the person who completed the preliminary school readiness testing survey form in each of the seven sample school districts. A request was made to schedule a visit to the school district and interview the responding administrator and two kindergarten teachers. The administrators were asked to avoid scheduling teachers who were new to the district this current school year. This was done to decrease the chance that teachers being interviewed would have no knowledge of the

testing program characteristics of interest and that they had no opportunity to have been involved in the program.

Interviews were scheduled with staff before school, during the noon break, or after school. Interviews with administrators were on a more flexible time schedule and were conducted at times convenient in terms of the staff interview schedules.

The interviews were an average length of one-half to three-quarters of an hour, and the respondents were all very candid and articulate when answering the interview questions, in the opinion of the interviewer.

A personal interview outline was devised to insure uniformity of questions to all respondents in the interview categories test initiation, selection and composition of the program, administration and post-administration decision making, uses of the testing data, evaluation, and strengths and weaknesses of the testing program. The complete interview outline with sub-category questions can be seen in Appendix B.

Elementary building administrators were selected for interviews, since an administrative perspective was desired and the administrator with kindergarten grade responsibilities was considered most appropriate in view of the area of interest of the study. Kindergarten teachers were chosen because they become the recipients of children tested for readiness, and their views on the program

characteristics are from the desired perspective. Two teachers were interviewed to counter the possibility of a single teacher unresponsiveness, bias, or lack of knowledge. This cross check was not possible with administrators, in most cases, because of single elementary principal situations.

Data were gathered to determine the number of years of experience of the respondents interviewed in the respective positions of elementary administration or kindergarten teaching, the number of years experience in these positions in the current school district, the number of years of their involvement in the readiness testing program, and the number of years the testing program had been in effect. The respondent and district averages are shown below:

Elementary Principals (N=7)
- Average number of years experience: 7
- Average number of years experience in sample district: 6
- Average number of years involvement in testing program: 3 1/2

Kindergarten Teachers (N=14)
- Average number of years experience: 6
- Average number of years experience in sample district: 5
- Average number of years involvement in testing program: 3

District (N=7)
- Average number of years testing program has been in effect: 4

Treatment of the Data

All interviews were taped and transcribed directly onto the interview outlines. Transcribed responses were taken from the tapes almost word for word. The narrative forms of responses were summarized into shorter, more concise statement categories, and responses of a like nature were grouped together into frequencies. The individual interview question response categories and frequencies are shown and discussed in Chapter IV.

An additional interview was conducted with a co-author of the ABC Inventory, Mr. Normand Adair, School Diagnostician for the Orchard View School District in Muskegon, Michigan. The purpose of the interview was to determine the rationale for the development of the test, to trace its evolution and movement into use in school districts in Michigan or in other states, and to discuss any future development of the instrument. It was felt that this information would be valuable for placing the study results in perspective, since one uniform aspect of all the testing programs in the sample districts is the use of the ABC Inventory. The results of this interview can be found in Chapter V.

Summary

In summary, the design of this study was in the form of an interview with elementary administrators and kindergarten teachers to determine selected readiness testing

program characteristics as perceived by the two personnel types. Of further interest to the study was the extent of involvement of the two personnel groups in selected testing program aspects. Teacher and administrator perceptions were contrasted when it was appropriate to highlight differences and/or similarity of view. Certain testing program characteristics were treated as a school district perspective combining both teacher and administrator views. This information is reported and analyzed in a sample of Southern Michigan school districts which use the ABC Inventory as an assessment measure as part of a comprehensive kindergarten readiness testing program. The testing program aspects of interest to this investigation are: (1) initiation of the testing program, (2) test selection and composition of the program, (3) test administration and post-administration decision making, (4) uses made of the testing data, (5) evaluation of the program, and (6) strengths and weaknesses of the program.

One final word about the generalizability of the study findings is in order. Care must be taken not to assume that the results represent testing programs in community types other than rural, urban fringe, and town, or in other parts of Michigan or the nation. The results represent the views of elementary principals and kindergarten teachers in school districts in three specific community types in Southern Michigan with testing programs that are comprehensive

(breadth) and that employ the ABC Inventory. Replication of the investigation must take these limits into account.

CHAPTER IV

ANALYSIS OF RESULTS

Chapter Format

The format of this chapter consists of a restatement of each interview question with a brief description of the investigative rationale for each question. Tables of response results follow when it is both possible and helpful to present the data in graphic form. A narrative, brief discussion of the interview question response results follows each data presentation. In general, the tables consist of summary categories of responses, number of responses within each category for both administrators and teachers (shown separately), total number of responses within each category for administrators and teachers combined, per cent of administrators and teachers whose responses appropriately belong in each category (shown separately), and a total per cent of all those interviewed (administrators and teachers combined) whose responses are assigned to each category.

The results, analysis of the results, and interpretation, in some cases, make more sense when administrative and teacher responses and percentages are considered separately and contrasted. Certain sections of the interview

are more logically analyzed by taking the combined administrative and teacher percentages and treating these as school district trends.

A note of caution: When analyzing the results, it should be kept in mind that given respondents may have answered particular questions with more than one response type. That is, an administrator or teacher may have given two or more responses to a question. For this reason, a person's response can be found in more than one place in the table numbers and percentages. It is necessary, therefore, to read the tables horizontally (by category) when comparing the number of responses to the number possible (N) and the percentage shown to 100. A vertical reading of the tables will show erroneous number and per cent totals because of this respondent duplication.

The total number of teachers interviewed was 14, and the total number of administrators interviewed was seven. Two teachers and one administrator were interviewed in each of the seven sample school districts. These numbers remain constant throughout the analysis.

The interview outline was divided into six sections: testing program initiation, test selection and composition of the testing program, test administration and post-administrative decision making, uses of testing data, evaluation of the testing program, and strengths and weaknesses of the testing program. A varying number of specific

questions were asked with each of these broad section categories.

Section I - Testing Program Initiation

Interview Section Ia - Test Initiation: Results

Under the test initiation section, the first interview question asked was:

Why was the testing program started?

Investigative Rationale

The initial purpose of the readiness testing program is of interest and concern here. This is an effort to uncover the reason it was considered necessary to assess the readiness levels of entering kindergarten students.

Interview Section Ia: Discussion

Table 4.1 is divided into four broad categories of responses, with sub-sections under the first two categories. It was necessary to present the data in this manner since the rationales given for starting a readiness testing program carried with them dependent action phases. For example, the responses as to why identification of immature children is done through the testing program and why information is gathered through testing on all entering students were interwoven with the first two categories. It seemed logical to show these reported reasons and dependent action phases together.

Table 4.1.--Reported reasons the testing program was started.

Reasons	Frequency: Administration (N=7)	Frequency: Teachers (N=14)	Frequency: Total	Per Cent: Administration (N=7)	Per Cent: Teachers (N=14)	Per Cent: Total
Identify children not ready for kindergarten	6	11	17	86	79	81
Reported Action - Post Identification						
Action						
Delay school entrance	3	9	12	43	64	57
Parental guidance	1	3	4	14	21	19
Recommend pre-school	0	2	2	0	14	10
Admit--provide experiences in kindergarten	1	0	1	5	0	5
Conditional admission	1	0	1	14	0	5
Provide more information about all entering students	1	2	3	14	14	14
Reported Action - Post Information Gathering						
Action						
Developmental or readiness kindergarten program	1	1	2	14	7	10
Individualization of instruction	0	1	1	0	7	5
For the sake of innovation	0	2	2	0	14	10
Data for formulation of new local admission policy	1	1	2	14	7	10

Inspection of Table 4.1 indicates that 17 of the 21 respondents indicated that the reason for the testing program initiation was to identify children who were too immature for the kindergarten experience. Both teachers and administrators were in close agreement on this response, with 11 of 14 and six of seven reporting, respectively.

Responses on reported recommended action following this identification show that 12 out of 21 favored the recommendation that the children of low readiness delay kindergarten entrance for an additional year. The teachers were stronger in their support of this action, with nine of 14 reporting, while the administrative responses show three of seven recommending this procedure.

It should be noted, although this is not shown in the table, that three teachers of the nine favoring delayed entrance qualified this support by indicating that this was contingent upon a favorable home environment which would nurture development during the additional year at home, while none of the administrators included this qualifier.

Three teachers and one administrator felt that the identification of the immature child was important input for guiding parents. This guidance took two general forms: more information for decision making about school entrance and recommendations on the types of activities which should be encouraged at home for developmental purposes.

Responses of lesser frequency are noted in the recommendations of identification for action on pre-kindergarten school experiences as a substitute for kindergarten, admission of all students regardless of maturity with appropriate instructional accommodation, and admission to kindergarten on a temporary conditional basis contingent upon school adjustment. Deference to the table shows the response numbers.

One administrator and two teachers said that the purpose of the readiness testing was to provide more information on all entering students, not just to identify the immature. The information was for kindergarten program planning purposes or a developmental readiness kindergarten program to deal with special problem areas, not exclusively immaturity. One teacher reported the former action, while one administrator and one teacher reported the latter.

Two teachers responded that the readiness testing program was initiated by an administrative desire for innovation. Both teachers were in the same school district. No administrative responses fell in this category, including the responses of the administration in this district.

One administrator and one teacher, from the same district, reported that the testing program was initiated in order to gather data as a basis for formulating a new local admission policy on kindergarten entrance. This could be interpreted as responses which could be legitimately assigned

to the category of identification of the immature for purposes of delaying entrance. It was shown as a separate category because it represents a unique use of the testing data and has implications for chronological as well as readiness age limitations. If these responses were included in the first category of Table 4.1, it would alter the total to 91 per cent (19 out of 21 respondents).

Interview Section Ib - Test Initiation: Results

The second question in the test initiation section of the interview was:

> Who was responsible for the testing program initiation, including your role, if any?

Rationale

It is of concern to the author in this investigation to determine the source of the idea of readiness testing. Was the impetus for the program from within the school district or from a source outside? Did the idea originate at the administrative level (top down sequence) or at the staff level (bottom up movement)? Some conclusions may be drawn from the results of this question as to where the need for the testing program was felt through the manifestation of encouraging readiness testing. See Table 4.2.

Interview Section Ib: Discussion

The total response frequencies and percentages were not shown in Table 4.2 because the totals, particularly

Table 4.2.--Reported source of the testing program idea.

Sources	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Kindergarten staff	1	5	--	0	36	--
Administration	2	1	--	28	5	--
County diagnostician	2	3	--	28	21	--
Source unknown	2	3	--	28	21	--
Mutual (staff and administration)	1	2	--	14	14	--

percentage, would give an erroneous picture. The first two response categories, especially, show response clustering which, when averaged across teachers and administrators, would indicate a response consistency not present.

Table 4.2 shows that five out of the 14 teachers interviewed reported that the kindergarten staff was responsible for initiating the readiness testing program. None of the administrators credited the kindergarten staff with the initiation of the program.

Of the principals interviewed two of seven responded that the testing program was initiated by the building administration, while 5 per cent of the teachers reported that program initiation came from the administrative level.

The remainder of Table 4.2 shows more consistency of view, as two out of 14 teachers and one of seven administrators felt that the testing program was initiated through a joint or mutual concern and involvement of the kindergarten staff and the building administration.

The county diagnostician was the reported source of the testing program idea by two out of the seven administrators and three out of the 14 teachers.

Two of the seven administrators and three of the 14 teachers were not able to identify the source of the testing program concept.

A large part of the variance of perception noted in the first two categories of Table 4.2 can be accounted for

by intra-district conflict of opinion in two of the school districts out of the seven districts in the sample.

Interview Section Ic -
Test Initiation: Results

The final interview question under the test initiation section called for a process description and was in the form:

> Describe how the testing program came about (process).

Rationale

The previous interview question dealt with identification of the source of the readiness testing idea. After an idea is conceived it generally requires transmission to and through various people and/or groups and action by someone to culminate in the actual practice of testing. Information about this process would provide some knowledge about the sources of influence in these school districts, at least as far as this particular area of interest is concerned.

The responses to this question were difficult to summarize in table form, since they involve a chain-of-events type of answer. A district-by-district narrative seems to be the most advantageous method of presentation. These process responses represent a combination of teacher and administrative perceptions formulated into a school district response. The list of district responses is labeled 4.3 to keep the succeeding tables and interview questions in sequence.

Table 4.3.--School district test initiation process responses.

School District A - School District B

The administrator and kindergarten teachers in this district inherited an ongoing readiness testing program. This situation made it impossible for the respondents to accurately describe the sequence of events which took place between the testing program idea conception and practice of testing itself.

School District C

The two kindergarten teachers were initially interested in the area of school readiness and assessment measures. This interest led them to contact their County Intermediate School District and the personnel of this office provided information on the ABC Inventory. This test was reviewed and discussed between them. The idea of testing entering students for readiness and the instrument were brought to the building administration. The testing was approved by the administration and the details of the program determined mutually.

School District D

The county diagnostician brought the idea of readiness testing to the building administration and it was discussed between them. The concept was then brought to a reading specialist for ideas and recommendation. The idea of testing was discussed with the kindergarten staff and

Table 4.3.--Continued

orientation provided for them concerning what would be done and why. The details of the program, including selection of the test instrument, were established by the administration.

School District E

The kindergarten staff and administration shared a mutual concern about the number of children encountering difficulty at the kindergarten level. Discussions took place among the staff people and administration in an effort to determine the possible reasons for this high failure rate. The idea of testing for school readiness was conceived and locally devised tests were used. A need was felt mutually for a standardized, valid, and reliable test instrument. Personnel of various specialties from the county level were consulted for ideas and testing suggestions. A review of available tests took place with all parties involved and the ABC Inventory was accepted for use.

School District F

The county personnel first brought the idea of testing for kindergarten readiness to the building administration. The procedures and assessment measures were determined at this level. The kindergarten staff was not involved in this process. The testing program initially was established to screen only children not five years old by September 1, which remained in effect for two years. The procedure

Table 4.3.--Continued

was then altered to test boys not five and one-half years old by September 1, while the girls' age factor remained unchanged. A new policy was established after two years, of testing all entering kindergarten children.

School District G

The kindergarten staff and the building administration were aware of the readiness testing concept and the ABC Inventory. One teacher and the administrator had experience with testing from previous school districts of which they were a part. The other teacher had discussed testing and this particular instrument with a teaching colleague. The kindergarten staff discussed the initiation of a testing program and brought this idea to the building administration. The testing program was approved and the details were established by the administration.

