AN EVALUATION OF A KINDERGARTEN SCREENING PROGRAM

by

LAWRENCE CRYDERMAN
B.Ed., B.A., University of
Alberta, 1969, 1970

91

A Thesis Submitted in
Partial Fulfillment of the Require-
ments For The Degree of Master of
Arts

in

THE FACULTY OF GRADUATE STUDIES
(Department of Educational Psychology,
Faculty of Education, University of
British Columbia)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA
July, 1979

In presenting this thesis in partial fulfilment of the requirements for

an advanced degree at the University of British Columbia, I agree that

the Library shall make it freely available for reference and study.

I further agree that permission for extensive copying of this thesis

for scholarly purposes may be granted by the Head of my Department or

by his representatives. It is understood that copying or publication

of this thesis for financial gain shall not be allowed without my

written permission.

Department of _Educational Psychology_

The University of British Columbia
2075 Wesbrook Place
Vancouver, Canada
V6T 1W5

Date _July 31, 1979_

ABSTRACT

A school district kindergarten screening program was evaluated in terms of its organizational and assessment procedures and its effectiveness in identifying children who were judged as having learning and reading problems at the end of grade one.

From a review of the literature on kindergarten screening and the early identification of children with potential learning problems, general guidelines for kindergarten screening were formulated by the researcher. The kindergarten screening program's organizational and assessment procedures were evaluated in terms of these general guidelines.

Omnibus screening inventories suitable for a kindergarten screening program were surveyed in terms of their theoretical orientations, areas of behavior assessed, availability of statistical reliability and validity data, administration times, and availability of follow-up program and remedial suggestions. The Santa Clara Inventory of Developmental Tasks (I.D.T.), used in this study, was compared to these other omnibus screening inventories.

At the end of grade one, results of teacher ratings and the Gates-MacGinitie Reading Test (Level 1, Primary Form A) were gathered on 'high risk' (HR) and 'not high risk' (NHR) groups identified by the kindergarten screening program. The identification effectiveness of the kindergarten screening program was examined in terms of true negatives, true positives, false negatives and false positives.

Chi-square values and contingency coefficients were generated to measure the relationships between kindergarten identification by the screening program and end of grade one measures.

Evaluation of the organizational and assessment procedures indicated that the kindergarten screening program had strengths in terms of a planning committee and follow-up diagnosis. Weaknesses were that goals, objectives and the overall plan were only partially specified, the assessment was only partially structured and related to the kindergarten classroom, no parental information was gathered, and not all children were assessed. Further weaknesses were that the assessment instrument required too much time to administer, and lacked reliability and validity data. The assessment did not reveal strengths in the child's learning style and was limited in its meaningfulness to the kindergarten program largely because the kindergarten teacher was not the key person in the screening program. Other areas of weakness were that the screening program did not evaluate all of the remedial programs, did not systematically follow through to grade one and lacked in-service training for screening personnel.

Results on the Santa Clara I.D.T. indicated that it does not assess some important areas, lacks established reliability and validity data, and was too long to use as a screening instrument.

Results on the identification effectiveness of the kindergarten screening program indicated that it was quite effective in identifying 'not high risk' (NHR) children but not as effective in identifying as 'high risk' (HR), children who would later indicate learning and reading problems. Less than a third of the HR children demonstrated learning and reading problems at the end of grade one and the chances were about 50/50 that an identified HR child would have a learning and/or reading problem. However, the overall relationship between the kindergarten screening identification and the end of grade one measures was positive and

significant largely because the screening program was effective in identifying those children who did not demonstrate learning and reading problems at the end of grade one.

_____

Thesis Supervisor

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

CHAPTER I

INTRODUCTION

Learning problems, especially as they affect the ability to read, have been estimated to occur in ten to fifteen percent of children in general. These estimates, as Paul Satz (1977) reports, have been gathered in the United States by Kline, 1972; by Myklebust and Boshes, 1969; in Canada by the CELDIC Report (One Million Children), 1970; in Great Britain by Kellmer-Pringle, Butler and Davie, 1966; in France by Gaddes, 1976 and in Denmark by Gaddes, 1976. This incidence of learning problems is an important issue for our educational system.

The need for the early detection of learning problems has long been recognized by educators and researchers. It is assumed that an early detection system, before the child begins formal learning, enhances the prospect that remediation can occur when the child is more responsive to change, and before the child has experienced numerous failures.

Although it is generally agreed that there is a need for early identification, few educators and researchers feel confident about how to do it (Keogh and Smith, 1970). The development of an early detection, or screening program, requires investigation.

The purposes of the present study were:(i) to describe a kindergarten screening program in a suburban school district,(ii) to evaluate it in terms of its rationale, objectives and procedures in relation to criteria from the literature,(iii) to evaluate its effectiveness in identifying children who were later indicated as having learning and reading problems,(iv) to help school administrators make decisions about kindergarten screening and its evaluation, and(v) to add to the body of knowledge on kindergarten screening.

Definitions of Terms

Screening: a procedure for identifying those children who might have the
characteristics of 'high risk' learners. (This possibility is confirmed
or rejected by diagnosis.) Screening, in this study, involved initial
subjective teacher rating followed by a more objective assessment on
an inventory of developmental tasks for those children nominated as
'high risk' by their teachers.

Screening Program: consists of five phases: (a) a short screening of all
children, (b) the diagnosis of identified potential 'high risk'
children using valid and reliable psychoeducational assessment
instruments, (c) personalized remedial program changes for specific
children in areas of identified need, (d) referral for identified
problems beyond the resources of the school, and (e) evaluation of
the program (Zeitlin, 1976).

High Risk Learners: those children who, because of problems of development
and/or experience, are least able to meet the normal expectations
of the school at a given grade level unless the teaching/learning
expectations are modified or changed. A child is 'high risk' in
school when there is a mis-match between what he is asked to do and
what he is able to do. There are two components to 'high risk': what
the child brings to the school and what the school requires of the
child. The 'high risk' learners in this study were defined as those
kindergarten children rated as having difficulties by their teachers
and when subsequently assessed on an inventory of developmental tasks,
failed in one or more areas. They were identified as 'high risk' in
terms of displaying potential learning and reading problems in grade one.

<u>Learning Problem</u>: associated with a child who at the end of grade one failed satisfactorily to meet the normal learning expectations of the school as determined by the teacher.

<u>Reading Problem</u>: associated with a child who at the end of grade one failed satisfactorily to meet the normal reading expectations of the school as determined by a group reading test.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this review was to survey the literature for rationales, assumptions, and theoretical approaches to kindergarten screening. This paper also reviewed the research in early identification of learning problems and the procedures for kindergarten screening suggested in the literature. General guidelines for a kindergarten screening program were drawn from this review.

Rationale and Assumptions

All educators and researchers agree on the need for early detection of, and intervention to prevent, learning problems.

The rationales of various authors are as follows:

It is far more human to help them (children) succeed by identifying and capitalizing on their strengths, and at the same time working to eliminate their difficulties than it is to just let them fail. Kindergarten screening programs are one way of accomplishing this. (Zeitlin, 1976, p. 3)

...how economical it would be both in human resources and dollars and cents if it was possible to find these children before they get into trouble. (Zeitlin, 1976, p.3)

...problems diagnosed earlier are more likely to be less firmly entrenched and thus are more easily treated. (Johnson and Morasky, 1977, p. 161)

Early identification of educationally high potential and high risk children provides opportunity for differential placement and instructional programs appropriate for individual children. (Keogh and Smith, 1970, p. 285)

The results of allowing learning disabled children to continue in the regular - and usually frustrating - classroom environment, without intervention, can lead to more than academic failure but

to failure to complete satisfactory psychological development.
(Wilborn and Smith, 1974, p. 363)

If we believe that a significant amount of crime is committed
by individuals who began their antisocial behavior as school
dropouts and who graduated from juvenile delinquents to youthful
offenders to adult criminals, then this theory, if proven, becomes
a vitally important indicator for crime prevention. (Wright, 1974,
p. 35)

The rationales for early detection and intervention in potential

learning problems then stem from humane, economic, developmental,

educational, psychological and social sources.

The assumptions underlying the rationales for early identification

of learning problems derive from the physical disability or disease

model (Keogh and Becker, 1973). They are basically that the condition

to be identified exists in the child, that recognition of and information

about the child leads to appropriate educational experience; and that

the earlier treatment is begun, the more impact it will have. Also

assumed is that this early treatment will prevent other secondary

compounding problems, for example, disruption of parental and family

relationships, confounding emotional conditions, and interpersonal and

affective disturbances.

Keogh and Becker (1973) say that when this physical disability model

is applied to the identification of educational or psychological problems,

some differences must be considered. These differences and the problems

entailed in early identification of school learning problems will be

discussed later.

Theoretical Approaches

Zeitlin (1976) has described four theoretical models for the
identification and assessment of learning problems. Based on different
learning theories, they are the developmental model, the behavioral
model, the information processing model, and the interaction model.

The Developmental Model. Five major areas are considered in the
development of the child: physical, perceptual-motor, cognitive, speech
and language, and social-emotional. These areas are interrelated and
interdependent and influence how the child learns. If the pattern of
strengths and weaknesses of the child's development is known, it is
assumed that an educational prescription which reflects the uniqueness
of that particular child can be devised.

The Behavioral Model. The behaviorist is concerned only with
observable behavior and is not interested in causes. It is assumed that
objective observation, description, and measurement of behavior will
lead to valid conclusions. Learning is a stimulus-response process,
and behavior can be changed through types and schedules of reinforcement.
Screening tools for this model would be observations and checklists.