These processes can be summarized by a rank order of influence for each district. A movement down the rank orders implies decreasing influence for each position. Two or more positions at one level denote mutual influence.

District A-B	District C	District D
No rank order	Staff ↓ County ↓ Administration	County ↓ Administration ↓ District Specialist ↓ Staff

District E	District F	District G
Staff-Administration ↓ County	County ↓ Administration ↓ Staff	Staff ↓ Administration

Interview Section Ic: Discussion

A review of the five school district rank orders of position influence in the process of the testing program development shows that the teachers had a dominant or equal influence position in three of the districts. The administrators were dominant in none of the rank orders, but maintained an equal influence with staff in one district. County personnel influence dominated in two districts and maintained second position in two districts.

Section II - Test Selection and Composition of the Testing Program

Interview Section IIa - Test Selection and Composition of the Testing Program: Results

The initial question under this section of the interview was:

> What readiness measures (tests) were considered for the testing program?

Rationale

The purpose of this question was to determine the extent to which analysis of readiness assessment measures was conducted in the districts prior to the selection of

the ABC Inventory as appropriate for their purposes. Are the current measures used the result of a thorough, systematic search and analysis procedure, or are current practices a result of limited knowledge base concerning tests available? If current testing practices have not been systematically and analytically determined, the knowledge of this limitation would be important input in making judgments about the value of such practices.

Interview Section IIa:
Discussion

Six out of the 14 teachers and one of the seven administrators were not able to answer the question about which other tests of readiness were considered for the testing program. An almost equal percentage of administrators and teachers (two of seven and four of 14, respectively) said that other readiness tests were considered, but were not able to specify the names of the measures surveyed. The ABC Inventory was the only test considered as reported by two of the seven administrators and three of the 14 teachers. The Winterhaven (a perceptual test) was the test considered most out of those specifically named. It was reported by one teacher and one administrator in different school districts. The other tests shown in Table 4.4 by name were included, even though the number reporting consideration in each case is insignificant, to show the types of tests mentioned. The six specially named tests lead to a deceptive impression,

Table 4.4.--Reported measures (tests) considered for the program.

Measures	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Not able to answer	1	6	7	14	43	33
Others considered (nonspecific)	2	4	6	28	29	29
No others considered	2	3	5	28	21	24
Winterhaven	1	1	2	14	7	10
Illinois Test of Psycholinguistic Ability (ITPA)	1	0	1	14	0	5
Wechsler Intelligence Scale for Children (WISC)	1	0	1	14	0	5
Stanford-Binet Intelligence Scale (S-BIS)	1	0	1	14	0	5
Wechsler Pre-School and Primary Scale of Intelligence (WPPSI)	1	0	1	14	0	5
Goodenough-Harris Draw-A-Man Test (G-H)	0	1	0	0	7	5

since all but one of them (the Goodenough-Harris) were reported by two administrators.

Interview Section IIb - Test Selection and Composition of the Testing Program: Results

The next question was specifically concerned with the ABC Inventory and its selection, and was stated:

> Why was the ABC Inventory considered the best of those surveyed?

Rationale

All of the school districts in this study use the ABC Inventory as part of their readiness testing program. At issue in this question is why the ABC Inventory was selected. What were the aspects of this test that made it an appropriate instrument to use as an assessment measure? Was it a case of this test being selected without much thought given to its advantages and/or disadvantages? A look at the pattern of responses to this question should provide some knowledge as to what kinds of characteristics are considered important for adoption and what other influence forces might be at work. See Table 4.5.

Interview Section IIb: Discussion

The most popular reason for selecting the ABC Inventory is its simplicity of administration, the fact that it is not time consuming to give, and that it is inexpensive. This reason was given by 38 per cent of those responding,

Table 4.5.--Reported reasons for selecting the ABC Inventory.

Reasons	Frequency			Per Cent		
	Adminis-tration (N=7)	Teachers (N=14)	Total	Adminis-tration (N=7)	Teachers (N=14)	Total
It is simple to administer, short, and inexpensive	1	7	8	14	50	38
For its norms (scoring), validity, and reliability	3	3	6	43	21	29
Recommended by specialists and others using it	2	4	6	29	29	29
It was the only test considered	2	3	5	29	21	24
Not able to answer	2	3	5	29	21	24
Test items appropriate to areas of concern	0	4	4	0	29	19

although this percentage gives a clearer picture when it is noted that one-half of the teachers (seven out of 14) reported this rationale, while only one administrator response was in this category.

The test was chosen for its norms (it is easy to score and converts to a readiness age), its validity (it predicts well), and its reliability (it is consistent). These reasons were considered significant in its selection by three of the seven administrators and three of the 14 teachers. The administrators felt stronger about these aspects than did the teachers.

The next three categories of Table 4.5 are consistent with two of seven administrators and four of 14 teachers reporting that its adoption was influenced by specialists (county) as well as others who had used the test, two of seven administrators and three of 14 teachers reporting it as an automatic choice because no other tests were considered, and two administrators and three teachers being unable to give the reasons for its selection.

An interesting cluster of responses can be seen in the last category of the table. There were no administrative responses to the effect that the component parts of the ABC Inventory were appropriate for the areas of assessment interest, while four out of 14 teachers thought that this was an important consideration in the test adoption decision.

Interview Section IIc - Test Selection and Composition of the Testing Program: Results

The last question in the interview in this section was:

> What other measures (or parts of) are used in the testing program, if any?

Rationale

It has already been established that the ABC Inventory is used in all of the sample school districts, and this question was designed to determine what other kinds of assessment measures are used. This question is purposely not limited to other published tests, since locally devised measures are of interest, both of the objective and subjective variety. Responses to the question will indicate the degree of reliance on a single measure (the ABC Inventory), as well as provide information about other inputs considered valuable as evidence by other measures used. See Table 4.6.

Interview Section IIc: Discussion

The tabled responses indicate that 17 out of the 21 respondents interviewed report that no other published test is used in the readiness testing program. The only published tests reported were parts of the Winterhaven and the Wechsler Pre-School and Primary Intelligence Scale, and these were reported by one administrator and teacher in the same district. Personal observation of the children was the most

Table 4.6.--Other measures reported in use in the testing program.

Measures	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
No published test (or parts of)	6	11	17	86	79	81
Observations of the child	3	4	7	43	29	33
No nonpublished test	1	4	5	14	29	24
Social-emotional assessment by specialists	2	3	5	29	21	24
Physical assessment (i.e. vision, hearing)	3	2	5	43	14	24
Local motor coordination test	2	2	4	29	14	19
Figure copying-local	1	1	2	14	7	10
Winterhaven (in part)	1	1	2	14	7	10
WPPSI (in part)	1	1	2	14	7	10
No response	0	1	1	0	7	5

frequently mentioned measure of school readiness, even though subjective, and was reported by three of the seven administrators and four of the 14 teachers. The "no nonpublished" section of Table 4.6 indicates a situation where there is no locally devised measure in use as a supplement to the ABC Inventory, and this was the case as reported by one out of seven administrators and four out of 14 teachers. An effort to assess social-emotional readiness through the use of social workers as part of the assessment team is shown in the table. This practice was reported by five out of the 21 respondents (both administrators and teachers). The detection of physical deficiencies (example: hearing, vision, etc.) by using specialists in health areas during the assessment process was reported by three out of the seven administrators and two out of the 14 teachers.

A locally devised motor coordination test was in use in two school districts and reported by an administrator and a teacher in each. A local figure copying activity (geometric figures) was reported in use as part of the readiness testing program in one district and reported by the administrator and one teacher in this district.

Section III - Administration and Post-Administration Decision Making

Interview Section IIIa - Administration and Post-Administration Decision Making: Results

The first question in the test administration and decision making section of the interview was one of the easiest to answer, since it called for an involved-not involved choice and was put to the respondent in this form:

> Describe your role (involvement) in the actual test administration and/or scoring process.

Rationale

This question was simply an attempt to pinpoint the extent to which administrators and kindergarten teachers are involved in administering the readiness tests, in most cases the ABC Inventory. The importance of the responses has less value when treated in isolation, but will take on more when viewed in relationship to decision making involvement.

Table 4.7.--Reported roles in test administration.

Role	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Involved	2	7	9	29	50	43
Not Involved	5	7	12	71	50	57

Interview Section IIIa:
Discussion

Involvement responses show that 29 per cent of the administrators (two of seven) are active in the administration of readiness tests and one-half of the teachers (seven of 14) give tests to entering kindergarten students.

Interview Section IIIb - Administration and Post-Administration Decision Making: Results

Part two of this section called for responses reporting the test administration roles assumed by those other than building administrators and kindergarten teachers.

> Who else is involved in test administration and scoring?

Rationale

The extent of involvement of other personnel, in addition to or in place of administrator and/or teachers, is important input for a complete assessment of all those who have access to the testing experience. As was the case with the previous set of responses, the full import of testing roles cannot be appreciated until placed within the context of the decision making roles which follow test administration. The test administration roles of various personnel are needed to tie in with Section IIIc in the chapter summary interpretation.

Table 4.8.--Others involved in test administration.

Test Administrators	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
County Diagnostician	3	7	10	43	50	48
Counselor	2	6	8	29	43	38
Reading Specialist	2	4	6	29	29	29
None	2	2	4	29	14	19
Visiting Teacher	0	2	2	0	14	10
Practice Teachers	0	2	2	0	14	10

Interview Section IIIb: Discussion

The county diagnostician was the most frequently reported test administrator, being mentioned by three out of seven administrators and seven out of 14 teachers. Both respondent groups were in close agreement on the extent of the diagnostician's role. Teachers reported the school counselor as having a more extensive role in test administration (six out of 14) than did the administrators, who assigned the counselor a testing role at a 29 per cent report level (two out of seven). Two of the seven administrators and four of the 14 teachers reported that reading specialists assisted with test administration. The "none" category is explained in those cases where only administrators and/or teachers give the readiness tests and receive no help with this part of the program from others. Responses of two of the seven administrators and two of the 14 teachers belonged in this category. The roles of the visiting teachers and practice teachers were not extensive, with only two teachers reporting in each category. The two respondents in each of these teacher pairs were from the same school district.

Interview Section IIIc - Administration and Post-Administration Decision Making: Results

The decision making aspect of the testing program is of interest with the final question in this section of the interview. Respondents were asked to:

Describe your involvement in decision making about the readiness of children tested.

Rationale

This question was expanded in the actual interviews to include two types of decisions:

1. The readiness for kindergarten of the children tested.
2. Recommended action to be taken in the cases of those judged to be immature.

These two types of decisions are, in reality, not separate since some action naturally follows the determination of readiness levels (even no action is considered to be a legitimate decision). The purpose of this question is to find out who is excluded or included in this decision making process. Is this exclusively an administrative function or a staff function? Is this process a mutual function or does it take place without the involvement of either group? Some conclusions may be drawn about the influence sources in the critical decision phase of the program by analyzing the following data (see Table 4.9).

Interview Section IIIc:
Discussion

A close analysis of the data in Table 4.9 is necessary to fully appreciate the true decision making power, since there are some hidden sources not readily apparent from the response frequencies by category. The four teachers out

Table 4.9.--Reported decision making roles.

Role	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Exclusive decision maker	0	4	--	0	29	--
Equal pattern in joint decision making with administration, staff, and others involved in testing	4	2	--	57	14	--
No role	3	8	--	43	57	--

of 14 who reported that they are the exclusive decision makers represent two school districts. In one of these districts there is administrative-staff agreement; in the other district there is conflict since the administrator reported that decisions are of a joint nature.

None of the administrators interviewed reported his role as one of exclusive decision maker. In the joint decision category two teachers and two administrators from the same districts agree that they are equal partners in this process. The remaining administrator in the joint decision category conflicts with his staff, who reported no role.

In the no role category there is close agreement between administrators and teachers from the same districts.

On an individual basis, the table indicates that there is almost an even split of involvement. That is, about as many administrators are involved in some capacity as those who are not, with the same pattern for teachers.

On a school district basis, the county diagnostician is almost the sole decision maker. This is not apparent from the table, but an outside source is implied in the case of the no role category composed of three out of seven administrators and eight out of 14 teachers. The diagnostician is also active as a partner in the joint decision as well. In summary, the diagnostician is the prime influence source in five school districts out of the seven in the sample.

Section IV - Uses of Testing Data

Interview Section IVa - Uses of Testing Data: Results

The entire uses of testing data section of the interview was designed to determine usefulness of testing data and the effects of the testing program after its use for identification of readiness levels and action recommendation.

The first question was designed to determine the classroom usefulness of the testing data as perceived by both administrators and kindergarten teachers.

> What is done with the testing data (on an individual child and/or group basis) after the test has been given and recommendations made? (How is it used?)

Rationale

The reason for this question was mentioned above. Its purpose was to provide information on the extent of test information use and the different ways it is used by the kindergarten teachers.

Interview Section IVa: Discussion

Total response frequencies and percentages were omitted, since administrator responses all fell in two categories: five out of seven in no reported use, and two out of seven in parent contact; while no teachers reported these categories. The most popular reported uses of testing data by teachers were:

Table 4.10.--Uses made of testing information.

Uses	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Refer to occasionally--children with problems and experiencing difficulty	0	11	--	0	79	--
No reported use	5	0	--	71	0	--
Periodic check against performance	0	7	--	0	50	--
Referral to provide special help and individualize instruction	0	6	--	0	43	--
Parent contacts	2	0	--	29	0	--
End-of-year comparison against performance	0	3	--	0	21	--
Information for referral to specialist	0	2	--	0	14	--
Survey purposes to assess readiness levels	0	1	--	0	7	--
Information for the transition grade teacher (between kindergarten and first grade)	0	1	--	0	7	--
For balancing classes	0	1	--	0	7	--

1. Reference back to the testing data occasionally throughout the school year on children with learning problems or those experiencing adjustment difficulties (11 out of 14 responding).
2. Checking back to the data periodically during the year and comparing observed performance against predicted levels (seven out of 14 responding).
3. Reference back to the testing data to attempt to provide special help for specific children and individualize the learning experience more (six out of 14 responding).

Three teachers (from three different districts) reported that testing data are used to compare end-of-the-year performance with pre-kindergarten readiness levels. Two teachers (from different districts) found the testing data useful to specialists to whom children were referred for further testing and/or special remediation programs.

The remainder of the table is not discussed, since responses represent single reports and the categories can be read directly.