Information-Processing Model. The information-processing model
is an attempt to describe learning handicapping conditions in an educa-
tionally meaningful way (Gallagher and Bradley, 1972). The theory refers
to "the way in which a child uses his eyes, his ears and his body to
attend to and to gather information from the world around him - how he

relates this information to past experiences - and how he expresses his knowledge and ideas through his speech and his body movements" (Hainsworth and Siqueland, 1969, p. 2).

Information comes to the child through three basic modalities: vision, audition and kinesthetic or haptic, and learning occurs across a number of stages or areas - orientation, intake, integration, output, and feedback, or as Gallagher and Bradley (1972, pp. 87 - 88) call them: "sensory reception, perceptual organization, cognitive processes, expression and control and regulating mechanisms."

Screening would involve sampling behavior in the three basic modalities at each of the stages of information processing. The pattern of strengths and weaknesses would be the basis for an educationally oriented remedial program.

The Interaction Model. The interaction model would recognize learning and learning problems as an interaction between the child's development, his ability to integrate and process information, and the influences of the environment. The child constructs his understanding of and competence in coping with the world through continual transaction with it. These transactions are carried on through a repertoire of various kinds of developmental tasks or "operations"; different types of these are more important at successive stages of development. There are five main sets of influences on development:

1. maturation - including genetic factors;

2. experience and environment;

3. development tasks - transactions with the environment;

4. consultations with other people;

5. interactions among all the preceding.

(Zeitlin, 1976, p. 35)

Assessment might include the five areas of development: physical, perceptual-motor, cognition, speech and language, and social-emotional; the ability to process information; and knowledge of the child's environment.

Research in the Early Identification of Learning Problems

Different theorists and educators assess children for learning difficulties according to their own particular theoretical model for conceptualizing the child and the learning process. An examination of the literature shows lack of common agreement on what is most important to assess in a screening program.

Ilg and Ames (1964) say that the facets in child development related to school achievement are language, cognition, sensory, perceptual and physical motor development. They propose a Developmental Examination of about half an hour in length with norms for the various tasks spanning five to ten years of age. The examination falls into seven separate parts:

1. The initial interview

2. Pencil and paper tests

3. Right and left tests

4. Form tests

5. Naming of animals for 60 seconds

6. Concluding interview

7. Examination of teeth

The full details of the tests, norms, and interpretations are described in the book School Readiness by Ilg and Ames (1964).

The tests purport to determine a child's readiness or lack of readiness for a proposed school grouping so that the child is in a grade which suits his abilities and developmental maturity. Except for recommending ungraded groupings for the early grades, few teaching strategies or remedial suggestions for specific developmental difficulties are given.

The factors identified by DeHirsch, Jansky and Langford (1966) as significantly associated with later performance in reading are: presence or absence of hyperactive, distractible, uninhibited behavior; gross motor patterning; fine motor control; graphomotor ability; human figure drawing (body image); visual-motor integration; receptive language skills; expressive language; visual perception; integration of intersensory information; ego strength; and work attitude.

They put together a battery of tests which reflected the child's perceptuomotor and linguistic status in kindergarten and the tests were correlated with end-of-second-grade reading achievement test scores.

A number of the tests did not show strong, predictive ability. Intelligence quotients ranked only twelfth among predictive measures. The tests predicted better for girls than for boys. Family history of language and handedness was not associated with second-grade achievement. Measures of home environmental stimulation also did not correlate; and gross motor skills, figure-ground discrimination and lateralization or established handedness did not correlate with second-grade achievement.

However, hyperactive, distractible and disinhibited behavior was positively associated with poor second-grade achievement, as was fine motor control, as measured by the Pegboard Speed test, and graphomotor ability (pencil grasp and name writing). Human-figure drawings (body awareness) and the Bender Visual Motor Gestalt Test also showed a positive correlation. Five oral language tests, three receptive (Imitation of Tapped-out Patterns, Wepman's Auditory Discrimination Test and the Peabody Picture Vocabulary Test) and two expressive (Number of Words Used in a Story and Organization of a Story) correlated with second-grade achievement. All reading readiness tests (Name Writing, Letter Naming, the Horst Test, Gates Matching and Rhyming Subtests, Word Recognition and Reproduction of Words Previously Taught) correlated significantly, while Letter Copying did not correlate with second-grade achievement.

DeHirsch, Jansky and Langford conclude that all these tests reflect the ability to organize parts into a meaningful whole (integrative ability). They maintain that the child must be able to use information gained from both auditory and visual clues for reading; in other words, he must be able to integrate intersensory information. The positive correlations between ego strength and work attitude and later achievement are also reflective of the child's integrative maturation, say DeHirsch, Jansky and Langford.

From this information DeHirsch, Jansky and Langford put together a Predictive Index of ten tests that they felt would best correlate with end-of-grade-two reading and spelling achievement. The ten tests are:

Pencil Use
Bender Visual-Motor Gestalt Test
Wepman Auditory Discrimination Test
Number of Words Used in a Story
Categories
Horst Reversals Test
Gates Word Matching Test
Word Recognition I
Word Recognition II
Word Reproduction

The administration and scoring of these tests are described in

Appendix II of Predicting Reading Failure by DeHirsch, Jansky and

Langford (1966). They offer good descriptions of the high risk child

and some general educational strategies. They recommend that the

predictive index be given to all kindergarten children during the

second half of the kindergarten year and that first-grade entrance

be based on the child's score combined with the teacher's observations.

They also recommend "small transitional classes" between kindergarten

and first grade for children who are not "ready". Teaching methods,

they state, in such a small class would be tailored to the pupil's

individual needs, would be more structured than in kindergarten and

would provide for more individual guidance. The curriculum for such

a class would cover: orientation in time and space, body image

development, expressive language development, auditory discrimination

and memory development, visual perception, especially figure-ground

development, conceptual development and prereading instruction.

Children would be integrated into a grade one grouping as they are

ready.

In Preventing Reading Failure Jansky and DeHirsch (1972) expand

their study and come up with the five best predictive tests: letter

naming, picture naming, word matching (Gates Reading Readiness subtest),

copying of the Bender Gestalten, and sentence repetition (Binet Sentence Memory).

From this study Jansky and DeHirsch devise a screening process and battery which combines the teacher's subjective rating with an objective rating based on the five tests and administered by another teacher. To determine a high risk group in the early spring they recommend a cut-off-point equal to the percentage of failing readers at the end of grade two plus ten percent. This has to be calculated for each school. This high risk group is then diagnosed by a battery of tests in four areas:

1. Visual Motor Organization

    Pencil Use
    Bender Gestalt
    Name Writing
    Spelling

2. Oral Language

    Picture Naming
    Oral Language
    Categories
    Sentence Memory
    Boston Auditory Discrimination Test
    Letter Naming

3. Pattern Matching

    Gates Matching
    Nonsense Word Matching
    Tapped Patterns
    Sentence Memory

4. Pattern Memory

    Blending
    Word Recognition
    Spelling
    Boston Auditory Discrimination Test
    Letter Naming

The diagnostic battery is administered and a profile of the child's learning strengths and weaknesses is developed. The book Preventing Reading Failure by Jansky and DeHirsch (1972) describes how teachers' ratings, the screening test and the diagnostic battery are administered.

DeHirsch goes on to describe general intervention models including medical screening, programs involving parents, and programs focused on children. Among the programs focused on children, she discusses modification of neurological organization, large motor training, visuomotor and perceptual training, oral-language training and packaged programs. She makes the point that it makes no sense to train older high risk children (five or six) in areas which are only remotely related to reading. The training of such children should concentrate on competencies directly related to specific educational goals such as reading.

Intervention programs should begin as early as possible in infancy and concentrate on the mother-child dyad. Home programs for infants should naturally lead into family centers for toddlers and into kindergarten programs. Kindergarten screening programs should result in profiles of individual weaknesses and strengths and teaching strategies tailored to each child's needs.

DeHirsch recognizes that of prime importance is the relationship between the teacher and the child. It is only through the relationship with a warm and supportive teacher that the child can acquire the inner controls to reduce impulsivity and anxiety and to direct his attention in order to learn.

DeHirsch recommends transition classes to prepare identified children for the demands of first grade. Continued re-evaluation and intervention

through the elementary grades are also recommended. The training of
school personnel, the active involvement of parents and the extensive
training and use of volunteers, students and community-based personnel
are a necessity.

Beyond these general recommendations no specific teaching techniques
and remedial suggestions are given for particular developmental difficulties
identified by the screening and diagnostic program.

Haring and Ridgeway (1967) in their study proposed eight areas of
child development as representing the basic processes necessary for the
performance of academic tasks. The areas are visual perception, eye hand
coordination, auditory discrimination, visual attention span, directionality,
auditory attention span, large muscle coordination and general language
development.

A sample of kindergarten children was assessed in these areas by
commonly used diagnostic instruments. They concluded that the kindergarten
teacher has a key role in the identification of children with learning
disabilities, and that the sampling of behavior on diagnostic tests doesn't
produce as good a prediction of learning problems as does structured
teacher observations. Also, of all the variables measured by the tests,
the most significant in predicting learning problems was general language
development. They concluded that the best approach in identifying and
helping children with learning problems was an individual behavior
analysis by the teacher in the regular classroom environment. The crux
of a learning problem involves ongoing relationships between the child
and the learning situation. The most adequate basis then for prevention

and/or remedial teaching decisions is provided by an ongoing analysis
of classroom behavior, with emphasis on the skill performance and language
related variables as they involve classroom learning tasks.