Interview Section IVb - Uses of Testing Data: Results

The responses to the question:

> Describe program changes (curricular) that have come about as a result of the testing program and/or the testing data, if any.

were difficult to elicit since it required isolating changes

that have taken place that probably would not have happened were it not for the testing program.

Rationale

The real effects of a readiness testing program can only be assessed by evidence of concrete changes in the kindergarten program. In order to attribute changes to the existence of a testing program, changes which were likely to occur regardless must be discarded, but if this can be done, some valuable information about effect on curriculum can be gathered. Respondents were encouraged repeatedly to make this sort of distinction. The changes shown in Table 4.11 are as "pure" as possible through this effort.

Interview Section IVb:
Discussion

The consistency of response is unusual in this table; all those interviewed in three of the school districts reported no curricular change as a result of the testing program. Personnel in the other four districts responded with reported changes, generally with high consistency of view. The most frequently reported change (all personnel in two districts) was the introduction of activities, experiences, and concepts of greater complexity due to the tested ability of children to cope with more challenging experiences.

The increased use of materials to assist with perceptual development was reported by two administrators and

Table 4.11.--Reported curricular changes.

Change	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
None	3	6	9	43	43	43
Introduction of more complex concepts and experiences earlier	2	4	6	29	29	29
Greater use of perceptual materials	2	1	3	29	7	14
Evolution of readiness kindergarten and ungraded primary concept	1	2	3	14	14	14
Emphasis on small muscle exercises	1	1	2	14	7	10
More copying and drawing activities (i.e.: shapes, tracing, patterning)	0	2	2	0	14	10
Individualization better through initial and follow-up testing	1	1	2	14	7	10

one teacher (all from different districts). This was attributed to poor performance on test activities which have a perceptual base.

All personnel in one district felt that the testing program led to grouping the more immature into a readiness kindergarten program, a subsequent transition grade grouping between kindergarten and first grade, and ultimately helped foster an individualized, ungraded primary.

One teacher and one administrator (in separate districts) reinforced this individualization response by reporting that testing, through early and better diagnosis of problems and follow-up assessment, has helped with a knowledge base for more appropriate, individualized instruction.

Increased emphasis on small muscle activities and provision of more drawing and copying experiences (example: shapes, tracing, patterning) was reported by teachers in one school district, while the former was reported by an administrator in another district. These changes were attributed to observed performance difficulties encountered by children during testing.

Interview Section IVc: Uses of Testing Data: Results

This next question was the most difficult in the entire interview. It dealt with changes in philosophy and/or practices due to the testing program. The practices part of this question has some overlap with the previous question

about curricular change, but not much duplication of response was noted. Philosophy change is a much more nebulous area, and eliciting responses required patient probing without leading the respondents into close-ended answers.

The question was:

> Describe any personal change in philosophy and/ or practice as a result of the testing program.

Rationale

The real issue in this question is whether those involved in a readiness testing program think or believe differently because of the role they played in the program. A change in philosophy is, of course, not important in and of itself, without behavioral change, but is a necessary prerequisite for altering behavior.

Interview Section IVc: Discussion

More teachers reported no change in philosophy than did administrators (eight of 14 and two of seven, respectively). A change in the degree of awareness as to the vast differences in the readiness for school levels of children was reported by two of seven administrators and three of 14 teachers. Two administrators (no teachers) felt that their philosophy had changed to a belief in the need for some kind of school experience, regardless of maturity. The remainder of the responses are not significant (in terms of frequency), but are important in that they are some different kinds of

Table 4.12.--Reported philosophy/practice change.

Change	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
None	2	8	10	29	57	48
Increased awareness of maturity concept--the great differences in school readiness	2	3	5	29	21	24
Some kind of school experience is needed for the immature	2	0	2	29	0	10
No automatic school admission delay for the immature	1	0	1	14	0	5
Increase classroom stimulation	0	1	1	0	7	5
Belief in entrance delay for the immature	0	1	1	0	7	5
More attention to motor development	0	1	1	0	7	5
Stronger belief in individualization of instruction	0	1	1	0	7	5
Less use of personal judgment in viewing children	0	1	1	0	7	5

belief changes. Each of these was reported by one respondent. The interpretation of the remaining categories is self-explanatory from inspection of the table.

Interview Section IVd - Uses of Testing Data: Results

The final question in this section had to do with communication roles assumed by the respondents, and was:

> What is your involvement, if any, in communicating with interested parties about the testing program and/or individual children tested?

Rationale

This question was included to determine the types and extent of communication roles fulfilled by administrators and teachers. It was also asked to draw some inferences about:

1. School district-initiated communication
2. Other-initiated communication

Interview Section IVd: Discussion

The most frequently reported role by teachers was communication with parents about their children (eight out of 14 responding). This communication was usually parent initiated as a result of concern over their child's school readiness and desire for more information about the testing program. None of the administrators responded in this role category.

Table 4.13.--Communication roles.

Role	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Informal-parent basis	0	8	8	0	57	38
None	4	3	7	57	21	33
To colleagues (district and out-of-district)	1	3	4	14	21	19
Formal parent orientation	2	1	3	29	7	14
With board of education	1	1	2	14	7	10
To curriculum committee	1	0	1	14	0	5

Four out of the seven administrators and three out of the 14 teachers reported that they had no communication role.

Three teachers and one administrator responded that their communication role was that of informing colleagues about the testing program, and was generally an other-initiated communication.

District-initiated communication was in the form of formal parent orientation, initiated to provide information about the testing program to parents whose children would be involved. This was reported by two administrators and one teacher.

Intra-district communication to the board of education was reported by one administrator and one teacher (different districts), and with the curriculum committee by one administrator in another school district.

Section V - Evaluation

Interview Section Va - Evaluation: Results

The evaluation section of the interview dealt with two areas of concern: evaluations done on the readiness testing program and the involvement of administrators and kindergarten teachers in such evaluations.

The information needed for the first area of concern was elicited by responses to the question:

> What kinds of evaluations have been done on your readiness testing program?

Rationale

The purpose was to determine whether a systematic, analytical evaluation of the testing program has been conducted and, if so, how this evaluation was done. If there has been no formal evaluation, has there been any effort to study the program in terms of such characteristics as its appropriateness, comprehensiveness, validity, and comparability with other measures of school readiness? Who has been involved in either formal or informal evaluations? Responses to this question will indicate the degree of concern in school districts about taking an objective look at what is being done with their testing programs and how they might be improved.

Interview Section Va:
Discussion

Almost 100 per cent (20 out of 21) of the respondents reported that no formal evaluation of the readiness testing program has been conducted. One administrator reported that the school counselor has been conducting follow-up testing and comparisons against teacher grading, which was judged to be an evaluation of a formal nature. The kind of informal evaluation conducted most (as reported by two of seven administrators and four of 14 teachers) was discussions with and among the respondents about individual children--in this case, children not progressing well--and comparison of this performance against the tested prediction.

Table 4.14.--Reported evaluations conducted.

Evaluations	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
No formal evaluation	6	14	20	86	100	95
Informal discussions with and among staff--individual child basis	2	4	6	29	29	29
Check of test scores against end-of-year teacher judgment (informal, nonsystematic)	1	2	3	14	14	14
Counselor-conducted program--predictive validity of the testing	1	0	1	14	0	5
Informal, individual check of measures against other testing instruments	0	1	1	0	7	5

One administrator out of seven and two teachers out of 14 checked test scores against the end-of-the-year teacher judgments to evaluate the test validity. One teacher reported an informal comparison of the ABC Inventory against other nonspecified testing instruments.

Interview Section Vb - Evaluation: Results

The follow-up question on evaluation was:

What has been your role in the evaluation process?

Rationale

It was hoped that information about roles in the evaluation process would provide some insight into those in positions of influence in making judgments about the testing program. Since almost no formal evaluations have been done, there have been no roles to fill; the degree and kind of involvement in strictly informal evaluations is all that can be assessed with this question.

The responses to this question were tabled and found to be redundant with those already shown in Table 4.14, so a statement of findings will be sufficient to clarify and reinforce the response trends noted in the first question of this section.

None of the administrators or teachers reported having an active involvement in a formal evaluation of the testing program. Approximately one-half of each group responded that they had no role in even evaluations of an informal

nature. Of the other half, the types of evaluations done were informal discussions about given child cases, checks of test scores against follow-up testing and performance, and cursory examination of other nonspecified testing instruments.

Section VI - Strengths and Weaknesses of the Testing Program

Interview Section VIa - Strengths and Weaknesses of the Testing Program: Results

The first question of two in the last section of the interview was designed to provide the opportunity for respondents to voice their feelings about the value of the testing program. The question was:

> Describe your perceptions about the worthwhileness of the testing program. (What is its value?)

Rationale

The expressed feelings about the perceived value of the testing program provide information of interest, in and of itself, since the beliefs of whose who have been involved in the program are input useful for comparing the influence of this involvement. Aside from this sort of subjective assessment, however, is the objective comparison of perceived value of the program and the reported uses made of the testing data and its effect on program.

Table 4.15.--Perceived value of the testing program.

Value	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
Identification of immaturity and other problem areas* for individualization of instruction purposes	3	13	16	43	93	76
Helps parental planning and decision making	0	3	3	0	21	14
Opportunity for observing children early	0	2	2	0	14	10
Grouping purposes (readiness kindergarten)	1	1	2	14	7	10
Positive attitude change about children--awareness of readiness concept	1	0	1	14	0	5
Screens out the immature	0	1	1	0	7	5
Having standardized data	1	0	1	14	0	5
Having a check against personal judgment	0	1	0	0	7	5
Teachers like the testing program	1	0	1	14	0	5
None	1	0	1	14	0	5

*e.g.: coordination, perception, etc.

Interview Section VIa:
Discussion

The testing program's greatest worth, as reported by three out of seven administrators and 13 out of 14 teachers, is that it identifies immaturity and related problems. The information provided by this identification process enables the school to individualize instruction by gearing activities and experiences to the varying readiness levels of entering students.

The next most valuable aspect of the testing program is that it provides information parents need for the start-no start decision and is used for guiding parents toward activities and experiences they can encourage at home to increase their child's readiness level. This was reported by three teachers out of 14, each from a different school district.

One administrator and one teacher, from the same district, credited testing with providing the necessary input for deciding which children should be grouped into a developmental, readiness kindergarten program.

Two teachers, from separate districts, felt that a valuable part of the testing program was that it afforded the opportunity for early child contact and the chance to observe behavior in a fairly formalized (school-like) setting.

One teacher or one administrator responded in one of the six remaining value categories, and the low frequency in each makes a description of each unnecessary. They are

included in the table to show the different types of value responses, not because of high frequency.

Interview Section VIb - Strengths and Weaknesses of the Testing Program: Results

The purpose of the last question of the interview was to give the respondents an opportunity to recommend ways that the testing program should be altered, and was in the form:

> What changes in the testing program would you recommend?

Rationale

This was a sort of "gripe session" kind of inquiry. The hope was to give teachers and administrators a chance to zero in on program weaknesses so that responses would indicate areas of concern about the adequacy of program aspects. Are there certain frequently reported characteristics of the testing program that need revision or at least close scrutiny?

Interview Section VIb: Discussion

One-third (seven out of 21) of all respondents made no recommendations for testing program changes. Approximately one-quarter (five out of 21) of all respondents felt that more follow-up evaluation of the testing is needed. The concern here was to evaluate the validity or the predictive

Table 4.16.--Recommended changes in the testing program.

Changes*	Frequency			Per Cent		
	Administration (N=7)	Teachers (N=14)	Total	Administration (N=7)	Teachers (N=14)	Total
None	3	4	7	43	29	33
More follow-up evaluation of the test (i.e.: post-K testing)	2	3	5	29	21	24
Change testing time from spring to the fall	1	3	4	14	21	19
Group the immature into a readiness kindergarten	0	2	2	0	14	10
More orientation on program for parents and children	1	1	2	14	7	10

*The following list of recommended changes was reported either by one administrator or one teacher. The low frequency of response on each category would make Table 4.16 unduly long. A listing is considered more appropriate. An (A) denotes administrator; a (T) denotes teacher.

(T) 1. Use test results to recommend delaying school entrance.
(T) 2. Revise the content of the ABC Inventory (to challenge children more).
(T) 3. Provide more time during testing to get better acquainted with the child.
(T) 4. Give better feedback of testing information to the kindergarten staff.
(A) 5. Do more testing of perception.
(A) 6. Involve fewer people in the testing program.
(T) 7. Give more direction concerning specific instructional action for specific difficulties.
(T) 8. More communication with parents of immature children.
(T) 9. Involve kindergarten staff more.
(T)10. A need for more information on other readiness measures available.

quality of the test measure by comparison with some other type of post-kindergarten criteria.

Three teachers of 14 and one administrator of seven, representing two school districts, thought that testing children in the fall instead of the spring would provide a more accurate measure of readiness because children would have additional time to mature.

Two teachers, in different districts, wanted the test information used to group the more immature children into a special readiness kindergarten program.

An administrator and a teacher (in separate districts) reported that more orientation is needed for both parents and children to explain the testing program to eliminate anxiety and mistrust.

The remaining responses were presented in list form on the preceding page.

Chapter Summary

The interview sections are not individually summarized, since the purpose here is to extract those sections (or portions thereof) of saliency for a more thorough interpretation and to relate the results of specific sections when this relationship seems warranted by the findings. The summary discussion deals with response data in an order not necessarily the same as the data presentation part of this chapter. Summary remarks are accompanied by table numbers (example: 4.10) to assist in referral to the tabled data.

The primary reason readiness testing was initiated in the sample school districts was to have some method of determining which entering students were not ready for the kindergarten experience (4.1). It was felt by the administrators and teachers in these districts that these immature children should remain at home for an additional year to give them time to develop further, although teachers felt stronger about this alternative than did administrators (4.1).

A conflict appeared to exist between the reasons given for testing and the value respondents saw in the testing program. The primary value reported by the vast majority of teachers and almost half of the administrators was that the information from testing helped them individualize their programs of instruction in keeping with the varied levels of readiness and the other identified problems (4.15). Administrators reported that after the testing data are used for screening purposes they are utilized by the district only for parent information and guidance. They reported no use for individualization of instruction purposes. Teachers felt that the test information was of use primarily as an occasional source of reference to those children experiencing difficulty, and as a check against classroom performance (4.10). While almost all teachers saw the instructional individualization value of the testing information (4.15), less than one-half this number felt it was used in this manner (4.10). Reported change in the kindergarten program

due to the testing was seen to be a shift in the total program emphasis (through the introduction of new or more complex experiences across the board), rather than a move toward individualization of the learning experience (4.11). All this, taken together, would support the conclusion that the use made of the testing data is for screening out the immature child and not for adjusting the kindergarten program to the children's readiness levels through individualization. This, even in the face of the substantial number of those reporting the value of the testing program to be otherwise.