Rogolsky (1968) recommended that a comprehensive screening program
be established in kindergarten. Since the etiology of learning problems
is so unclear, she said that a screening program should use a variety of
measures which tap visual, perceptual, and verbal fields. Rogolsky says
that Koppitz's work with the Bender Gestalt test suggests that the
visual-motor abilities are strong predictors of success. She also
supports DeHirsch, Haring, and Ridgeway's stance that gross motor dis-
abilities are not predictive of learning problems. Also following
DeHirsch and Haring and Ridgeway, she suggests that language tests, like
the number of words used in recounting a story, and a short measure of
non-meaningful verbal ability - perhaps the ITPA Digits - be used in a
screening program.

Rogolsky calls for screening at the kindergarten level for emotional
disturbances, intellectual functioning and learning disorders, with the
results examined at the end of one or two years.

Longitudinal studies (Keogh and Becker, 1973 and Keogh and Smith, 1967),
primarily on the Bender Gestalt test, demonstrated that although there
are consistent statistically significant relationships between Bender
scores in kindergarten and later school achievement, one cannot predict
with certainty the meaning for a particular child.

Keogh and Smith (1970) found teacher evaluations of kindergarten children surprisingly accurate five years later for both high risk and high potential children. They found the Bender Gestalt more accurate for the identification of high potential than high risk children. Keogh and Smith (1970) state that more predictive information is gained from a child's performing well on tasks than from the fact that he doesn't perform well. Findings of deficiency, common in psychoeducational diagnosis, may be less valid for school prediction than is specification of competencies. The more critical factors for high risk children may be differences in maturity, experience, school atmospheres, teaching styles, and motivational variables.

Keogh and Becker (1973) in their article "Early Detection of Learning Problems: Questions, Cautions, and Guidelines," draw attention to the distinction between the medical or disease model of identifying a deficiency in the child and the educational model for predicting that a child is at risk in an educational setting. They emphasize that in the educational model we are hypothesizing rather than confirming, predicting that when a child is exposed to a reading program he will develop a reading problem. Three major questions are raised by Keogh and Becker:

1. How valid are the identifying or predictive measures?

2. What are the implications of diagnostic data for remediation or educational intervention?

3. Do benefits of early identification outweigh possible damaging or negative effects of such recognition?

(Keogh and Becker, 1973)

Of critical importance to the validity question is the specification

of outcome goals. The validity of any screening program is clearly related to how it achieves the defined goals. Also of importance are the validity and reliability of the test items that are used to predict later school success or failure. For various reasons, say Keogh and Becker, many test items do not stand up to prediction of later school failure. Even IQ, within the low average to superior range, has only a limited relationship to school performance, and children with high IQ's can fail. These children are often called learning disabled. Compounding this problem is the fact that in the early years IQ is malleable and is not a predetermined trait. (Keogh and Becker, 1973).

Other studies of physical motor, perceptual motor, cognitive and language factors, as reported by Keogh and Becker (1973), show limited predictive value. They conclude that there are few inherent, stable traits of the individual which allow for long term prediction. Individual characteristics change as a function of interaction with the environment, the learning task and the situation. Instructional variables and situational effects must be taken into account in early screening.

In regard to remedial educational intervention, Keogh and Becker make the point that it is often difficult to match a given child with an appropriate preventive or remedial strategy on the basis of much of the psycho-educational predictive data. Most recommendations are for individualized or small group instruction, with possibly some perceptual training and counselling. They state that it is not always possible to determine the most optimal remedial intervention and that the selection of diagnostic data and educational techniques may be a function of investigator point of view, program availability, intuition

or luck as much as of the child's characteristics.

Possible negative effects of early identification may be the raising of teacher expectancies which affect treatment patterns and a self-fulfilling prophecy effect on the child's behavior. The raising of parent and teacher anxieties may have unknown effects on the child's affective and motivational development. These expectancies and these anxieties involved in early identification may be harmful.

On the basis of information available about the general areas of concern, Keogh and Becker make suggestions for early identification programs. They suggest that screening programs specify immediate and future outcomes. They propose a task analysis of the skills that it takes to be successful in the present environment and evaluative measures which tap these abilities. Specifically, does the preschool child have the skills and abilities necessary to perform successfully in the kindergarten? Does the kindergarten child have the skills necessary to master the demands of the first grade program? Has the child learned the prereading skills that will enable him to succeed at reading?

Secondly they propose that the child's competencies should be specified and used in the educational program to maximize success despite possible delays or deficiencies in some developmental dimension. The use of high competence skills in instructional strategies will help the child compensate for deficiencies and will minimize anxiety and concern over possible deficits. This would reduce confounding and complicating secondary problems.

A third guideline is that the basis of early identification be broadened from the exclusive focus on child data to a consideration of task components and situational variables (Adelman, 1970). A task analysis of the components of reading, program characteristics and expectancies in each classroom, as well as child characteristics need to be considered in determining if a child is "ready" or "at risk".

Fourthly, Keogh and Becker call for screening based on direct observation of classroom behavior and analysis of the child's problem solving styles, rather than an individually administered standardized test battery. They say that the classroom teacher observing and analyzing the child's behavior over a period of time is the most effective means of predicting later school achievement. They call for the preparation of the teachers for this role.

Finally, they say that assessment should provide educational programming direction. Techniques which identify but provide no educational direction.lack power. Keogh and Becker call for behavioral observation techniques which pinpoint functional aspects of a child's performance which might be used as the bases for instruction.

They conclude that early identification will only be effective relative to the educational programs available to accommodate the child. A focus on effective programming is more productive than searching for precise measures for early identification of individual children.

A recent long term study by Satz, Taylor, Friel and Fletcher (1977) is a six year follow-up on the developmental and predictive precursors of reading disabilities. Satz, et al. developed a battery of twenty-two predictor variables administered to kindergarten children in 1970. In

1974 he found that the Finger Localization Test had the highest discrimina-
tory ranking, with Recognition-Discrimination, Day of Testing, and Alphabet
Recitation, ranking second, third, and fourth respectively. The six year
follow-up study (1977) resulted in the Finger Localization Test ranking
highest in predicting reading ability followed by the Peabody Picture
Vocabulary Test (PPVT), Beery, and the Alphabet Recitation Test.

In another related one year follow-up study of language readiness,
Satz et al. (1977) added language measures and a socio-economis status (SES)
measure to the abbreviated battery of sixteen tests. Of these additional
measures, SES ranked highest followed by the ITPA Grammatic Closure,
PPVT, Word Fluency, Berry-Talbot and Syntax tests. When statistically
analyzed with the other tests, SES again ranked highest, followed by
Alphabet Recitation and Finger Localization. Satz concluded that while
cultural, linguistic, conceptual and perceptual skills all play an
important role in forecasting later reading achievement, in terms of
predictive power the contribution of psycho-linguistic variables may be
secondary to the preconceptual sensory-motor and perceptual skills during
the ages five to seven. Satz et al. (1977) say that this is consistent with
studies by White (1965), Palermo and Molfese (1972), Gruen (1972),
Jansky and DeHirsch (1972), and Rourke and Orr (1976).

The Gruen study (1972) found that perceptual-motor tests are more
predictive of reading ability in grade one than are cognitive-intellectual
tests, but that by grade three just the reverse is true. This supports
Satz's finding.

In a study by Lindgren (1975) the most discriminating tests for grade
one reading ability were Letter Naming, PPVT, IQ, Beery (VMI) and Finger
Localization.

The Rourke and Orr study (1976) compared the WISC and the PPVT with a visual discrimination measure (Underlining Test) in predicting follow-up reading achievement (four years) from grades 1 - 2 (ages seven-eight) to grades 4 - 5 (ages eleven-twelve). The authors found that the speeded visual discrimination test (Underlining Test) was most potent in identifying retarded readers who are high risk at ages seven-eight with respect to eventual reading and spelling achievement at ages eleven and twelve.

These studies in the early identification of learning problems outline the areas for assessment in kindergarten screening, and Keogh and Becker's article (1973) outlines cautions and guidelines for early detection. Zeitlin's book (1976) outlines the procedures for kindergarten screening.

Kindergarten Screening Procedures

Zeitlin (1976), in her book Kindergarten Screening, outlines the procedures for setting up a kindergarten screening program and provides a screening instrument that tests language, cognitive development, auditory and visual memory, gross motor and visual motor performance, body image, directionality and laterality.

In any screening program, which includes both assessment and programming, Zeitlin feels that the setting of goals and objectives are important to give direction to the program. The major goal of screening she feels is "to set appropriate expectations for all children and to design appropriate experiences so that they may have success in the classroom as they move toward acquisition of the basic skills necessary to function in our society" (Zeitlin, 1976, p. 9). The broad goals should then be translated into a number of program objectives which behaviorally describe the procedures necessary to reach the goals.

Depending on these goals and objectives, tests and techniques to assess children's needs should be chosen. Both the procedure and content of assessment need to be considered. Zeitlin suggests the following criteria for the selection of a screening instrument:

Procedure

1. short screening procedures of not more than a half-hour duration;

2. objective scoring - scoring of an instrument based on observable behaviors, rather than subjective judgements;

3. training procedures for examiners should be clear and not too complex;

4. screening should be administered to each child individually;

5. movement of child should be allowed for.

Content

1. multidimensional - should cover several areas of development;

2. noncategorical - only identify potential high risk children regardless of the reason for the potential learning problem;

3. items in battery should be appropriate to age range to be assessed;

4. cultural difference - items should not reflect any one culture;

5. should be paced to hold the attention of the child.

(Zeitlin, 1976, pp. 44 - 47)

As well, Zeitlin says that reliability and validity information about the screening instrument should be known.

The screening instrument should assess those areas of child development and those situational variables that the screening committee feel are important for the child's success in the school program. As well

the screening instrument should provide information useful for modifying

the school program and provide what Zeitlin calls a "personalized

learning program".