The findings indicate a conflict of opinion on who was responsible for the concept of testing for readiness initially. Kindergarten teachers saw themselves as a greater influence force than administrators, and the reverse view was noted in the responses of administrators (4.2). The staff view is closer to reality than the administrative view. The rank orders of influence indicate that the staff or the county personnel were the influential forces in all but one case. Even in the exceptional case, the staff had an equal influence with the administration (4.3). The role of the county diagnostician in initiating testing programs can be easily overlooked, but it should not be. They exerted considerable impetus for starting a testing program in all but one situation. The data would indicate, in fact, that the county diagnostician must be credited with a major influence role in initiating in readiness testing concept in almost all cases (4.3).

The influence of the county diagnostician reappears when analyzing the test administration roles and subsequent involvement in decision making. A greater percentage of teachers are involved in giving the readiness tests than administrators (4.7), but a greater percentage of administrators are involved in post-administration decision making than teachers (4.9). A close look at decision-making roles shows that neither administrators nor teachers have roles in three districts. This role is assumed by the diagnostician. In the situations where administrators report a mutual involvement in decision making, their judgments are heavily influenced by the county diagnostician (4.0). This is the case because of their removal from the actual test administration (4.7).

A significant distinction was noted between teachers and administrators, in that a higher percentage of the latter reported a change in philosophy toward the concept of providing school experiences for the immature child rather than just delaying entrance (4.12). The same distinction can be seen by the fact that a greater percentage of teachers reported no change in their philosophy because of the testing program. An area of close agreement between the groups is the reported increase in their awareness of the whole concept of maturity. This change of philosophy was the most frequently reported by both groups -- a feeling that they are more sensitive to the great differences among children in readiness for school (4.12).

An analysis of the adoption of the ABC Inventory as a testing instrument and the extent of its input influence in decision making shows that it was selected through a minimal process of search (4.4). In most cases, if other testing measures were considered the respondents were vague about the tests surveyed. It was chosen for reasons other than superiority demonstrated through systematic analysis of other available assessment measures (4.5). A high percentage of districts use only the ABC Inventory, at least in terms of objective measures, in their testing program. Some interest is evident that perhaps the ABC Inventory needs closer scrutiny since this was the most frequently mentioned recommendation for changing the testing program, but even then it did not seem to be of major concern (4.16). The fact that very little is being done to formally evaluate the testing programs demonstrates this contentment with the status quo (4.14).

It can be concluded that in the sample school districts included in this study, the testing programs consisted almost exclusively of the ABC Inventory. The test was given for purposes of screening out the immature and was not used, to any great extent, for program planning. It was selected for use for administrative reasons (i.e.: short, inexpensive, norms, etc.), not through a systematic, thorough evaluation process. Decisions made about children rely heavily upon input from the ABC Inventory and are made by county diagnosticians primarily, with help from staff and administration

in advisory roles. The use of the ABC Inventory information is limited after the immature are identified. Curricular changes toward more individualization of instruction are not evident, even though the testing program is considered valuable for this reason. Some respondents feel that the program has resulted in a keener awareness of the differences in children, although evidence of translation into instructional action was not found. There has been no formal evaluation of the testing programs conducted, nor does there seem to be a significant concern to initiate such evaluation.

CHAPTER V

THE ABC INVENTORY - ITS PAST, PRESENT, AND FUTURE

This special chapter is included to present an historical view of the ABC Inventory, to discuss its present status, and project its future as a measure of kindergarten readiness. Most of this chapter content is based upon an extensive personal interview with Mr. Normand Adair, co-author of the test, and currently a school diagnostician for the Orchard View School District of Muskegon, Michigan.

Rationale for the Test Development

Mr. Adair and several other school diagnosticians were servicing the school districts in Muskegon County and employed by the Muskegon County Intermediate School District when the idea for developing the ABC Inventory was initially conceived. There was a shared concern over the number of children being referred to them for testing and diagnosis by teachers of the primary grades, particularly first and second grades, throughout the county. Since the diagnostician's primary role is one of identifying the educable mentally handicapped, a large number of children with learning difficulties were being tested in order to locate a few children in the educable category. A reoccurring problem emerged as

diagnosis proceeded with these initially referred children: that of the young immature child with normal learning capabilities who was experiencing learning difficulties. The idea for an assessment measure was conceived which could be used to identify this type of problem early in order to alert teachers so that the expectation levels for these children could be adjusted accordingly. It was felt that if teachers were aware of the immaturity situation with given children early, and more appropriate experiences and expectations introduced, the classroom learning problems could be greatly alleviated. It was hoped that the number of referrals on these children two or three years after kindergarten entrance could be decreased. The instrument which was ultimately to become the ABC Inventory was developed for this purpose and used in school districts in Muskegon County.

Development of the ABC Inventory

The author emphasized that during the initial stages of the test development there was no thought given to publishing the instrument, and that it was designed specifically for use in the school districts within the county.

The diagnosticians involved in developing the items contained in the ABC Inventory were greatly influenced by the behavioral concepts of J. F. Jastak (the Wide-Range Achievement Test). They were interested in formulating items which would tap the four group factors of Jastak of communication skills, reality capability, motivation, and physical/

psychomotor development. This is the reason the current ABC Inventory contains four separate sections, each section designed to get at one specific group factor.

Initially the diagnosticians, working together, pooled their activities for item selection and alteration. Items were pulled from numerous sources, particularly existing test instruments. A couple of tests mentioned specifically were the Stanford-Binet and the Kent Emergency Scale, although many more published tests were used, especially those of the intelligence measurement variety.

The first trial test contained approximately 200 items. This instrument was used to test entering kindergarten students in the county in 1960. The students were followed to the end of their first year in school, and they were reassessed using teacher remarks as criteria. The top one-third and bottom one-third of the students were identified in this manner. Item analysis was conducted and items retained that seemed pertinent to success or failure.

The reduced version of this first trial was used to test entering students the following year (1961) and this group was also reassessed at the end of kindergarten. The predictive effectiveness of the test was found to be very high (i.e.: a 90 per cent identification rate of the children who did poorly the first year).

The items were then standardized by running it a third time. Percentiles on the items were established and

quotients assigned by measuring against chronological age and converted to a mental (readiness) age.

The standardization and norming of the instrument was done on a group of 600 entering kindergarten students from the Muskegon County schools. In the author's opinion, the diversity of background (i.e.: economic, social, cultural) of the norming group is a major reason the test has proven its predictiveness and validity since 1962. A cut off raw score of 72 was found to be a consistent indicator, below which children were highly likely to experience problems in the kindergarten situation and would become progressively more difficult for them in first grade and beyond.

The Spread of the ABC Inventory

The developers of the test instrument did not commercialize and sell the ABC Inventory. It was in use successfully in Muskegon County, and the enthusiasm of the diagnosticians working with it found its way to other diagnosticians in other counties. It appeared to be a "word of mouth" movement more than an organized sales campaign.

Since diagnosticians are all concerned with learning disabilities and share some of the same problems mentioned by the author in his rationale for the test development, the high interest provided fertile ground for adoption in other counties. Two prime factors for the rapid adoption of the ABC Inventory were its demonstrated validity and its ease of use.

The author investigated its market potential as a published test after this enthusiasm was shown, and movement out into other parts of Michigan began. He candidly admits that its development was haphazard and, therefore, probably does not satisfy all the criteria necessary for a highly refined measure. Mr. Adair honestly questions the procedures used to establish the reliability of the ABC Inventory. Its original purpose (local use) suddenly and surprisingly was transformed by demand for use in areas far removed from its birthplace. The test was self-published and copyrighted in 1965 by the co-authors in response to this demand.

There was no organized sales campaign to push the test into use in school districts in Michigan or elsewhere. The adoption movement began in the counties immediately adjacent to Muskegon County and apparently jumped to counties around the Detroit area.

The co-author devised a circular with a description of the test instrument, its purposes, and so forth. This circular was mailed nationwide and the advertisement resulted in widespread use in states other than Michigan. Currently California is the major user of the test (by volume of tests ordered) and it is in use in Ohio, Illinois, Wisconsin, Pennsylvania, New York, and Connecticut, to a substantial degree by the author's account.

There has been no systematic effort to obtain feedback, for research purposes, from test users in Michigan or

nationwide as to the strengths and weaknesses. Feedback has been of the informal variety and, for the most part, positive from those in the field experiencing the use of the instrument in practical settings.

The Concept of Testing and Readiness

The author, a diagnostician by trade, is naturally supportive of testing children, whether it be for school readiness or any other purpose. His view of testing is that it is a source of additional input for the diagnosis of learning disabilities and not a means of punitive categorization. He summed up his views on testing by saying that if testing and subsequent diagnosis are not done on a child with disability, this handicap will still manifest itself. Testing, at least, provides information that can be used to adjust the learning experience to decrease the likelihood or severity of the learning problem.

Addressing his views to the concept of school readiness, the point was made that entrance to kindergarten on a chronological basis only, results in as much as a full year difference in the age of kindergarten students. This difference means as much as 20 per cent of the child's developmental time since birth. A developmental lag of this multitude can create some rather severe adjustment and learning problems in the kindergarten group setting.

When the author was questioned about the comparability of school readiness and intelligence, he admitted that

the two are closely correlated. His studies have shown that children of high readiness are older chronologically and brighter (as measured with intelligence tests). His perception of the use of readiness tests is that of establishing an intra-child comparison of behavior age and chronological age, and inter-child comparisons based upon group chronological age average. For instance, if a child is 4 years and 9 months chronologically, and his readiness score is the same, he is likely to be of average intelligence. If the child starts school with a group whose average chronological age is 5 years 6 months, he has a 9 month developmental disadvantage, regardless of his intelligence. His thesis, in essence, is that this readiness (behavioral) lag will not necessarily be reflected by an intelligence test score (I.Q.). The importance of detecting this lag early so expectations and experiences are more appropriate for given children in the formal learning situation is at the heart of the purpose of the ABC Inventory.

The ABC Inventory - Discussion of Content

Mr. Adair spoke to the implications of a child's performance on the four sections of the test, considered separately. The theoretical base for Section I (Draw-A-Man) is that performance is a reflection of a child's sociability and social-emotional level. Results of Section I predict the child's ease in and handling of group situations.

Section II of the test measures a child's verbal and communicative abilities and projects this performance into the learning situation.

The third section of the ABC Inventory was designed to assess relevance level. How realistic is the child's behavior in response to situational problems?

Section IV gets at the measurement of a child's persistence, patience, and motivational level.

The point was made several times during the interview session, that the ABC Inventory is best used as a prescriptive instrument (individual sections or in combination) for the instructional staff to formulate learning and developmental activities in response to behavioral lags on specific sections or sections taken together.

The author does not advocate postponement of kindergarten entrance, but would rather adjust the learning experience using the test for informational input on how to best alter the program for each child. Screening the immature out of school is a legitimate use of the test, in his opinion, but should take a secondary position to the type of action described above. This interpretive, prescriptive use of the test has been implemented in the author's school district as an alternative to the "screening out" function.

The Future of the ABC Inventory

The feeling was apparent, at this point in the interview, that the author's knowledge of the ABC Inventory and

its sub-sections permitted him to get maximum benefit in terms of prescribing appropriate experiences for children. He also stated that diagnosticians are in a better position, because of more diagnostic expertise, than teachers for the prescriptive use of the testing data. While administration of the ABC Inventory is easy, its interpretation is more esoteric. His opinion is that kindergarten teachers, in general, are concerned with evidence (standardized) that supports judgements that a child should not be in school because he has learning and/or adjustment difficulties. He asserted that it is his feeling that teachers use the ABC Inventory primarily for this reason.

In an effort to enhance the instructional prescriptive function of the ABC Inventory, the author is now using and standardizing a new interpretive device that takes a child's high and low section scores in combination and projects: (1) probable conduct, (2) probable achievement features, and (3) recommendations for development. Section scores are converted, based upon the tested readiness age, and rank ordered. The converted scores are placed in a mathematical formula according to the following coding:

P - Section I Score (Socio-Motor)

L = Section II Score (Verbal)

R = Section III Score (Relevance)

M = Section IV Score (Motivation)

The highest section score is placed on top (numerator). The

remaining section scores are placed on the bottom (denominator). The lowest section score is underlined, with the second highest score starred with an asterisk. The third highest score carries no designation.

For example, scores which rank in the following order (high to low): Sections I, III, IV, II would be formulated as:

$$\frac{P}{\underline{L} - R^* - M}$$

Twelve such score patterns are formulated with accompanying conduct, achievement, and developmental recommendations. These are not division formulas, since they represent graphic representations, not a mathematical operation.

The device called "An Explanation of ABC Inventory Section Scores and Their Use to Instruction" is included here with permission from the author, Mr. Adair. It should be understood that even though this is in use in the Orchard View School District, it is still in the process of validation, standardization, and norming.

AN EXPLANATION OF ABC INVENTORY SECTION SCORES AND THEIR USE TO INSTRUCTION

The following standard score* patterns are offered as guidelines for the teacher in understanding the adjustment attempts of children. Some hints to management are also provided. Where behavior is extreme, refer problems to specialized school personnel. NOTE: Always consider child at his ability level or Readiness Age.

WHERE ALL SECTION SCORES ARE EQUAL

When a well integrated pattern is demonstrated (all Section scores 50 + 3), a student should perform in a flexible manner and be generally free from chronic problems. All tasks requiring socio-motor, language, comprehension and motivation features should be adequately accomplished at level of ability. Communication skills will be relatively good and the student should proceed at his ability in academic subjects. Energy and productivity will be suitable as will be persistence, attention, memory and concentration. Such students should also demonstrate reasonable relevance in their behavior and be cognizant of daily learning and behavior requirements.

Recommendations: No significant problems are indicated where mental ability (IQ) is average. However, if it is determined that the student is not making satisfactory adjustment, any of the following patterns containing recommendations may be useful. As well as being numbered from one to twelve, scoring patterns are coded in the following manner: The student's highest Section score is written above the line. The lowest Section score is located below the line and underscored. The remaining two Section scores are seen below the line with the second highest score being identified by an (*). For example, Section scores are thus:

Section I - 53
Section II - 64
Section III - 41
Section IV - 56
and is written - $\frac{L}{P\text{-}\underline{R}\text{-}M^*}$

*Instruction for obtaining standard scores are explained elsewhere.