Next Zeitlin says a plan for procedure needs to be developed. This

plan includes time and place of screening; how and when to notify parents;

the amount and type of parent involvement before, during, and after the

screening; the routines for the child, parent, and staff on the day of

screening; and the training and supervision of involved personnel. Cost

also needs to be considered.

Once the screening has identified the target children there must be

a follow-through plan. Zeitlin (p. 108) asks the question: "Is the

screening program to be a short-term remedially-oriented project or is

it the start of 'personalized learning'?" She says that any follow-

through program has to be flexible, diverse, long-range, and have goals

and objectives to assess its progress. She goes on to describe a "Model

for Personalized Learning".

Zeitlin's flow chart of a kindergarten screening program is shown

in Table I.

Zeitlin (1976) says that screening can be a negative force if the

program has any of the following abuses:

1. using screening as diagnosis, i.e. making important
   decisions on a child from too little, inadequate or
   inappropriate information, or from only a single involve-
   ment;

2. using screening to exclude children from kindergarten;

3. using screening to place labels that stigmatize children;

4. not recognizing the impact of cultural differences;

5. not recognizing the impact of bilingualism;

TABLE I

Kindergarten Screening Program

Initiator

Planning Committee

Development of Goals and Objectives of Program

Plan for Implementation of Screening

parent time cost method areas   techniques   personnel
of   and/or   choice and
assessment   instruments   training
for assess-   supervision
ment

Screening

Parent notification   Interpretation of Data   Analysis of Group Data

Parent Counselling Education Involvement   Diagnosis or Referral of Identified Child

Prescription for Child   Examination of Existing Educ. Program

Implementation   In-service Training

Evaluation of Program

Redesign Where Appropriate

(Zeitlin, 1976, p. 17)

6. using screening as a program in isolation, i.e., having no goals and objectives, and having no follow-through program;

7. using screening to reinforce and justify existing curriculum-centered programs and to explain the failure of children who do not fit in;

8. focusing on weaknesses of children and ignoring their strengths;

9. allowing attitudes and values of the assessors which are not supportive of the child;

10. using screening to create and implement checklist curriculums.

(Zeitlin, pp. 175 - 176)

In regard to labelling Zeitlin states that if labels focused on the educational needs and services required, rather than on etiology it would facilitate getting the child help with less stigma attached. Furthermore, she says that the focus should include identification and utilization of strengths.

She says that a common abuse is the use of screening as if it were an end in itself. When there are no goals and objectives, the screening may not relate in any planned way to the educational program of the school. This can happen through lack of knowledge and experience or lack of communication between those who initiate the screening and those responsible for the follow-through.

Screening should be part of the total educational process to help the educator plan more effectively to prevent learning problems rather than institute remediation after the fact. Screening should facilitate child-centered communication among teachers, specialists, administrators, and parents. It should result in more involvement by the parent with the school in order to find more effective ways to help the child experience

success. Success must be defined in terms of curricular and behavioral expectations. Flexible and personalized learning programs are the goal. There is a need to match what the child is able to do with what we are asking him to do, says Zeitlin.

Summary

All researchers and educators surveyed agree on the need for early detection and intervention to prevent learning problems. The rationales for doing this stem from economic, social, psychological and educational sources. The assumptions underlying these rationales are basically that there are conditions in the child that, when identified, will lead to appropriate educational experiences and that the earlier treatment is begun, the more impact it will have. Also assumed is that early treatment, before the problem develops, will prevent other secondary social and emotional problems.

There are basically four models or theoretical approaches to early identification and treatment of potential learning problems. The Developmental Model compiles a pattern of strengths and weaknesses in those areas of child development assumed to relate to learning, and on this basis devises a unique educational prescription for a child.

The Behavioral Model objectively observes, describes and measures behavior related to learning and modifies interfering behavior and builds appropriate behavior through operant conditioning techniques as they can be applied by a teacher in the classroom.

The Information Processing Model presents a theoretical model of the learning process whereby information is received, processed, and expressed. These various stages are assessed for strengths and weaknesses

and an educational plan is devised to remediate weaknesses and utilize strengths.

The Interaction Model looks at learning as an interaction between the development of the child, the ability of the child to integrate, process and express information, and the influences of the situation. Through transactions the child constructs understanding and competence and moves through various tasks at successive stages of development. Assessment includes the child's development, his information processing abilities and his environmental influences.

Different theorists and researchers in the area of early identification of potential learning problems have identified a number of key areas in child development that are related to success at school. Among these are the ability to attend to relevant areas in the learning situation, the ability to delay gratification and persist, positive work attitude, visual-motor integration, fine motor control and speed, verbal expressive ability, letter naming, picture naming, word matching, sentence repetitions and finger localization. There are short tests that measure these abilities with some validity and reliability and do discriminate the potentially successful from the unsuccessful learner.

The key to early identification is the kindergarten teacher's observing and evaluating in a structured way the child's ability to listen, understand directions, his need to move about, his pleasure in working with crayons and pencils, his ability to work alone, his persistence, and his independent thinking. These subjective evaluations combined with the more objective assessments and an analysis of the expectations of the kindergarten and grade one teaching environments and of the reading task itself

seem to be the factors which, when combined, would give a good prediction as to whether a child would have problems learning in grade one and beyond.

The difficult part isn't really identifying the high risk child but in doing it in a way that relates to the educational program so that relevant teaching strategies can be planned to prevent failure. This is why program goals and objectives, analysis of the kindergarten and grade one expectancies and requirements, and analysis of the demands of the reading task itself are important. What are the skills and abilities needed by the child to be successful in kindergarten, in grade one and at reading? What are the important objectives of the kindergarten, the grade one classroom and of the reading task that must be mastered in order to be successful? Matching the child's skills with the demands of the academic task and environment is necessary to prevent failure. The closer the assessment is to this issue, the more likely it is that a helpful educational program will be planned.

To avoid negative labelling the assessment should not only identify deficiencies, but should also spell out the child's competencies in the learning environment and at the reading task. This would also help in planning educational strategies that utilize the child's strengths to help him compensate for weaknesses.

As well, the screening instrument's procedure and content should follow Zeitlin's (1976) criteria and the instrument and items should have established validity and reliability.

The information obtained from such a screening procedure should tie together child specific data with environmental and educational program data in a way that provides teaching strategy suggestions and remedial

activities. There must be a program associated with the screening instrument.

Furthermore there should be a resource available for diagnosis for those children screened as potentially high risk. Important decisions about the child should not be based on screening information alone.

The educational strategies attached to the kindergarten screening program should not just be remedial to the kindergarten year but should relate to program planning for the next year and following years. Suggestions for ungraded groupings in the primary years (Ilg and Ames, 1964) and for transitional classes to grade one (DeHirsch, Jansky and Langford, 1966) pertain here. Other follow-through strategies include making the most compatible placement between teacher and child, modifying expectations and planning "personalized learning programs" (Zeitlin, 1976) in grade one.

At the screening stage and at the implementation of educational strategies stage, a key element is in-service training for the personnel involved. The administration of the screening instrument, the mechanisms of handling time and place factors, the working out of the details of how the screening process fits into the kindergarten routine and the interpretation of the data from the process, the handling of parent notification and parent counselling, education and involvement, should all be topics for in-service. Research has shown that active parent involvement in the early education of their child is an important factor in success for the child (Jansky and DeHirsch, 1972).

The implementation of the screening and diagnostic data into teaching strategies and remedial activities that are a natural part of the kinder-

garten program should be another in-service topic. The transition of these program data to grade one and their implementation there might be another in-service topic. How to evaluate the programs for each child and redesign them where appropriate is still an additional in-service topic.

To implement a screening program into the normal school routine requires participation of school personnel in the decision making process and in-service training.

General Guidelines for Kindergarten Screening

From the review of the literature on kindergarten screening it was possible for the reviewer to state the following general guidelines for kindergarten screening.

1. A kindergarten screening planning committee should be established.

2. Goals and objectives for the screening program ought to be specified.

3. The plan for implementing the screening program needs to include: time and place of screening assessment; how and when to notify parents; the amount and type of parental involvement before, during, and after the screening; the routines for the child, parent, and staff; the training and supervision of involved personnel, and cost decisions.

4. The assessment part of the screening program should provide a structure to relate parental background information, teacher subjective observations, and more objective assessment information in a meaningful way.

5. All children need to go through the screening assessment.

6. The screening assessment should be short (one-half hour), individually administered and cover all children in the kindergarten program. The screening instrument test items should be multidimensional, appropriate to the children's age range, unbiased culturally and have demonstrated validity and reliability.

7. The data should reveal strengths as well as weaknesses in the child's relationship to the learning situation.

8. The screening assessment information needs to relate meaningfully to the kindergarten program so that remedial activities, teaching strategies and educational program changes can be arranged for individual children.

9. Follow-up diagnostic assessment for identified children needs to be available. The screening instrument should not be used as a diagnostic

instrument but only as a screen to separate out potentially high risk children.

10. The key person in the screening program should be the kindergarten teacher. This person needs to be able to relate his/her subjective observations with the more objective assessment data in a way that provides for teaching strategies and remedial suggestions that fit naturally into the kindergarten program.

11. Besides being involved in giving background information on their child during the screening assessment, parents need to be involved in the remedial program changes, in decisions for referral to diagnosis and in long term educational decisions for their child.

12. Periodic evaluation and redesign of each child's educational program must be provided.

13. Screening personnel need in-service training in screening assessment, and planning and evaluating individual educational programs.

14. Teaching strategies, remedial suggestions and program planning need to follow through to grade one and, after evaluation and redesign, to succeeding grades.