HIGH SOCIO-MOTOR (P)

This section has to do with those attributes appearing to be essential to efficient use of the body. High scores are characterized by good motor speed and abundant physical energy. These students are seen to be well adjusted to motor activity and they will likely show good coordination for their size or mental age. Interpersonal behavior is usually outgoing, socially active and often aggressive (or quiet and watchful when accompanied by high scores in Section III).

Pattern #1 - $\frac{P}{L\text{-}R^{*}\text{-}M}$

Probable Conduct: Where low Section II scores are accompanied with high Section III scores, a child will be often recognized as having high sociability and aggressive or negativistic interpersonal behavior. This student is often emotionally reactive and responsive. Such youngsters may go from group to group with little interest in forming friendships but preferring to dominate the scene--usually in an assertive manner. They want to be first in line, use the main toy and in other ways seem to be disagreeable or exploitive. Where intelligence is lower than average, the outcome for desirable achievement is less likely. These children will be among the most active and troublesome during the kindergarten phase and be the slower ones to learn in the first grade situation. Even when having average mental ability, management may be a problem because of poor motivation and relatively low verbal skills.

Probable Achievement Features: Relative to their general ability (IQ), math is often the higher achievement skill. Usually, reading and spelling are seen to be low in relation to math or number skill. Difficulties will relate to learning the mechanical features rather than because of poor comprehension. Underachievement with reference to IQ can stem from general resistance to authority and a low tolerance for frustration or anxiety.

Recommendations for Development: Improve language skills where possible. The method and approach to the youngster is more important than what is done to treat the defect. What is very important is to give the person language tasks in which he can experience success. Confidence on the teacher's part that the student can do better, may itself be a source of satisfaction and strength to the child. For example, in reading lessons, secure interest before starting by discussing the title and the pictures. Ask such a student what he expects the story to be about. Keep him thinking about the story by stopping occasionally and discussing what has happened. Have him figure out: Why did this happen? What will happen next? This encourages good

listening habits. Discuss pictures; they help to tell the story. Concentration on the medium of expression such as word understanding, telling stories, acting out stories, etc. but keep the activity at a level where the student can experience success.

Pattern #2 - $\frac{P}{L^*-R-M}$

Probable Conduct: When low Section III features accompany high socio-motor ability, the child should be verbally active and interpersonally involved. Most interaction will include considerable vocalization with little connection to group related goals. Such a child might be a follower rather than a leader moving from group to group and enjoying more the social interaction of his classmates rather than developing firm friendships. At his seatwork he will likely be a noisy, talkative person expressing thoughts and interjecting ideas not always relevant. He may fare poorly with respect to his "readiness age" in situations requiring persistence and comprehension. In general, this student is active socially, impatient verbally, superficial and attention seeking in expressing personal preference. Generally, they are well liked by classmates, enjoy action and are good group contributors in quantity rather than quality. They may be naive, vague and a talkative nuisance. Interpersonal problems will probably stem from overpersonal concerns and include high affiliations with superficial attachments.

Probable Achievement: Projecting behavior into formal learning situations as in the first grade, these students will often have difficulty in activities requiring memory of a delayed nature and comprehension. Space orientation and visual recall will likely be good as will be their ability to catch on quickly. Later, such children will probably fall behind because of poor retention of information. It is expected that achievement in the area of spelling will be lower than reading and arithmetic. Strengths in arithmetic could diminish where other than mechanical operations are involved. Underachievement and immaturity according to intellectual features may be apparent. Immediate recall will be good, retention of past fact not so good. They catch on quickly (depending on IQ) but usually they are not "deep thinkers." Math should be higher than reading. Reading at or slightly higher than the spelling level. Underachievement with respect to IQ in reading is expected. Often they grasp numbers quicker than alphabet letters. They may be more successful at tasks or assignments that are routine and difficulties in learning will likely relate to relatively low comprehension.

Recommendation for Development: These children often have difficulty with personal organization and classification of meaning. Their thoughts are often distractable, thus, one

must depend upon techniques which are not highly stimulating or exciting. Isolation, if not used for punishment should be helpful with these students. Like the child described in Pattern #1, learning experiences are best absorbed when administered in short sequences with much checking for progress with review and modification of approaches toward a particular goal. Be watchful that these youngsters do not drift unattended. One must work with them directly, continuously and in quick fashion.

Pattern #3 - $\frac{P}{L\text{-}R^*\text{-}M}$

Probable Conduct: Where low Section IV scores accompany high Section I scores the child will probably appear random and energetic in his motor and social behavior. There may be much impulse activity with poor quality production. Very likely there will be difficulty in keeping such children assigned to tasks for a long period. There may be good mechanical skill and technical interest. Interpersonal behavior often appears very immature for age and friendships are not to be many and superficial.

Probable Achievement: Learning problems related to these adjustment characteristics often are concerned with memory. Lack of persistence in unpleasant learning tasks will be a contributing condition to lower achievement. Math ability will likely be above reading while spelling achievement may be the lowest skill of all. These children need help in attacking assignments systematically. Personal disorganization can prevent learning achievement skills.

Recommendations for Development: Time schedules, routine assignments and formal organization of work may be beneficial even though the student will avoid such structure when first introduced. Remember, he is distractable and has a short attention span. Such structuring would be uncomfortable for him. Restriction (sitting at a table rather than running about the room) will help develop his attention span and ability to concentrate. Probably most of his young life has been involved in active, motor experiences with little time spent in quiet, restricting activities.

HIGH VERBAL (L)

High scores in Section II relate to those features believed to be important to communication either verbal or written. Involved are organizational characteristics that enhance this capacity and influence learning behavior emphasizing the exchange of ideas. Children scoring high in (L) tend toward conforming behavior. Reading and spelling skills are often higher with respect to other basic achievement skills. Interpersonal behavior will likely include

much speech and chatter and difficulties, if any, will appear as personal problems highlighted by shyness.

Pattern #4 - $\frac{L}{P\text{-}R^{*}\text{-}\underline{M}}$

Probable Conduct: Where a low score in Section IV accompanies strong language features, the child may be high in group involvement. Generally, he is self-seeking, verbally active and exploitive. He will likely enjoy "showing off" and delight in group attention. He may be more perceptive and aware of advantages for his benefit than other youngsters seem to be. Often, these children will tire of activities quickly and move from situation to situation. Their seatwork may be dismissed hurriedly. Tasks involving hand-eye coordination, gross body involvement; such as skipping, running, hopping, etc., may be well accomplished. Often they exhibit non-conforming behavior and much verbal expression is likely. In general, this child will be socially active, aware and perceptive of advantage for self-gain. They can be charming, sly, often cunning and attention seeking. Ordinarily, they are well liked but may be exploitive of friendships -- "connivers."

Probable Achievement: In the formal aspects of learning these youngsters will likely do better in arithmetic as opposed to reading and spelling. Difficulties in school achievement, should they occur, will probably involve the mechanics of learning rather than poor comprehension. Retention and utilization of facts is usually good. Attention span is not so good with probable motivation for self-interests. Usually there is low tolerance for unpleasant tasks. Reading will probably be lower than math skills while spelling will be lower than reading. Management difficulties should be related to lack of persistence and be complicated with extroversion and social conflict.

Recommendations for Development: Avoid reference to youngster's misbehavior, especially in front of the class. Correction should be done as inconspicuously as possible. Say only what you mean to say and mean what you say. Inconsistency in judgment, threats and critical remarks, even if justified, cause the child to lose respect for the teacher and to undermine her influence on his training.

Pattern #5 - $\frac{L}{P\text{-}\underline{R}\text{-}M^{*}}$

Probable Conduct: When a low score in Section III accompanies high language capabilities it is believed that the child will be more verbal in his behavior, less involved socially and, when he is, it will be more at a vocal level as opposed to physical interaction. He will choose to relate with teachers and/or adult aides rather than classmates. He will be more active in group discussions as in story telling

and a ready listener. He will be patient at seat work and generally cooperative and conforming. Learning will be more easily accomplished in the verbal areas rather than in the numerical areas--such as learning the alphabet more readily than learning numbers. Attention span should be good. Difficulties when they occur will be of a personal nature--neurotic or anxious. In general, this child will probably be socially less active especially with age mates. They tend to seek adult attention and approval. Often they are shy and sensitive. They are less well adjusted socially and not so skillful in group games involving gross motor action and strength. They are patient, cooperative and, where general intellignece is high, one will usually find them academically successful (but not necessarily socially successful).

Pattern #6 - $\frac{L}{P\text{-}R\text{-}M^*}$

Probable Conduct: When Section II scores are high and they are accompanied by low Section IV scores, a student may be noted for his lack of motor and social skills. Often they present a "shy" behavior and will be supporting or respectful to authority. Conformity will likely be the dominate behavior theme. Usually they appear to be poorly coordinated but will generally persist and try their best in learning tasks. Tolerance if often their highest attribute.

Probable Achievement: Such children are usually regarded as hard working students. Their problems will likely be in the perceptual areas. Reading and writing may show several features with greater success being in the area of reading when compared with arithmetic. Coloring, pasting and cutting will often be untidy or poorly accomplished. Usually such children enjoy activities of a routine nature and instructional advantage might be gained in drill type learning assignments. If intelligence is above average, they will likely be successful academically and have literary potential. They may be socially maladaptive and appear to have a retiring nature with only a few close friends.

Recommendations for Development: Motor ability may be deficient and should be strengthened where required. One might be aware of the child's gross motor difficulties and approve them with consideration, objective insight and a willingness to be helpful. Improve physical efficiency through training, encouraging him firmly but tactfully to enter into physical activities. Play games which involve running, skipping and hopping. Involve such a child in cutting, pasting, coloring, finger painting, drawing and other activities to develop fine motor coordination. Use of Frostig motor development materials if available should be helpful. The poorly coordinated youngster does not like to

be compared with those who excel in sports and physical games.

HIGH RELEVANCE (R)

Relatively high skill in Section III (R) represents the ability to do the right thing at the right time and in the right place. It determines the degree to which the student is relevant in his behavior. Whether it be anxious, aggressive, fearful, etc. behavior usually will be appropriate to the reality demands of action or reaction. It affects learning that is dependent upon "common sense" understanding of cause and effect (not to be confused with abstract learning). The (R) factor affects behavior involving objectivity and insistence.

Pattern #7 - $\frac{R}{P\text{-}L\text{-}M^*}$

Probable Conduct: When language scores (Section II) are lowest with high Section III, reality, comprehension and persistence will be the outstanding features to dominate most behavior. Such children ordinarily will be persevering, reflective and more ready to inspect the alternatives. Inter-personal behavior will be undertaken slowly, but have greater depth and meaning than those described elsewhere. Generally, such youngsters are dependable and consistent. They are respected by the group, especially where intelligence is high. They are less vocal than other youngsters and are more task oriented. Organizational skill is relatively high.

Likely Achievement: Achievement will probably be supported by good retention for information and persistent attitudes. These children often develop as slow, steady, methodical achievers. Again, these features are described with reference to mental age and general intellectual ability. Achievement skills should be commensurate with intellectual level and generally evenly developed. Math may be slightly higher than reading and spelling. Difficulties, if they occur, will be in securing the mechanics rather than from poor comprehension.

Recommendations for Development: Improve language skills where possible. Build up the student's stock of words--words for things, words for feelings, words for actions and words for what he means. Knowing and using many words will help him in learning to read. Frequently these youngsters establish meaning through visual cues unrelated to reading. Their social perceptive skills are often well developed and successful guessing will be their approach to problems. Such children often have a better grasp of meaning when addressed orally than youngsters who appear to have

much higher reading skill. Where possible, read to such youngsters every day. Much of what they learn in school will result from what they see and what is told to them. Schedule reading sessions at a regular time and choose books with many pictures. These children are good TV learners and benefit from instructional demonstrations.

Pattern #8 - $\frac{R}{P^*\text{-}L\text{-}M}$

Probable Conduct: Where Section IV scores are low and accompanied by high (R) scores, expect greater interpersonal activity. Relatively high comprehension and psychomotor features may be reflected in physical aggression and body contact with little verbal expression. Often there is a tendency toward skeptical behavior and the social appearance of "a doubting Thomas." Such children are not especially impressed by authority. They are willing to challenge the teacher and question the leadership of others. Often they provoke group resistance or become an unconcerned isolate. They manipulate things. One will find them non-accommodating and less affiliative. In short, they contain many of the behavioral features regarded as negative in the standard school situation. However, they can be inventive, technically creative and highly skilled in the manipulation operation and construction of concrete concepts as opposed to abstractions.

Likely Achievement: Reading may be lower than math with problems in reading relating to letter reversal and tardy learning of alphabet letter relationships. Skill in number ability should be somewhat higher than reading and spelling. School problems for these children usually include misconduct, unnecessary agression, underachievement in most academic areas with respect to general mental ability and low motivation.

Recommendations for Development: The poorly motivated child is a challenge to the teacher. Generally, these youngsters demonstrate a lack of normal learning. They have poor conduct and behavior making the educational task even more difficult. Use consistent direction; expect work at the child's level of ability rather than an inferior production with regard to his capabilities. Tasks should be short and varied with immediate rewards given for assignments completed. Time schedules, routine assignments and formal organization of work may be beneficial even though such students will avoid any structured activity when it is first introduced. Very likely, this student is distractable and has a short attention span. Use techniques and procedures available to develop concentration and ability to attend.

Pattern #9 - $\frac{R}{P\text{-}L^{*}\text{-}M}$

Probable Conduct: When Section III scores are high and are associated with low scores in Section I, one may find a socially active student. He will usually meet others easily and his behavior, it is expected, will be appropriate to immediate needs. When scoring very high, such a student may be intrusive or interfering with the rights of others. He may be slow in motor skills and try to talk his way out of work situations. He may have low production with a capacity for short-term activities. These youngsters often have much charm and are likely to "ham it up." They may have many acquaintances but few deep attachments. They enjoy teasing and often they will exploit their friendships.

Likely Achievements: Youngsters with this score pattern are often limited in their tolerance for frustrating academic assignments. Productivity will diminish after they acquire the "hang" of the task they are assigned to. Ordinarily, they are not good for long periods at drill or "busy work" assignments. They have good memory skills and are expected to be good organizers. These students like the limelight and they enjoy group attention. Math achievement may be highest with reading next. However, unless IQ is much higher than average, they will likely start slowly or behind the others with reading. The teacher's impression often will be, "If they would just stop clowning around, I know that they would get high grades." Usually these youngsters understand quickly and their difficulties are in the realm of learning mechanics rather than learning comprehension.

Recommendations for Development: Improve physical deficiency through exercise and training as much as possible. These children need practice in relating to others without criticism or complaint. Since many of these children enjoy self-enhancing activities, justifiable outlets allowing for attention might be utilized to establish rapport and to maintain an optimum self-actualization level. Being selected room monitor, hall guard or appointed to run errands or similar activities provides a feeling of self-worth and importance that these children desire. One must be careful that this child is not committed to some activity requiring routine or persistent behavior. He seeks the limelight and tends to avoid situations where personal responsibility, reliability or dependability are important. Treat firmly, demand small short-term goals and be objective when dealing with them interpersonally.

HIGH MOTIVATION (M)

This facet of behavior is associated with degrees of frustration tolerance, freedom from distraction, control, self-discipline, goal directed effort, drive and feelings of responsibility. All activities requiring such functions as attention, memory, concentration and persistence will be affected. Children scoring high in Section IV will demonstrate better ability in all of these features and be characterized by self-control and goal directed behavior. Also, any behavior in social adjustment that requires such characteristics described above involves high motivation.

Pattern #10 - $\frac{M}{P^*-L-R}$

Probable Conduct: Children who score relatively high in Section IV while scoring low in Section II should demonstrate high persistence and good motor capabilities. Again, this is with respect to their overall mental age. One may find their behavior in class as cooperative and patient. They have the disposition to accept group direction without question and often without understanding. These children may be recognized as quiet or shy, although not necessarily anxious. They should perform their best in those activities involving action, motor skill and coordination. They will likely find success at seat work in terms of cutting, coloring, pasting, etc. Usually they are quiet with low group involvement exercising a minimum of verbalization. Self-assertion will be relatively low. One finds them enduring and nonassertive even when capable. They are routine oriented and cooperative in most situations.

Likely Achievement: These children ordinarily are recognized as quiet and industrious. Any activity involving memory and drill type learning should be easily accomplished. Spelling, for example, may be relatively high when compared with ability in math and reading. The latter should be about equal and comparable to the student's mental ability. Underachievement of academic difficulty for these students appears to be related to lower comprehension.

Some Suggestions for Development: Improving language skills to the extent that it is possible is suggested. Undoubtedly such children will be delightful to tutor or offer remedial assistance to. As was mentioned above, learning should be acquired more rapidly where drill type exercises are utilized in the learning process. Usually these children are poor at learning assignments requiring abstraction. They tend to be concrete and pragmatic. Be consistent, objective and succinct in interpersonal operations with them.

Pattern #11 - $\frac{M}{P\text{-}L\text{-}R^*}$

Probable Conduct: When scores in Section IV are high and associated with low scores in Section I the student may be self-controlled and dependable but have poor motor ability. Such youngsters will seek approval and respect. One will find them helpful and they step right into work situations to give a helping hand to teachers and other authority figures. These students at times may be "bossy" or critical towards classmates. These youngsters are similar to children who delight in attention. However, unlike them, students with this score pattern seek respectful attention and will strive for leadership. They can be good organizers and productive workers. Often the quality of their work may not match their effort or the time spent in the accomplishment.

Likely Achievement: It is likely that achievement in reading and spelling will be higher than math ability. Spelling may be the highest of the three basic skills. Concentration and persistence are the best features of these students. In early enrollment years, these children may have articulation or other difficulties associated with delayed gross motor development.

Some Suggestions for Development: Where possible, strengthen motor skills. Make use of such items as the balance beam and walking rail to develop body balance and awareness. Games requiring gross motor activity, coordination and graceful use of the body or control should be helpful. The use of the Winter Haven Training Material and those techniques devised by Frostig are also recommended.

Pattern #12 - $\frac{M}{P^*\text{-}L\text{-}R}$

Probable Conduct: Children who have high Section IV scores and low Section III scores are often seen as quiet but not aloof. They will probably conduct their activities in a steady and solitary fashion. Ordinarily they have few friends and appear to mistake motives of others. Generally, they will take to a task and see it through especially where drill or routine is concerned.

Likely Achievement: Children who score in this pattern often are regarded as patient and hard working. They may be somewhat naive or immature but where they are lacking in judgement they make up for in persistence. They will follow group activities or assignments often without understanding. Reading and spelling may be higher than number work and assignments associated with drill, such as spelling, will probably be best. Many times they over-achieve in terms of their IQ but have difficulties when abstract skills become important.

Some Suggestions for Development: Teacher effort might be directed toward improving comprehension skills. Compliment sincerely and in a matter of fact fashion whenever possible. Such comments might be followed by other means of recognition such as special assignments or recitation to draw the youngster out and to get him involved with people and the events about him. Condemnation and discipline will have little or no lasting effect on negative attitudes but can lead to greater withdrawal and intensity of inner anxiety.

These section score patterns are presented here because they will play an important role in the future of the ABC Inventory, more from the standpoint of uses made of the testing data than change in the content of the instrument. The issues of the validity and reliability of these score patterns remain to be resolved. The author and researcher has used them with good predictability thus far, but much remains to be done in the way of hard research. Most of the validation work has been done with youngsters three or four years after initial testing (i.e.: Grades 3 and 4) and the researcher is aware of the need for more thorough and extensive study with children at the kindergarten level.

Requests for the ABC Inventory are increasingly more common from physicians, which seems to indicate that at least this segment of the private sector is looking for methods of assessing other than just physical development.

Planned change in the ABC Inventory content will include inclusion of items which will make it useful with both older and younger children. The author wants to be able to use the instrument with younger children and wants to alter at least Section IV so it has a higher ceiling. He is now using a revised edition (not available at this time) on an experimental basis with children much younger chronologically.

In summary, it appears that the ABC Inventory has found increasing acceptance, not only in Michigan, but in numerous other states, as a pre-school readiness assessment measure. Its prescriptive utility is now in the process of active research and its breadth of applicability is being expanded through content revision.

CHAPTER VI

SUMMARY AND IMPLICATIONS

Introduction

The concluding chapter is divided into two sections: Summary and Implications. The summary is designed to refer the reader to tabulated data which support the conclusions. Some implications (unsubstantiated by the data) will be found in the summary section. These implications are designated as such and not referred to by table numbers.

Summary

Readiness and its assessment are important and legitimate concerns of educators. Concern with readiness, however, has been considerably more unanimous than has been the case when agreement is sought about its definition or how it best can be measured.

If practice is any indication, it can be said that chronological age still remains as the principal criterion for school entrance. While it cannot be said with certainty that practice is a manifestation of philosophy, it appears that at least tacit approval is present for continuing to make decisions about school readiness on a chronological age basis. Pre-school here means either pre-kindergarten or

pre-first grade, which will vary nationwide, depending upon provision made for kindergarten in a particular region of the country.

Efforts to change or eliminate the chronological age criterion for school admission and provide for more flexible policies have been directed, primarily, toward admitting underage, but bright, children to school early. Decisions about whether children were considered mentally advanced enough to begin school earlier than their chronological age would normally allow have been based upon intelligence testing. Underage children with high IQ's have been allowed to start school early in a minority of districts with variable admission policies, because it has been assumed they possess the mental ability to cope with the academic program.

It appears, then, that school readiness traditionally has been viewed from the perspective of two criteria, either separately or in combination. These criteria are: (1) Is the child old enough? and/or (2) Is the child bright enough?

Programs for assessing a given child's level on these two variables are more easily designed for the former than the latter. A child's age is dictated by his birthdate, but his mental ability is a more nebulous and debatable factor. This probably accounts for the dominance of the chronological age criterion--its simplicity and reliability. Readiness decisions based upon intelligence have been made more objective through the use of standardized tests such as

the Stanford-Binet, which permit conversion to a quantitative score for mental age or intelligence quotient. Both chronological age and mental age/IQ age are, however, arbitratily set, based upon normed averages. Regardless of the levels at which these variables are established, a mental age score suffers the added dimension of statistical reliability. Statistically, chronological age is always reliable. The intelligence quotient is affected by a multitude of confounding variables and varies accordingly, while chronological age is apart from these influences. Chronological age does not contribute much beyond year and month comparisons, though, since it cannot reflect the experiential quality of the time space prior to school admission.

It may be theorized that both of these criteria, used by the vast majority of districts for admission decisions, suffer from unwarranted assumptions. The IQ assumes that the test items, upon which it is based, assess what a child needs to know and to do to be ready for the school experience. The chronological age assumes that children of the same age have had comparable experiences and impressions during this like span of time. Further, the issue is compounded, since IQ is based, in part, upon chronological age. These assumptions were not, however, substantiated by the study.

Evidence shows that in the case of older, bright children, school adjustment and achievement present little

problem. This particular combination of advanced chronological age and high mental ability enables a child to do well in his first year in a school program as it is traditionally constituted. A young child who is not bright probably can be expected to encounter various problems in his initial year in school. Chronological age and IQ seem to be more useful for judgments about the readiness for typical program of children who fall on the extremes of the old-young and bright-normal spectrums. They may have considerably less utility for accurately predicting the progress of the child who is old and of average ability, average in age with average ability, or young with high ability.

While tested mental age and IQ might be challenged on the basis of validity and reliability, so can any assessment measure. One solution to the problem of reliance upon a single test is to add more tests to achieve a battery which yields measures on a composite of variables considered germane to readiness for school. Moving in this direction should increase the chances of tapping a greater breadth of factors, but at the same time it does not eliminate the problems of a single test, since each sub-test in the battery is itself a single measurement of a particular variable.

Aside from questions such as test item discrimination, validity, or reliability, which must be asked about any measure or combination of measures, the real issue is what is done with the assessment results after administration.

Readiness tests, whether they are called intelligence tests, developmental tests, tests of maturity or the like, are very useful for yielding scores which can be used for decisions about school admission. Scores from readiness tests are most easily used for categorization along a "ready for school--not ready for school" continuum. These tests are, to varying degrees, less useful for planning instructional experiences to accommodate the individual differences in the readiness levels of the children tested. Composite scores, such as IQ or readiness age (in the case of the ABC Inventory), do not lend themselves to translation into specific instructional action, whether of a preventive or remedial nature. A child's status in each of the many readinesses such as visual discrimination, auditory discrimination, motor coordination, and social-emotional make-up, is lost in the conversion to a cutting score.

The schools in this study were interested in identifying children who were not ready for kindergarten and this was the rationale for initiating a readiness testing program (4.1). Almost all of the schools used the ABC Inventory only for this purpose (4.6). The results were used to recommend delayed entrance for those students who, in most cases, were not ready according to the test results, with only one district attempting to accommodate its program to the tested differences of the children (4.1). After categorization of the children based upon their readiness

ages, the kindergarten program was not altered substantially to deal constructively with the wide differences in readiness levels (4.11). Almost one-half of the teachers and administrators reported no curricular change as a result of the testing program, with very few reporting specific instructional individualization measures taken to accommodate the varieties of readiness status. This is a particularly important finding since, in Michigan, a child may start kindergarten if he is five years old by December 1st of the year of entrance. The decision rests with the parents, and the school can only recommend delayed admission. Many children of low tested readiness, therefore, enroll in kindergarten regardless of recommended action. Additionally, a child who qualifies for entrance on the basis of his composite score may not demonstrate evenly developed readiness. A child may compensate for a poor performance on one test section by a good performance on another part--a single readiness deficiency is hidden by a single readiness age score.

The districts in this study need to examine carefully the serious discrepancy between the reported value of the testing programs for purposes of individualization of instruction and the <u>actual</u> use made of test data for this purpose. These districts are not changing the kindergarten program toward accommodating individual differences (4.11), even though they support the continuance of the testing program because it provides input for individualizing the

kindergarten instruction (4.15). The leadership in these districts have a responsibility to resolve this reported disparity.

Ten respondents out of 21 did not perceive any change in their philosophy as a result of the readiness testing program, while five reported that they were considerably more sensitive to the great differences in readiness among entering students (4.12). Only one respondent indicated a strengthened belief in individualization of instruction.

While curricular change toward individualization was not reported, to any substantial degree, and belief in the need to move toward program accommodation was not strong, it is interesting to note that the perceived value of the testing program was reported to be its help for individualizing instruction (16 of 21 respondents) (4.15). Theoretically, then, the readiness test results serve a useful function for adjusting the instruction to the child's level. This individualization is not, however, actually happening in practice.

Although many reasons may exist for this breakdown between reported perception and practice, one, in particular, seems to contribute heavily. The ABC Inventory, as presently constituted, does not translate easily into specific instructional prescription. The ABC Inventory manual stresses the screening out of the immature children function of the test

rather than its prognostic application. The author's original intent in the test design was the latter, but this is not reflected in the instructions to potential test users. The author's current research with the ABC Inventory, stressing the prescriptive utility of section results, is an extension of his original intent, but users in the field are not aware of its potential for translation to program accommodation.

Current and potential users of the ABC Inventory must be informed about certain aspects of the test which may seriously affect its utility. These characteristics are:

1. The author's contention that the test is not an intelligence test while correlating the ABC ready age with the Stanford-Binet mental age (.78). This comparison implies that the tests are measuring similar constructs.
2. The poor method of establishing the test's reliability. By the author's own admission the comparison of the 1962 and 1964 student groups (assuming group comparability and equivalency) is not a statistically sound procedure.
3. The practical use of the test data for translation into instructional action. While the author originally designed the test to provide input for teachers to adjust the instructional program to individual differences, this function is ignored

> in the test manual. The manual stresses the screening-out function of the instrument, which implies, by omission, that this is the primary function of the test.

The author of the ABC Inventory has a responsibility to rectify these aspects which may have misleading effects for users in the field. Practitioners, as well, will need to look carefully at these inconsistencies before committing the test to use as a useful part of their readiness assessment programs.

The fact that no other published assessment measures are used in the testing program, in addition to the ABC Inventory, in all of the districts except one, indicates the almost total reliance that is placed upon this one instrument and its proposed screening-out function (4.6).

Since there has been an almost total lack of evaluation of the test instrument and procedures conducted in these school districts (4.14), one might assume that the users are satisfied with the categorization function of the test and/or that a lack of knowledge exists concerning the potential prognostic function. Support for the latter is found in the fact that almost none of the respondents recommended that the program be altered to include specific instructional action for specific difficulties (4.16).