CHAPTER III

STATEMENT OF THE PROBLEM

This study evaluated the kindergarten screening program as it
was operationalized during the school term, September to June, in a
suburban school district near Vancouver, British Columbia, Canada.
It evaluated the procedures used during the screening program against
criteria identified from a review of the literature. Also the study
followed-up a year later to see how effective the screening program had
been in pre-identification of those children who, at the end of grade one,
were diagnosed as having learning and reading problems.

The research questions to be answered by this study were of two
general types: questions about the (i) organizational and assessment
procedures and (ii) identification effectiveness of the kindergarten
screening program.

Specifically the procedural questions were:

1. What are the objectives and procedures set by the administrative
   guiding committee for the kindergarten screening program?

2. What are the actual objectives and procedures used in the schools
   during the implementation of the screening program?

3. How do the objectives and procedures for the kindergarten screening
   program relate to the general guidelines for kindergarten screening
   determined from a review of the literature?

4. How does the Santa Clara Inventory of Developmental Tasks (I.D.T.),
   used for both assessment and remedial suggestions, compare to other

omnibus screening batteries in:

a) theoretical orientation,

b) areas of behavior assessed,

c) availability of statistical reliability and validity data,

d) administration time

e) availability of program and remedial suggestions?

In order to assess the effectiveness of the kindergarten screening program in identifying children with learning and reading problems, teacher rating and a reading test at the end of grade one were used to determine the percentage of true negatives, true positives, false negatives and false positives.

Specifically the identification effectiveness questions were:

1. What percentage of those children identified as 'high risk' by the kindergarten screening program were also identified as having learning problems by grade one teacher ratings at the end of grade one? (True Negatives)

2. What percentage of those children identified as 'high risk' by the kindergarten screening program were also identified as having reading problems by the Gates-MacGinitie Reading Test (Level 1, Primary Form A) administered at the end of grade one? (True Negatives)

3. What percentage of those children identified as 'not high risk' by the kindergarten screening program were also identified as not having learning problems by grade one teacher ratings at the end of grade one? (True Positives)

4. What percentage of those children identified as 'not high risk' by

the kindergarten screening program were also identified as not having reading problems by the Gates-MacGinitie Reading Test (Level 1, Primary Form A) administered at the end of grade one? (True Positives)

5. What percentage of those children identified as 'not high risk' by the kindergarten screening program did have learning problems as determined by teacher ratings at the end of grade one? (False Positives)

6. What percentage of those children identified as 'not high risk' by the kindergarten screening program did have reading problems as determined by the Gates-MacGinitie Reading Test (Level 1, Primary Form A) administered at the end of grade one? (False Positives)

7. What percentage of children identified by the kindergarten screening program as 'high risk' did not have learning problems as determined by teacher ratings at the end of grade one? (False Negatives)

8. What percentage of children identified by the kindergarten screening program as 'high risk' did not have reading problems as determined by the Gates-MacGinitie Reading Test (Level 1, Primary Form A) at the end of grade one? (False Negatives)

9. What is the relationship between kindergarten identification by the screening program and grade one teacher ratings at the end of grade one? (Contingency Coefficient)

10. What is the relationship between kindergarten identification by the screening program and grade one achievement on the Gates-MacGinitie Reading Test (Level 1, Primary Form A) administered at the end of grade one? (Contingency Coefficient)

CHAPTER IV

METHOD

To evaluate the school district's kindergarten screening program, information was gathered on the screening goals and procedures as well as the identification effectiveness of the program.

Subjects

The subjects for the study included 77 kindergarten teachers, 40 learning assistance teachers and the five members of the administrative guiding committee who directed and implemented the kindergarten screening program.

Data were collected for 1078 grade one students who had undergone the screening process the previous year in kindergarten.

The school district was a suburban district of mainly white, middle-class people near Vancouver, British Columbia.

Procedural Flow of Events for the Kindergarten Screening Program Evaluation

September, 1976 - June, 1977 -
screening program conducted
with the kindergarten children.

↓

June, 1977 - information gathered
from the schools on the kindergarten
children's categorization on the
screen.

↓

September, 1977 - May, 1978 -
the children in a grade one program
except for nine from the 'high risk'
group who repeated kindergarten.

↓

May, 1978 - information on goals
and procedures was gathered by ⟶
interviews.

Goals and procedural
information described in
terms of Zeitlin's model
of a screening program and
evaluated in terms of
guideline criteria from the
review of the literature.

May, 1978 - grade one teacher
ratings gathered on all grade ⟶
one students. Ratings gathered
on 1078 children who had under-
gone the screening program in
kindergarten.

Teacher ratings crosstabulated
with screening categorization
and described in percentages
of true positives, true
negatives, false positives
and false negatives. Also
the relationship between the
screen and teacher ratings
established. Evaluation done
in terms of the effectiveness
of the screen to identify
children with and without
learning problems.

June, 1978 - Gates-MacGinitie
scores gathered on all grade ⟶
one students. Scores gathered
on 1051 children who had under-
gone the screening program in
kindergarten.

Gates-MacGinitie results
crosstabulated with screening
categorization and described
in percentages of true positives,
true negatives, false positives
and false negatives. Also the
relationship between the screen
and Gates-MacGinitie results
established. Evaluation done
in terms of the effectiveness
of the screen to identify
children with and without
learning problems.

Tasks

To evaluate the kindergarten screening program, a number of tasks
were performed. To gather a description of the process, the administrative
guiding committee was interviewed as to their goals, objectives and
intentions for each phase of the screening process and the kindergarten

and learning assistance teachers were interviewed as to the procedures
involved in their individual schools. This descriptive information
from the screening personnel was then evaluated in light of the guidelines
for kindergarten screening drawn from a review of the literature.

Another task was the collection of outcome data on the effectiveness
of the kindergarten screening program in identifying children with
learning and reading problems. This was done by matching a kindergartener's
categorization on the screen ('high risk' or 'not high risk') with his
categorization at the end of grade one on his teacher's rating (1: no
learning problems, 2: uncertain, 3: definite learning problems) and
his standard scores on the Gates-MacGinitie Reading Test. The data were
matched, coded and placed on computer cards. Crosstabulations, Chi-square
values and contingency coefficients were calculated using the Statistical
Package for the Social Sciences (SPSS) program. Also percentages of
True Positives, True Negatives, False Positives and False Negatives
between the kindergarten screening results and teacher ratings were
calculated. This entire procedure was repeated for the Gates-MacGinitie results.

Procedure

The information as to the goals, objectives and intentions of the
administrative guiding committee was gathered in an interview by the
researcher. Information as to general goals for the program as a whole,
history of the program's development and the objectives and intentions
for each phase of the program was gathered. Information about each of
the screening instruments and their intended use was also gathered in
this interview. The interview was taped and conducted in an open-ended
style. Such statements as "Tell me about the reasons you had for

implementing the screening program" and "Tell me about the assessment

phase of the screening program. What was supposed to happen?" were

used to encourage the committee to talk about their intentions for

each aspect of the screening program. The tape of the interview was

transcribed to answer each of the questions on the questionnaire

(Appendix I).

To obtain information as to how the screening program was

implemented in each school, the kindergarten teachers and learning

assistance teacher(s) in each school were interviewed. These interviews

were conducted by the Special Counsellors in the school district after

instructions as to how to conduct the interviews. They followed a

structured interview questionnaire (Appendix II) in recording the

information, but the interviews were conducted in a more open-ended

manner. For example, such statements as "Tell me about what planning

went on in the school before the screening program began" or "Run

through the various steps in the actual screening assessment itself in

this school", were followed by more detailed questioning to fill in

specifically required data. In general the intent of this format was

to gather objective performance data in the least obtrusive manner

possible.

The interviews covered the ten phases of the screening program:

1. Planning before the screening program

2. Screening

3. Interpretation of data

4. Diagnosis and/or referral

5. Planning the individual remedial activities program

6. Parent notification and involvement

7. In-service training of screening personnel

8. Implementing individual remedial activities programs

9. Evaluation and redesign

10. Follow-through to grade one.

The interview questionnaires were constructed following Zeitlin's model shown in Table I on page 24 in the Review of the Literature chapter. On this table Zeitlin outlines the type of activity that should take place at each phase of a screening program.

The information gathered by the interview with the administrative guiding committee and by the interviews with the kindergarten and learning assistance teachers at each school was designed to answer the first two procedural questions. This descriptive information is presented in both narrative and tabular form (Chapter V). To analyse these data and answer question 3 in terms of whether they meet the criteria of the general guideline for kindergarten screening, taken from the review of the literature, a table stating whether the screening program has met the standard, has partially met the standard or has not met the standard, was constructed. The implications of this are discussed in the concluding chapter.

To answer question four and compare the Santa Clara I.D.T. to other omnibus screening batteries, the literature was surveyed and better known omnibus screening inventories that would be suitable for use in a kindergarten screening program were chosen. The screening inventories are tabulated as to their date of publication, theoretical orientation, areas of behavior assessed, age appropriateness, availability of

statistical reliability and validity data, administration time and the availability of program and remedial suggestions. The suitability of the Santa Clara I.D.T. on these points is then discussed in the concluding chapter.

In order to evaluate the identification effectiveness of the kindergarten screening program and answer the outcome questions, the data on each previously screened student were gathered at the end of grade one. Gathered and matched for each student was his categorization on the screen ('high risk' or 'not high risk'), his grade one teacher rating (1, 2, or 3) and his standard score results on the Vocabulary and Comprehension subtests of the Gates-MacGinitie Reading Test (Level 1, Primary Form A).

The screening data as to whether a student was categorized as 'high risk' (HR) or 'not high risk' (NHR) were gathered in June of the previous school term. The HR kindergarteners were those who had received a kindergarten teacher rating of 3 (definitely has learning problems) or two 2 (uncertain) ratings in two subsequent rating periods and had then been assessed by the learning assistance teacher using the Santa Clara I.D.T. To qualify for the categorization of HR the kindergarteners had to have failed (i.e., a 0 or a 1) on two or more tasks below criterion for their age in one or more areas on the Santa Clara I.D.T. (Appendix V).

To qualify for the categorization of NHR, the kindergartener was rated a 1 (no learning problems) or had only one 2 (uncertain) rating and was not subsequently assessed on the Santa Clara I.D.T. If the kindergartener was assessed on the Santa Clara I.D.T., he was successful to criterion

on all tasks.

The HR and NHR students were categorized at the end of the kindergarten term to allow for change from initial rating to final reassessment.

A year later during the last week of May, all the grade one students were rated a 1 (no learning problems), a 2 (uncertain), or a 3 (definite learning problems) by their grade one teachers.

A week later, during the first week of June, all the grade one students were administered the Gates-MacGinitie Reading Test (Level 1, Primary Form A) in small groups as per the instructions in the Gates-MacGinitie manual. The standard scores for the Vocabulary and Comprehension subtests were recorded and collected. The Gates-MacGinitie was administered following the teacher ratings to insure that the grade one teachers were not influenced by the test results.

During the last week of June, one month after the original teacher ratings, 17 grade one teachers or 10 percent of the 170 grade one teachers were asked to re-rate their students. Every tenth teacher on an alphabetical list was chosen. This was done in an attempt to establish the reliability of the teacher ratings. The LERTAP computer program was used in calculating the test-retest reliability coefficient.

For each student who underwent the kindergarten screening program and stayed to the end of the grade one program, the data on his categorization on the screening program (HR or NHR), his grade one teacher rating (1, 2, or 3) and his Gates-MacGinitie standard score results were matched and coded and placed on computer cards.

The data were subjected to the Statistical Package for the Social Sciences (SPSS) and crosstabulations resulted between categorization on

the kindergarten screen and categorization on grade one teacher ratings.

Crosstabulations were also calculated between the kindergarten screening

categorization and standard score results on the Vocabulary and

Comprehension subtests of the Gates-MacGinitie Reading Test.

Two by three cell tables were printed showing the numbers of

students in each cell for kindergarten screen (HR, NHR) by teacher rating

(1, 2, 3) and for kindergarten screen by Gates-MacGinitie standard score

(60^{+}; between 40 - 60; 40^{-}) for Vocabulary and Comprehension subtests.

From these tabular results, percentages were calculated to answer

the first eight identification effectiveness questions. To answer

identification effectiveness question one, the number of children

categorized HR by the kindergarten screen and rated by their grade one

teachers as definitely having learning problems (a 3 rating), was placed

over the total number of children categorized as HR by the screening

program. This was multiplied by 100 to calculate a percentage of true

negatives. Also the number of HR children whom the grade one teachers

rated as uncertain (a rating of 2) were placed over the total HR group

number times 100 to calculate a percentage of the HR group whom grade

one teachers were uncertain about with regard to learning problems.

To answer identification effectiveness question two, the number of

children from the HR group who achieved Vocabulary standard scores on

the Gates-MacGinitie of 40 (i.e., one standard deviation below the mean)

or less, were placed over the total number of children in the HR group

and multiplied by 100. According to the Gates-MacGinitie manual a

standard score of 40 or less indicates a reading problem. Similarly

a percentage was calculated for the Comprehension subtest of the Gates-

MacGinitie. These percentages reflect the true negatives using the Gates-MacGinitie Reading Test as a criterion measure.

To answer identification effectiveness question three, the number of children from the NHR group who were assigned a teacher rating of 1 (no learning problems) was placed over the total NHR group and multiplied by 100. This represents the percentage of true positives using teacher ratings as the criterion measure.

To answer identification effectiveness question four, the number of children from the NHR group who achieved a standard score of 60 (i.e., one standard deviation above the mean) or greater on the Vocabulary and Comprehension subtests of the Gates-MacGinitie was placed over the total NHR group and multiplied by 100. This represented the percentages of true positives using the Gates-MacGinitie as the criterion measure. Also, percentages of NHR children who achieved in the standard score range between 40 and 60 were calculated for Vocabulary and Comprehension subtests since the Gates-MacGinitie manual indicates this group of children also does not have reading problems.

To answer identification effectiveness question five, the number of children identified by the kindergarten screening program as NHR but who were rated as having learning problems (a 3 rating) by their grade one teachers was placed over the total number of NHR children and multiplied by 100. This was the percentage of learning problem children missed by the kindergarten screen using teacher ratings as the criterion. Also, the number of children identified by the kindergarten screen as NHR but rated as uncertain (a rating of 2) by their grade one teachers was placed over the total NHR group and multiplied by 100. These

percentages give an indication of the false positives or children
with learning problems who were missed by the kindergarten screen,
using teacher ratings as the criterion measure.

To answer identification effectiveness question six, the number
of children identified by the kindergarten screen as NHR but who
achieved on the Gates-MacGinitie Vocabulary and Comprehension subtests
as having reading problems (40 or less) was placed over the total
NHR group and multiplied by 100. These percentages give an indication
of false positives or children with reading problems who were missed
by the kindergarten screen using the Gates-MacGinitie as the criterion
measure.

To answer identification effectiveness question seven, the number
of children categorized by the kindergarten screen as HR but who were
identified as having no learning problems (a rating of 1) by their
grade one teachers was placed over the total group screened as HR and
multiplied by 100. This percentage gives an indication of false
negatives or children with no learning problems who were incorrectly
identified as HR by the screening program in kindergarten.

To answer identification effectiveness question eight, the number
of children categorized by the kindergarten screen as HR but who
achieved a standard score of 60 (one standard deviation above the mean)
or more on the Vocabulary and Comprehension subtests of the Gates-
MacGinitie was placed over the total number of children who were
screened HR and multiplied by 100. Also the number of children
categorized by the kindergarten screen as HR but who achieved a
standard score in the range between 40 and 60 were placed over the

total group screened HR and multiplied by 100. These percentages give an indication of the false negatives.

To answer identification effectiveness question nine and get an indication of the relationship between the kindergarten screening categorization and classification on teacher ratings at the end of grade one, a Chi-square value and a contingency coefficient were calculated using the Statistical Package for the Social Sciences (SPSS) program.

To answer identification effectiveness question ten and get an indication of the relationship between the kindergarten screening categorization and achievement on the Vocabulary and Comprehension subtests of the Gates-MacGinitie, a Chi-square value and a contingency coefficient were calculated by the SPSS program, separately for Vocabulary and Comprehension.

CHAPTER V

RESULTS

This chapter presents the data and statistical analyses used to evaluate the kindergarten screening program and answer the research questions in two areas: procedural questions and identification effectiveness questions. To answer the procedural questions information is presented from the administrative guiding committee and from the school based personnel. This information is related to the general guidelines for kindergarten screening. Also the Santa Clara I.D.T. is compared to a number of omnibus screening batteries.

To answer the identification effectiveness questions data based on end of grade one teacher ratings and Gates-MacGinitie Reading Test results are presented and coded in terms of percentages of true positives, true negatives, false positives and false negatives. Also statistics are calculated to show the relationship between the kindergarten screen and the end of grade one measures.

These data and statistical analyses were used to evaluate the effectiveness of the kindergarten screening program in both procedure and identification of children with reading and learning problems.

Information from the Administrative Guiding Committee

The interview with the administrative guiding committee produced the following information about committee membership, screening objectives, procedures and instruments.

The administrative guiding committee was made up of the supervisor

of primary instruction, the supervisor of learning assistance programs, an elementary learning assistance teacher, a kindergarten teacher and a special counsellor.

Although no written goals and objectives were available, the following information regarding goals was gathered in the interview.

The guiding committee intended that the kindergarten screening program identify children with potential learning problems early in their school career so that chances of their being successful might be increased. In addition to identification the committee wanted a program to catch the children early enough in the kindergarten program so that activities and strategies could be planned to help the child. Also, the committee wanted information for grade one grouping and programming.

The screening program was intended to be as much a natural part of the kindergarten program as possible: observing, assessing, planning and programming within the natural routine of the classroom. This was intended to be a natural school function and parents were not involved during the initial stages. However, when the children's difficulties were established and remedial activities selected, parents were notified and participated in the planning for their child.

The guiding committee said that the screening program was piloted in two elementary schools for a year under the committee's close supervision. It was intended to expand to ten schools the next year, but at the request of elementary school principals, the screening program spread to all 24 elementary schools in the district. This rapid expansion without adequate preparation for the personnel involved

led to confusion and lack of controlled feedback. Also, in-service
training for the screening personnel was inadequate.

The Screening Program. The committee stated that the screening
program involved the kindergarten teacher's observing the child in the
classroom in the first six weeks of school and by the week of October
24 completing a subjective evaluative rating on each child of 1 (no
learning problems), 2 (uncertain), or 3 (definite learning problems).
Also by the week of October 24 the teacher was to complete a behavioral
checklist on the children judged as having learning difficulties. The
checklist was taken from the Westinghouse CHILD program (Appendix III).

Two more rating and checklist periods were scheduled, and after
each period the learning assistance teacher assessed only those children
rated as a 3 or as two 2's in a row, on a modified Santa Clara Inventory
of Developmental Tasks (I.D.T.). See Appendix IV and V for the schedule
for testing and rating as well as the Santa Clara I.D.T. profile sheets
and modifications.

After each child's assessment by the learning assistance teacher
on a one-to-one basis outside the classroom, the learning assistance
teacher reported back to the kindergarten teacher and together they
planned remedial activities if necessary. Most remedial suggestions
were intended to come from the Santa Clara activities manual. However,
it was intended that the activities fit naturally into the kindergarten
program and that they be done in the classroom. If a child had fairly
severe difficulties the learning assistance teacher may have taken the
child for short periods of time. At this stage parents were notified
and invited to participate in an at-home phase of the child's program.