The ABC Inventory was selected by school districts for use because of its shortness and simplicity of

administration, low cost, norming, and recommended adoption by specialists (primarily diagnosticians) (4.5). There was little discussion about choosing an instrument or battery of tests which would assess various readinesses with follow-up translation to instructional action based upon measured deficiencies.

The primary use made of the inventory results is to make judgments about who is ready for kindergarten and who is not (4.1). Once this function is over, the results are used only periodically and usually with children experiencing difficulty in school (4.10). This generally takes the form of checking the predicted readiness against performance which, more often than not, demonstrates that the test did, in fact, anticipate the problems the teacher is witnessing. This becomes a self-fulfilling prophecy and lends additional credence to the test's predictive validity.

The findings of the study support the conclusion that children are being measured on the readiness dimension primarily to exclude those likely to encounter difficulty with the kindergarten program. Children not excluded are expected to perform at least up to the average. Use of testing data to adjust the program to the individual's maturity level is not evident. Children who do not progress satisfactorily are generally those who were predicted by the test as likely to have difficulty. The test then becomes more firmly entrenched as a valid predicting instrument,

which decreases the perceived need to search for better assessment tests or procedures. Almost without exception, those interviewed spoke highly of the ABC Inventory because of its accuracy of prediction. There was little reason, as they saw it, to seek other assessment measures since the ABC Inventory satisfied the function desired--the identification of the immature for purposes of recommending delayed admission to parents.

Almost all respondents equivocated on delayed admission of the immature in cases where the home environment was known to be a poor one. It was reported that these children were better off in kindergarten, where the environment was assumed to be more stimulating--better than merely existing for an additional year at home. In addition, children of tested immaturity who were older chronologically and approaching the required age for starting school were admitted because of their advanced age, regardless.

Once again, the utility of the readiness test results for providing instructional direction with these types of children was not reported in terms of actual kindergarten curricular change toward individualization.

Even though respondents did not report specific program changes toward individualization due to readiness testing and use of testing input for these changes, satisfaction with the test was apparent. Respondents would like more evaluation of the ABC Inventory, but only in the form

of post-kindergarten follow-up testing to assess its predictive validity (4.16). Reported value of the testing program for purposes of individualization was not substantiated by responses to inquiry about curricular change.

The study findings show that kindergarten teachers and administrators generally are convinced of the need for testing to alleviate the burden of immature children in the kindergarten program, as opposed to the need for test data input for individualizing instruction to the various readiness levels of entering students.

Discussions with the author of the ABC Inventory (Chapter V) and analysis of the reported sources of the readiness testing program idea indicate that the test became available, was simple to administer with standardized norms (4.5), was pushed into use by county diagnosticians (4.2, 4.3), and was accepted without much evaluation (4.4) by districts as a convenient method of solving some of the problems created by the immature potential kindergarten enrollee.

The rationale for testing, from the diagnostician's viewpoint, can only be assumed, although it could be hypothesized that increased numbers of delayed entrances would decrease diagnostic referrals to them. Further research is needed to study the effects of readiness testing and delayed admission upon subsequent diagnostic referral.

Since the diagnostician is active, in most of the districts studied, in test administration and post-administrative recommendations (4.7, 4.8), it is interesting that more stimulation from this source is not apparent for increasing the instructional prescriptive function of the testing programs or for systematic evaluation of testing instruments in terms of the testing objectives.

It can be said that respondents view readiness in its more global sense rather than an aggregate of readinesses, at least if reported rationales for testing and post-administration recommendations are indications of this perception.

There was no reported program or initiative for instituting testing of children of suspected brightness for purposes of early admission. This is in contradiction to the literature, which points to this rationale in most districts with admission policies based upon other than chronological age criteria. This question was not asked as part of the investigation, but early admission of mentally advanced children obviously was not a part of the testing programs.

The districts in the study are to be credited with efforts to break the chronological age barrier as a criterion measure for kindergarten readiness. Regardless of the limitations of the testing programs which might be noted, readiness assessments of this kind would appear to be necessary beginning steps to instruction based upon individual readinesses and needs.

Implications

Most of the districts studied test youngsters with a single readiness measure (The ABC Inventory) and recommend delayed entrance for those of tested immaturity. The assumption of this policy is that an additional year at home or in some type of pre-kindergarten school experience will bring a child's readiness level up to an acceptable level. There is a need to subject this hypothesis to some rigorous research for substantiation.

How do children progress in measured readiness with an additional year at home? How do these children compare with those who spend a year in kindergarten (those who entered school regardless of tested immaturity)? What about the change in tested readiness of those who spend a year in a pre-kindergarten school situation? The districts surveyed are not building this kind of research in their testing programs to place the recommendations made on children on a sound base.

Some longer-range studies need to be conducted to follow children in the categories mentioned above through several grades, to assess school adjustment and progress of a long-term nature.

If readiness measures are to be used for purposes of program planning to gear instruction more in line with maturity levels, what sorts of readinesses should be assessed? Are tests now available which will measure the various

maturities? The current work of Mr. Normand Adair is a move in the direction of isolating readiness variables in order to predict probable difficulties with accompanying instructional prescription to help with their resolution. Work needs to be expanded to include other readiness factors singly or in combination in following children through with and without prescriptive instruction to test the effectiveness of such procedures.

The question was posed before as to the rationale for school diagnosticians stimulating pre-kindergarten readiness testing. Why do they feel that this procedure has value? Is the assumption that early diagnosis alone will reduce the number of referrals to them for testing several years later warranted? Investigations into the effects of readiness testing on the usual school diagnostic testing patterns might shed some light on this question.

Whenever the issue of testing is discussed, the danger of children being pre-judged and treated in a biased manner is legitimately raised. How real is the contention that children of tested immaturity will be expected to do poorly and, as a result, are treated thusly? Does this prejudice exist, and, if so, what effect does it have upon achievement and progress? Studies which question this aspect of readiness testing are important, since the difficulties encountered by the immature cannot be assumed to be a reflection of a lack of readiness until other confounding variables are controlled or eliminated.

An issue raised in this study is why there was such a discrepancy between the perceived value of readiness testing for individualization of instruction and the lack of perceived program changes in the direction of individualization. While theory and practice are often not in line, further research is warranted to attempt an isolation of the variables which create this disparity. Is the hypothesis that teachers and administrators see identification of the immature sufficient, with the belief that natural development must occur before profitable instruction can take place, acceptable? This notion needs to be examined.

What has been the effect of readiness testing programs upon the parents of children tested? Do they view the schools differently than parents in like situations who do not experience such assessment? And what about parents whose children test immature as opposed to parents of children of average or high tested readiness? Respondents in the school districts studied commented repeatedly that a tangential benefit of the testing program was increased parent-school communication and greater parental awareness of the concept of maturity and readiness. An investigation of this aspect of readiness testing is necessary to determine the actual change in perceptions among parents since their partnership in the education process hardly can be ignored.

What role has readiness testing played in stimulating a nongraded approach to primary education? The

literature advocates, and some of the respondents in this study felt, that this sort of early diagnosis provides an impetus for such programs as developmental kindergarten programs, transitional grades between kindergarten and grade one, and finally for smooth movement through an ungraded primary based upon individualized progress. Is this actually the case, or does readiness testing follow such program changes? This study found little translation of test input into instructional action, but a more thorough investigation, on just this particular question, is in order.

A complete list of possible implications for additional research would be endless. While research and the literature continue to substantiate and advocate instruction designed for the individual child, not much of this finds its way into practice. Students continue to be admitted to kindergartens on a chronological age basis. The schools in this study have begun to move against this criterion monopoly but this descriptive study simply increases the questions which need to be raised about readiness testing programs and their effects.

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APPENDICES

APPENDIX A

PRELIMINARY SCHOOL READINESS TESTING SURVEY

December 11, 1970

Dear Fellow Educator:

I need your help! I am conducting a study for my doctoral dissertation (in Educational Administration at Michigan State University) on the subject of pre-kindergarten readiness testing in the state of Michigan.

It is important that I find out which school districts in Michigan have testing programs to determine a child's readiness for the kindergarten experience. This is where you can be of great assistance by checking a few simple questions regarding this phase of your total program.

The ABC Inventory (to determine kindergarten and school readiness) is an individually administered test given to youngsters in the spring prior to their beginning year in school or in the fall after they have started kindergarten. It is, of course, used in a variety of other ways (i.e. Head Start programs, Title 1 programs, nursery schools, etc.)

The people who publish this test have given me the name of your school (or school district) as one which may be using the test in some capacity. The dilemma I face is that they had no precise information as to the specific person in each district to which this inquiry should be sent. If you feel that you can answer the following questions knowledgeably, please do so. If, however, you feel that it logically should be completed by someone else in your district, please refer it to them for completion.

As a former school administrator, I know the demands upon your time are heavy, but I would appreciate a return as soon as possible. Be assured that all information received is considered confidential.

Please use the enclosed envelope, and I want to thank you in advance for your consideration.

Sincerely,

Dirk Manson
Graduate Assistant
Dept. of Administration
and Higher Education
Michigan State University

Preliminary School Readiness Testing Survey

Name of person completing survey _____
Title _____
School District _____
Address _____

Please check the appropriate statement

_____1. Our district has a testing program to determine kindergarten readiness that is given to all or most entering students.

_____2. We have such a testing program, but it only applies to certain schools in the district.

If you checked either of the above, please list the names of the kindergarten teachers, their school, and name of the building principal (only those teachers receiving students tested for readiness).

Teacher's Name	School	Principal's Name

_____3. Our district has a program, but it is administered only to those of questionable readiness for school (i.e. those very young).

If you checked No. 1, 2, or 3 please indicate which of the following is used:

_____ The ABC Inventory

_____ Some other published test
Name of test _____

_____ A test devised by us at the local level (if one is available please enclose with this survey)

_____4. Our district has a program, but only on a referral basis.

_____5. Our entrance to kindergarten policy is almost exclusively in line with State Law regarding chronological age requirements, with no regard or almost no regard for testing for other readiness considerations.

_____6. Our local district entrance requirements differ from State Law.

If so, explain how:

APPENDIX B

PERSONAL INTERVIEW OUTLINE

Personal Interview Outline

(Pre-Kindergarten Readiness Testing - Case Study)

I. General Information

A. Name of Respondent_____ B. Position_____

C. Name of School District_____ D. School_____

E. Address_____ F. Interview Date

_____ _____

G. No. of years as (K teacher, Elementary Principal

_____

H. No. of years as (K. teacher, Elementary Principal) in this district_____

I. No. of years testing program has been in existence at current level_____

J. No. of years of respondent's involvement in testing program_____

II. Initiation

A. Why was the program started?

B. Who was responsible for the program initiation (including respondent's role, if any)?

C. Describe how (process) the program came about.

III. Test Selection and Composition of the Program

A. What readiness measures (tests) were considered for the program?

B. Why was the ABC considered the best of those considered?

C. What other measures are used (or parts of) in the testing program, if any?

IV. Administration and Post-Administrative Decision Making

A. Describe your role (involvement) in the actual administration and/or scoring process.

B. Who else is involved in administration and scoring?

C. Describe your involvement in decision making about the readiness of children tested.

V. Uses of Testing Data

A. What does the school district do with the testing data (on individual child and/or over-all basis) after the tests have been given?

B. What do you do with the test data? (How is it used?)

C. Describe program changes (curriculum) that have come about as a result of the testing program and/or the testing data, if any.

D. Describe any personal change in philosophy and/or practices as a result of the testing program.

E. What is your involvement, if any, in communicating with interested parties about the program and/or individual children?

VI. Evaluation

A. What kinds of evaluations have been done on your readiness testing program?

B. What has been your role in the evaluation process?

VII. Strengths and Weaknesses of the Program

A. Describe your perceptions about the worthwhileness of the testing program. (Who benefits?)

B. What changes in the program would you recommend?

APPENDIX C

THE ABC INVENTORY

A B C INVENTORY

To Determine Kindergarten & School Readiness

By NORMAND ADAIR and GEORGE BLESCH

Name ..... Sex ..... Date _____
yr. mo. day

Address ..... Born _____
yr. mo. day

School ..... Dist. ..... Age _____
yrs. mos.

	Total
I _____	
II _____	_____ Readiness Age
III _____	
IV _____	_____ _____ Yrs. Mos.

Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.
5-29	3—6	45-47	4—1	65-66	4—8	82	5—2	94	5—8	106-108	6—2
8-30	3—7	48-50	4—2	67-69	4—9	83-84	5—3	95-96	5—9	109-110	6—3
1-33	3—8	51-54	4—3	70-71	4—10	85-86	5—4	97-98	5—10	111-114	6—4
4-36	3—9	55-57	4—4	72-77	4—11	87-88	5—5	99-100	5—11	115-118	6—5
7-38	3—10	58-60	4—5	78-79	5—0	89-90	5—6	101-103	6—0	119-120	6—6
9-41	3—11	61-62	4—6	80-81	5—1	91-93	5—7	104-105	6—1	121-122	6—7
2-44	4—0	63-64	4—7								

SECTION I

"Draw-Man"

core four points for
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otal _____

SECTION II

Score two points for any a, b or c items answered correctly. 32 points possible.

Points

1. What has:
   ____ (a) wings. (*Any winged insect, bird or machine.*)
   (b) 4 wheels. (*Any 4-wheel object or device.*)
2. Tell me the color of:
   ____ (a) grass (*green*) (b) an apple (*red*)
   (c) a banana (*yellow*)
3. Which is larger:
   ____ (a) a dog or a cat (b) cow or a pig (c) man or a boy
4. What time of the year:
   ____ (a) do we swim (*summer*) (b) does it snow (*winter*)
5. Which is faster:
   ____ (a) a car or a horse (b) a train or a truck
6. How many wheels does:
   ____ (a) a motor scooter have. (*Two*)
   (b) a wheelbarrow have. (*One*)
7. When is:
   ____ (a) The 4th of July (b) Christmas
   (Suggest summer or winter for "a", no help for "b")

____ Total

SECTION III

Score two points for each of the following items answered correctly. 12 points possible.

____ 1. What is ice when it melts? (*Water*)
____ 2. What makes a cloudy day bright? (*Sun*)
____ 3. If today is Sunday, what is tomorrow?
____ 4. What makes day warmer than night? (*Sun*)
____ 5. How do we hear? (*With our ears*)
____ 6. What are your eyes for? (*To see or look*)

____ (al

SECTION IV

Score eight points for each item completed successfully. 32 points possible.