These programs were intended to be remedial for the weaknesses the child demonstrated on the Santa Clara I.D.T.

If the child demonstrated behavioral/emotional or severe learning difficulties it was intended that a referral go to the Special Counsellor for diagnosis and follow-up.

Evaluation and redesign of the child's program was intended to be on-going and flexible and decided upon by the kindergarten teacher or the learning assistance teacher in consultation.

By April 14 of the school term, the learning assistance teacher must have completed a retesting of those children previously assessed. The retesting involved testing on those items which the child failed previously. On the basis of this retesting the child's remedial program might be changed.

At the end of May or beginning of June, the Gates-MacGinitie Readiness Skills Test was given to all children. These results along with the Santa Clara results and the kindergarten and learning assistance teacher's observations went into the decisions for the child's programming next term. It was intended that the principal of each school be responsible for seeing that this follow-through happened in June and in September of the next school term. It was hoped that the information from the screening program helped the school decide on an appropriate grade one program for the child.

The Screening Instruments. The screening instruments chosen by the guiding committee were: teacher ratings, the Westinghouse Checklist and the Santa Clara Inventory of Developmental Tasks (I.D.T.). They were chosen because the committee wanted both the kindergarten teacher's subjective

observations and the more structured objective test information. The main reason the Santa Clara I.D.T. was selected was that it provided direct remedial suggestions that could be used in the classroom and by parents at home. Furthermore,the Santa Clara seemed to cover those developmental skill areas important to school learning.

Teacher Ratings

The kindergarten teachers were asked to rate all kindergarten children by the middle of October, as either a 1 (no learning problems), a 2 (uncertain), or a 3 (definite learning problems). Eaves, Kendall and Crichton (1974) report that a number of studies have shown that subjective ratings by teachers have validity in identifying children who have learning problems or will later develop learning problems -- Dykstra (1967); Haring and Ridgeway (1967); Keogh and Smith (1970). These writers agreed that initial identification and rating by the classroom teacher,who interacts with the child over a period of time, have validity as a screening technique.

The kindergarten teachers in the screening program were asked to rate their students at three different times. The times were October 24th, December 12th, and February 6th (Appendix IV).

The Westinghouse Checklist

The Early Identification Screening Inventory Checklist was chosen from the Westinghouse Learning Corporation's CHILD program (1974) by the guiding committee because the checklist was a fairly short (100 items) behavioral list of problems that related to school learning. The checklist sampled problem behaviors in Visual-Motor, Visual, Speech

and Hearing, Physical and Behavioral Factors, Psycho-motor, and

Psychological Factors.

The main reason such a checklist was chosen was to help

kindergarten teachers begin to structure their observations and

focus on significant problem behaviors.

The Westinghouse Checklist looked at some areas of behavior that

were similar to areas on the Santa Clara I.D.T.: visual-motor, visual,

speech and hearing and psycho-motor. The Westinghouse, furthermore,

added factors not included in the Santa Clara: physical and behavioral

and psychological.

Santa Clara Inventory of Developmental Tasks (I.D.T.)

In the kindergarten screening program, if a child received a

teacher rating of 3 or two 2's in two consecutive rating periods, he

was to be assessed on the Santa Clara I.D.T. by the learning assistance

teacher in the school. A remedial program was to be designed from

suggestions in the Santa Clara I.D.T. Activities Manual.

During the previous year all the learning assistance teachers had

one or two sessions of instruction, from the district Special Counsellors,

in administration of the Santa Clara I.D.T.

The Santa Clara I.D.T. is an omnibus assessment battery of informal

tasks developed by educators, special educators, school psychologists

and others in the Santa Clara Unified School District, California, U.S.A.

It was published in 1974. It contains an Observation Guide and an

Instructional Activities Manual.

In the Observation Guide are instructions for administering tasks

and for observing and scoring results. The tasks were chosen to assess

developmental skills deemed prerequisite to success in more advanced

cognitive tasks. The skills and tasks are deemed by the publishers

to be important areas relating to school learning. The preface to the

Observation Guide of the Santa Clara I.D.T. states:

> Children who exhibit difficulty in learning the basic skills of
> reading, mathematics, oral and written communication generally
> exhibit deficiencies in some of these developmental skills....
> The I.D.T. can, therefore be used as a 'failure-prevention program'
> in the assessment of young children and as a developmental guide
> for on-going instruction. Further, it is a helpful assessment
> program for children who exhibit learning difficulties in the
> early years of school. (p. 2)

There are no published validity and reliability statistics

in the manual.

In the Observation Guide, children are given a 0 (almost never),

a 1 (some of the time) or a 2 (most of the time) on informal tasks. A

Developmental Profile (Appendix V) is made by breaking the child's

performance on the tasks into eight areas: Motor Coordination, Visual

Motor Performance, Visual Perception, Visual Memory, Auditory Perception,

Auditory Memory, Language Development and Conceptual Development. Also

the child's performance on the tasks is compared to age levels:

pre-school, 5 - 5 1/2 years, 6 - 6 1/2 years, and 7 years.

The kindergarten children were assessed according to a

criterion level dependent upon their chronological age. All children

in the kindergarten were expected to be successful, that is, to achieve

a 2 rating, up to and including level 6 (Appendix V). Children with a

chronological age of from 5-3 to 5-6 were expected to achieve a 2 rating

up to and including level 7, while children 5-6 or older were expected to

achieve a 2 rating up to and including level 8 on the Santa Clara I.D.T.

Developmental Profile. A 1 (some of the time) or a 0 (almost never),

were considered failing scores on the tasks. The learning assistance
teachers were asked to discontinue the assessment in each area after
two failures in a row. After the assessment was completed by the
learning assistance teacher the information was to be recorded on the
Developmental Profile.

After the Developmental Profile was drawn for each child assessed,
the learning assistance teacher, together with the kindergarten teacher,
was to establish a remedial educational program from suggestions contained
in the Instructional Activities Manual of the Santa Clara I.D.T. Depending
on the child's areas of weakness and the nature of the kindergarten and
learning assistance programs in each school, the nature and extent of
the remedial programming was to vary from child to child.

In the kindergarten screening program, children who were assessed
on the Santa Clara as failing in two or more tasks below criterion age
in any one area were considered as children identified as 'high risk'(HR).

The Santa Clara I.D.T. was not to be given to all kindergarten
children but it was to be used in a diagnostic way with children nominated
by the kindergarten teacher. It was to help define the child's areas of
difficulty in a way that led to specific remedial teaching suggestions
so that the child could receive help in the kindergarten program. Also,
it was hoped that some of these remedial suggestions would go on to grade
one but no district process was set up to accomplish this. Each school
was left free to plan its own programs. The learning assistance teacher
together with the kindergarten teacher were to combine the information
from observations, ratings, checklists and Santa Clara I.D.T. assessments
in an unstructured way and plan remedial programs using the Santa Clara

Instructional Activities Manual as a resource. The remedial activities
were to be integrated into the kindergarten as a natural part of the
program in the regular classroom.

This is the information that was gathered from the administrative
guiding committee as to the objectives, procedures and instruments for
the kindergarten screening program.

Information from School Based Personnel

A structured interview was conducted with the personnel implementing
the screening program in each elementary school (Appendix II).

The purpose of this interview was to gather direct information as
to how the screening program was actually implemented in each school.
The personnel interviewed were kindergarten teachers, learning assistance
teachers and in some cases vice-principals and principals.

Interview questionnaires were gathered from nineteen of the twenty-
four elementary schools in the school district. The information on the
ten phases of the screening program in these schools is discussed one
phase at a time.

Phase one - planning before the screening program.

Prior to the beginning of the screening program the plans in all the
schools surveyed were to follow the three rating periods time schedule
and the Santa Clara I.D.T. administration time schedule. Also in all
kindergarten classrooms the method of observing the children for the
first six or so weeks was unstructured general observation. Ratings of
1, 2, or 3 were assigned via subjective evaluations by the teachers,
as was the completion of the Westinghouse Checklist. In all schools the
learning assistance teachers planned to take the children out of the
classroom individually for the Santa Clara I.D.T. assessment while

cancelling appointments with other children during these times. In

most cases the assessment was done in the learning assistance center.

No assessment instruments, other than the Santa Clara I.D.T., were

planned, and no areas other than those on the Santa Clara I.D.T. were

to be assessed.

In regard to training before the screening program began, eleven

of the nineteen schools reported some orientation for the kindergarten

teachers. In most cases this was one meeting with the primary supervisor

and/or the Special Counsellor. Fourteen of the nineteen schools reported

some orientation for the learning assistance teachers. This was done

by the Special Counsellors who gave instructions and some training

in using the Santa Clara I.D.T. Three learning assistance teachers

reported receiving orientation and instructions from other learning

assistance teachers.

In six of the nineteen schools parents were notified by the school

that there was a screening program before it began. This was done verbally

in a parent meeting at the beginning of the year by either the primary

supervisor or the kindergarten and learning assistance teachers.

Phase two - screening.

In sixteen of the nineteen schools, the personnel reported the screening

as consisting of three rating and assessment periods all basically

corresponding to the time periods specified by the district. In two

schools there were two rating and assessment periods and in one school

there were four such periods.

In all cases the learning assistance teacher did the assessments

using the Santa Clara I.D.T. individually with the children outside

the kindergarten classroom.