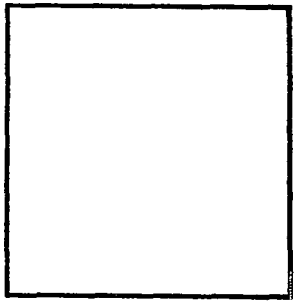
____ 1. Counting 4 squares (above).

____ 2. Fold a paper triangle.

3. Repeat 4 digits (one success in three trials).
____ (a) 3725 (b) 4531 (c) 8694

____ 4. Copy a square (one success in 2 trials).

____ Total



The

A B C INVENTORY

TO DETERMINE

KINDERGARTEN AND SCHOOL READINESS

ADMINISTRATION AND SCORING PROCEDURES

FOR

EXAMINERS AND TEACHERS

Research Edition

RESEARCH CONCEPTS
A DIVISION OF TEST MAKER, INC.
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- MUSKEGON, MICHIGAN 49444
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ADMINISTRATION AND CONDITIONS FOR SCORING

The ABC Inventory is straightforward and direct. With very little effort the examining person will become comfortable and effective in presenting questions. Usually eight or nine minutes is all that is necessary to obtain the information needed. Suggested correct answer in italics follows questions that have no obvious answer. Scoring can be accomplished as the examination is conducted and final raw scores can be readily interpreted. A supply of paper cut into six inch squares approximately the weight of typing paper, a few large pencils like the ones used in the early elementary grades and the ABC Inventory are all that are necessary.

Other than a normal regard for the comfort of the child, no special conditions for testing are required. The kindergarten classroom is a likely test setting as the furnishings and equipment accommodate physical features of small children. Keeping the child at ease by reassuring and encouraging him should be a primary concern. It is often helpful to put the child at ease by asking the name of a sibling or requesting him to name some simple object in the room.

The inventory is constructed in four sections and items are placed according to difficulty but sequential progression is not essential. Instructing the youngsters to draw a man (Section I) is perhaps a good method for introducing the ABC Inventory and for establishing initial rapport. Frequently, children find this threatening and will respond more securely to other items such as a request to copy a square. Essentially, an examiner will want to establish a friendly relationship with the child and only determine whether or not the child knows the answer to any given item regardless of its placement or sequence in the test form. Fill in all identifying information on the test form face sheet and do necessary subtraction to obtain age in years and months (ignore days).

The ABC Inventory is not an intelligence test. It is not a highly complicated questionnaire. Items and tasks included in the inventory are familiar to educators and long have been recognized as pertinent to growth and development aspects. It has been used with a high degree of success in identifying children who subsequently demonstrated inadequate school performance. Hopefully, its use will provide a greater understanding of maturation as related to learning, reduce the risk of academic difficulties and failure, enhance better mental health and self concepts among school children and provide a basis for better parent-teacher understanding.

SECTION I

Provide the youngster with a large pencil and the test form. Place the form with the space for drawing a man, face up on the table before him and say, **Draw a man right here.** *Touch or tap the blank space provided under Section I.* If the child seems vague or confused restate the instructions with friendly encouragement. Only 2% in the high scoring group refused such a request, whereas, 30% of the low scoring group would not draw a man in spite of firm urgings. Offer whatever encouragement you feel will be helpful in making the child secure and responsive. However, make no reference to any specific part of a man. Do not say, for example, "Draw his eyes", "Draw his arms", etc. Instead, keep instructions general. A child may stop after drawing the head. Encourage additional effort by saying, **That's nice — draw the whole man.** If a youngster shows no further attempt or seems to be satisfied with his effort, continue with the testing. Drawings may be poorly coordinated, disjointed, inverted or with parts improperly placed. However, do not penalize for clumsy effort or poor art work. If a child appears to be aware of a concept, score four points regardless of placement or body connection for any of the items listed on the test form for Section I. Where more than one article of clothing is drawn, score four points for each article. Ordinarily, youngsters include seven to ten of the suggested items. Some not listed may appear for which four points per item is scored.

SECTION II

In this section, preface each sub-scale (a-b-c) item with the main question. For example, **What has wings? Tell me the color** of grass. **What time of the year** does it snow? and so forth.

To item (c) in question 2, many will say a banana is "White". Question further for the color of the peel by requesting the color of the "outside part" or the "part thrown away". If still unable to answer "Yellow" do not give credit and continue without further help.

Young children who do not know an answer will often offer the last alternate stated by the examiner. Therefore, in Section II, it is important in items 3, 5 and 7 to mention the preferred alternate first. Such as: **Which is larger—a dog or a cat? Which is faster—a car or a horse?** When presenting item 7, suggest the seasons for item (a) such as: **When is the 4th of July—summer or winter?** However, add no assistance for item (b). A youngster receives two points for each sub-item he answers correctly. A full score of 32 is possible for this section.

SECTION III

Section III requires little explanation. The questions are merely stated as they are written and they are scored two points when right. Frequently a child will answer "Gone" for item 1. Follow by asking, **What is left when ice is gone?** If he answers, "Water" give credit. Score two points for each correct answer. Twelve points are possible in Section III.

SECTION IV

Section IV will, perhaps, require greater attention to administration and scoring. This section, on the other hand, was found to be most discriminating in the group studied. Two-thirds of the lower group failed in items 2, 3 and 4. Counting up to four was seen to be the easiest of the items for the immature children. Even so, only one out of two in the lower group succeeded in this task. All of the children in the upper group were able to count four items cor-

rectly. Also, in the upper group, more than two-thirds succeeded in: folding a paper triangle; in repeating digits; and, nine out of ten copied the square accurately.

Item 1: counting up to four. Many children at an early age will count to five or ten with accuracy, however, they often fail in counting separate objects. Therefore, the examiner should determine that a child has awareness that the number he states is related to the objects he is counting. Place the form with the heavy black squares toward the child and ask, **How many of these are there?** Some children will count with their fingers, some will merely look and answer. The important thing is that they give you a correct total. For example, if the child touches each square and says, "one-two-three-four", the examiner must still ask, **Yes, now, how many are there?** If a child is unable to say "Four" as a single thought he is scored a failure for the item. Score eight points for a plus answer.

Item 2: folding a triangle. Take a paper square and say, **Watch me.** *Fold the paper once diagonally to form a triangle, then fold it once again to make a smaller triangle.* Execute the steps slowly making certain that the child is attending. *Place the paper triangle before the youngster and give him an unfolded paper square saying,* **Now you fold yours just like mine.** *Point to your example.* Do not allow it to become unfolded. Give ample time and encouragement, but no assistance or suggestions. A fold is acceptable if the corners are within a half-inch of meeting. Credit 8 points.

Item 3: repeating digits forward. Secure the child's attention and say, **I'll say some numbers and when I'm through, you say them just like I do. Ready? Now, listen.** *Say the first series of numbers at one second intervals* and when finished, say, **You say them.** If the child fails say, **Alright, but this time, say them the same way I do. Listen now,** *and say the next series.* Repeat instructions for the third series of numbers if necessary. Score 8 points for success in any one of three series.

Item 4: copy a square. The criteria for success on this test are (1) the preservation of squareness and (2) four reasonably good right angles. All sides need not be of exact length, but height and width should be fairly equal. Give the youngster the pencil and place the form in front of him. Say, **Make one just like this — make it right here.** *Indicate the space next to the example square.* If the first effort is a failure, *trace the illustration square with your finger while saying,* **Make another square. Be sure to make it just like this one. Make it right here.** *Point out an appropriate blank area on the form.* If the child is successful in either of two trials, score 8 points.

USING THE RESULTS OF THE SCALE

Combine the totals of each section. This total test score may be used in different ways. For example, in a study group of 166 pre-schoolers a total score less than 70 correlated highly (r—.71) with failure in kindergarten.

When screening young pre-schoolers, the following explanation of scores for children legally admissable to school before age 5 will be useful.

Interpret the test according to the category the score is in. The paragraph that applies to a child should be read carefully. If the score is near the top or bottom of a particular bracket the interpretation can be affected somewhat by the appropriate adjacent paragraph. Interpretive Data refers to those children who are **younger** than five years of age.

Score	
	Children whose scores are above 95 have a very good chance of succeeding in kindergarten. Progress in kindergarten is expected to be above average and youngsters scoring in this numerical range can be regarded as having suitable readiness for school.
	Those whose scores range from 70 to 94 are believed to be average and above for their age group. However, their success in kindergarten when compared with their "older" classmates may not be outstanding. The children who have scored in this range should have little difficulty achieving in the kindergarten and it is believed that they will be able to meet the requirements of first grade the year following.
	Children whose scores are in the 50 to 69 range may find considerable difficulty in making adjustments in kindergarten. Their general readiness for the more formal aspects of school is questioned and when they are expected to meet the demands of first grade some youngsters in this group will likely falter. Their present readiness for school is believed to be marginal. Their parents may want to be advised of their child's limitations and want to consider holding them out of school until added growth provides them with a greater advantage.
	If enrolled in school this coming year, children who have scored less than 50 on this survey, face the greatest possibility of failure and their school years ahead are apt to be difficult and frustrating. Their parents should be alerted to their youngster's disadvantages and they might be encouraged to have their child remain at home for another year. Readiness for school for children who score in this range definitely is lacking.
	A "zero" score indicates the results are invalid and suggests that a child may be disturbed in his personal adjustment skills. His potential for school readiness is not clearly understood and it may be masked by excessive shyness or highly resistant behavior. At any rate, early school progress might be observed closely and appropriate school management be accomplished promptly.

Raw scores may be converted into "readiness ages" also as suggested by the Ready-Age table below and on the front of the test form. Merely read the years and months adjacent to a given total score. For example, a total raw score of 90 suggests a readiness age of 5 years and 6 months regardless of the child's calendar age. A "zero" score indicates the results are invalid and the child should be evaluated more closely.

READY AGE TABLE

Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.	Total Raw Sc.	R-A Yrs. Mos.
25-29	3—6	65-66	4—8	94	5—8
28-30	3—7	67-69	4—9	95-96	5—9
31-33	3—8	70-71	4—10	97-98	5—10
34-36	3—9	72-77	4—11	99-100	5—11
37-38	3—10	78-79	5—0	101-103	6—0
39-41	3—11	80-81	5—1	104-105	6—1
42-44	4—0	82	5—2	106-108	6—2
45-47	4—1	83-84	5—3	109-110	6—3
48-50	4—2	85-86	5—4	111-114	6—4
51-54	4—3	87-88	5—5	115-118	6—5
55-57	4—4	89-90	5—6	119-120	6—6
58-60	4—5	91-93	5—7	121-122	6—7
61-62	4—6				
63-64	4—7				

N=619 kindergarteners.

NOTES ON CONSTRUCTION

There are administrative advantages in enrolling children for school on a chronological age basis. However, from an educational and psychological point of view, a child is seriously disadvantaged when daily academic requirements excell his capabilities. Increasingly, more educators are examining school readiness at admission in order to avoid some of the problems among children in the early academic years.

School can be equally rewarding for all children when their growth and learning skills are comparable. Initial entry into school on a chronological age basis ignores the concept of individual differences in learning and it defeats many children at the very onset of their education. Differences in abilities are very subtle when first entering school, however, they do exist. When daily demands exceed the maturity of the child, an enduring matrix of negative life experiences is formed predisposing him to later learning and behavior problems. His vagueness, frustration and confusion may eventually become rebellion and resistence with an active rejection of all educative efforts.

The principle purpose of the ABC Inventory is to identify children who are immature for a standard school program. Operationally, the inventory serves best when used in pre-school screening and it has been designed with this function in mind. Aims in developing the inventory, were to: (1) devise a screening technique that was reliable and valid; (2) construct a format that was easily managed by inexperienced examiners; (3) outline adminstration, scoring and interpretation procedures that were direct and uncomplicated; (4) maintain economy by minimizing equipment needs and time consuming procedures; and (5) be suitable to children in the pre-school age range. Construction of the ABC Inventory began in 1960. Item analysis, weighting and refinement continued through 1962. The standardization group throughout consisted of boys and girls whose ages ranged from 4 years 9 months through 4 years 11 months. The average age was 4 years 10 months. No effort was made to separate the scores of boys and girls or to make allowances for socio-economic differences. The fifteen schools involved in the study included K-12 systems in areas with 400 total enrollment to moderate sized systems enrolling over 5,500. Because the number in the standardization study is large (N = 166) a the age range small, biases in selection are belived be diluted.

Reliability was established by matching comparable groups and assuming group equivalency. Scores for children of the same age who enrolled in the same school districts two years apart were compared with the following results:

	1962 group	1964 group
No. In Both Groups	166	314
Means For Both Groups	65.51	66.71
Standard Deviations	22.66	21.78
Standard Error of means	1.76	1.23
Mean Difference	1.20	
Standard Error	2.08	
Critical Ratio	.58	

According to Table of t, no significant difference between means.

Validity was determined by comparing "pass-fail" features between children in the upper and lower half of the score distribution. Eighty-three in the standardization group obtained scores 68 and above while 83 scored below 68. Forty-three children failed their first year of school. Of those failing, 37 or 86% were identified accurately. Seventy-seven or 63% passing, scored above 68. (tetrachoric correlation = .70)

A ready age scale was constructed by combining all test scores over a 3 year period (N = 619) into a frequency distribution and examining its resemblence to a normal bell-shaped curve. Features of divergence from symmetry were studied for significance. The test for skewness and kurtosis was not significant. Deviating scores were measured from the mean and on a basis of their percentile rank were given an age index. This index, called a "readiness age," approximates the mental age features described for other tests and carries similar implications. This treatment was tested by comparing the ABC Inventory ready age with the Stanford-Binet mental age. In a small sample study (N = 14), the product moment correlation between ready age and mental age equaled .78. Investigation of this relationship is being extended and subsequent statistical measures may not yield so high a correlation.

The research edition of the ABC Inventory has been found to be reliable and valid. It approaches closely the aims originally outlined in the section under Purpose. The ABC Inventory is not an absolute scale. However, used as prescribed, it can identify successfully children whose maturity for school is questionable. One is always reminded that a pre-school child should not be denied entrance or admission on the basis of a test score alone (or on any other single criterion). Although, children scoring at a level where maturity to meet the demands of school is questionable, should be studied carefully. Experience indicates that deferred entrance is one good solution for avoiding early academic difficulties. A pre-school nursery or other adjusted entry situation for such children could be possible alternates.