In thirteen of the nineteen schools the assessments involved three or four sessions of from twenty to thirty minutes per child (not counting organization and retest time). Three schools reported an average of five twenty-to-thirty-minute sessions per child. Two schools reported two testing sessions on the average per child. The number of children assessed with the Santa Clara I.D.T. varied from none in one school to thirty-four in another school. Out of the 1025 children in the nineteen schools surveyed, 303 children were assessed (27.4 percent of the population). The average was fifteen or sixteen children per school. The average time for assessment per child was between an hour and an hour and a half. This involved an assessment time commitment, on the part of the learning assistance teacher, of from five to six full working days for each testing period, not counting reassessment, report writing, consultation, and organization time. Most of the learning assistance teachers reported this time allotment difficult to budget, given the other demands on their time.

Only about half of the children who were assessed had Westinghouse Checklists completed. It was difficult to know why more teachers didn't do them but a couple of the learning assistance teachers reported that it was a waste of time because the information did not relate well to the Santa Clara I.D.T. and the remedial activities.

Phase three - interpretation of data.

In all cases the data were gathered from the Santa Clara assessment and kindergarten and learning assistance teachers' observations. Four of the nineteen schools mentioned considering parental data and one

school mentioned teacher-made readiness tests and checklists.

In fourteen of the nineteen schools only the learning assistance teacher reported interpreting data and in the others both the kindergarten and learning assistance teacher interpreted the data.

In twelve of the nineteen schools the results were interpreted verbally to the kindergarten teacher and in the others the results were interpreted verbally and in some written form.

The learning assistance teacher provided remedial activities to the kindergarten teacher in twelve of the nineteen schools, whereas in the others the kindergarten teachers chose remedial activities, mostly from the Santa Clara I.D.T. Activities Manual.

Phase four - diagnosis and/or referral.

On the basis of the screening a number of children were referred for further diagnosis. Nine of the nineteen schools made no referrals to school district personnel. In the other ten schools, fifteen referrals went to Special Counsellors and ten to Speech Therapists. All 'high risk' children were seen by L.A. teachers. Five children were referred to physicians outside the school system.

Other than the numerous children given further diagnostic and remedial help by the learning assistance teachers, the referred children amounted to about eleven percent of the group identified as 'high risk'.

In two of the schools parents were involved in making the decision for referral. In the other eight schools the learning assistance teacher and kindergarten teacher made the decision for referral.

Phase five - planning the individual remedial activities program.

In nine of the nineteen schools it was reported that the learning

assistance teacher alone prepared the individual programs using mostly
the Santa Clara Activities Manual. Also the Santa Clara Plus, the
Peabody Language Development Program, and learning assistance prepared
ideas and materials were used.

Six of the schools reported that the learning assistance teacher
together with the kindergarten teacher planned the programs using the
Santa Clara, the Santa Clara Plus and personal resources.

In four of the schools it was reported that the kindergarten
teacher planned the remedial program using the Santa Clara, Santa Clara
Plus and personal resources.

Phase six - parent notification.

All but one of the schools stated that the parents of identified
'high risk' (HR) children were notified although two schools stated
that only some were informed.

Five of the schools said they notified parents right away, usually
by phone. The other schools stated that parents were notified at parent
interview time near the end of November.

In most schools the parents did not play any role in the
interpretation of data or the decision for further diagnosis but in four
schools the parents did confer on the need for referral for diagnosis.

None of the schools reported the parents playing any role in the
planning of remedial activities but all schools except two asked parents
to do activities at home with their children. Most of these activities
were chosen from the Santa Clara and most involved fine and gross motor
activities, memory and following direction games and general language
stimulation. In five of the schools the parents received some training
by the kindergarten teacher.

Phase seven - in-service training of screening personnel.

In none of the schools did kindergarten or learning assistance teachers report receiving any in-service in planning and implementing individual remedial programs.

Phase eight - implementing individual remedial programs.

The 17 schools surveyed reported implementing about 238 individual remedial programs. The number of individual remedial programs in each school varied from none in two schools to 30 in another - the average being about 12 individual remedial programs per school.

In seven of the 17 schools implementing programs, both the kindergarten and learning assistance teachers worked with the identified child. In eight of the schools only the kindergarten teacher implemented the program and in two schools the learning assistance teacher alone implemented the remedial programs. In one of the latter schools the learning assistance teacher with a parent volunteer worked outside the classroom with all 80 kindergarten children half an hour, once a week, for twelve weeks. Fifteen of the 80 children were on individual programs but all 80 children were involved so that none would be singled out. The regular kindergarten program was followed in the classroom.

When the learning assistance and kindergarten teachers worked together on the child's program, the child was usually seen two or three times a week for fifteen or twenty minutes in the learning assistance center for a period of three or four months. The children were usually seen in groups of three or four but some children were seen individually.

It was reported that parent aides were used in the kindergarten classrooms to work with identified children in nine of the 17

schools implementing remedial programs.

Phase nine - evaluation and redesign.

Eleven of the nineteen schools reported evaluating the remedial programs. This was done informally by the kindergarten teacher and by retesting in some areas on the Santa Clara I.D.T. by the learning assistance teacher. This was more of a check on the child's growth and progress than an evaluation of the remedial program. If a remedial program was redesigned, this was done informally by the kindergarten teacher based on subjective observations. A number of children changed category but by the end of the kindergarten term, children were identified as 'high risk' (HR) or 'not high risk' (NHR).

Phase ten - follow through to grade one.

Only one school reported no planned follow through to grade one. The other eighteen schools reported some follow through. Two of the schools stated this was to be done by the kindergarten teachers meeting with the grade one teachers. Fifteen of the schools reported this follow through to be the responsibility of the learning assistance teachers. The follow through was to be accomplished by meetings with the grade one teachers in June to alert them to the nature of the child's difficulty and what had been done. Also, learning assistance files on each child were to be at the disposal of the grade one teachers in June and again in September. In most cases the learning assistance teachers would continue seeing those children who needed help. In three schools readiness groupings were planned for grade one. TABLE II summarizes the above discussion.

Table II

Summary of Information from School Based Personnel (number of schools
out of nineteen surveyed)

Phase One - Planning before the screening program   YES   NO

        Parents notified?................................ 6   13
        Parent information gathered?..................... 0   19
        Time Schedule? 19   0
        Structured kindergarten rating? 0   19
        Structured Santa Clara I.D.T.
            administration? 19   0
        School budgeted costs? 0   19
        Other areas planned to be
            assessed? 0   19
        Other instruments used? 0   19
        Prior orientation for
            kindergarten teachers? 11   8
        Prior training for kindergarten
            teachers? 0   19
        Prior training for learning
            assistance teachers? 14   5

Phase Two - Screening   YES   NO

        Screening procedure corresponding
            to district guidelines? 16   3
        Learning assistance teachers
            doing the assessment? 19   0
        Assessment involving three or
            four sessions per child? 13   6

Phase Three - Interpretation of data   YES   NO

        Learning assistance teacher
            alone interpreting data? 14   5
        Results interpreted only
            verbally to kindergarten teacher? 12   7
        Learning assistance teacher alone
            providing remedial activities? 12   7

Phase Four - Diagnosis and/or referral   YES   NO

        Referrals made to district
            personnel for diagnosis? 10   9
        Parents involved in referral? 2   8

Phase Five - Planning remedial activities programs YES   NO

        Learning assistance teacher
            alone prepared programs? 9   10

Table II (cont.)

Phase Six - Parent notification	YES	NO
Parents of identified children notified?	18	1
Parents play a role in interpretation of data?	0	19
Parents play a role in choosing remedial activities?	0	19
Parents asked to do activities at home?	17	2
Parents receive training in doing home activities?	5	12

Phase Seven - In-service training of personnel	YES	NO
Kindergarten teacher in-service in planning or implementing remedial programs?	0	19
Learning assistance teacher in-service in planning or implementing remedial programs?	0	19

Phase Eight - Implementing remedial programs	YES	NO
Individual remedial programs implemented?	17	2
Both kindergarten and learning assistance teacher implementing remedial programs?	7	10
Kindergarten teacher alone implementing programs?	8	9
Learning assistance teacher alone implementing programs?	2	15
Parent aides used to help implement programs?	9	8

Phase Nine - Evaluation and redesign	YES	NO
Remedial programs evaluated informally?	11	8

Phase Ten - Follow through to grade one	YES	NO
Follow through to grade one planned?	18	1
Follow through the responsibility of the learning assistance teacher?	15	3

Comparison of the Kindergarten Screening Procedures with the General

Guidelines for Kindergarten Screening from the Literature

Table III presents the information gathered from the administrative

guiding committee and the school based personnel in comparison to the

general guidelines for kindergarten screening determined from the

review of the literature on kindergarten screening.

TABLE III

Comparison of the Kindergarten Screening Procedures with the
General Guidelines for Kindergarten Screening

General Guidelines for Kindergarten Screening	Kindergarten Screening Program
1. Planning committee?	Yes
2. Goals and objectives specified?	Partially. - general and not specified in writing.
3. Overall plan specified?	Partially specified, partially left to individual decision.
4. Structured way to relate assessment information? Parental background information gathered?	Partially. - within the Santa Clara I.D.T. but not between the I.D.T. and other sources of assessment information. No parental background information gathered.
5. All children assessed?	No
6. Short assessment with established reliability and validity?	No
7. Strengths as well as weaknesses revealed in assessment?	No, only weaknesses revealed.
8. Assessment relates meaningfully to the kindergarten program?	Partially. - as the Santa Clara activities are feasible.
9. Follow-up diagnostic assessment available?	Yes

TABLE III   cont'd

General Guidelines for Kindergarten Screening	Kindergarten Screening Program
10. Kindergarten teacher the key person?	No
11. Parents involved in planning for remedial programs?	Partially. - in a few schools parents participated in the decision for referral to diagnosis and long term planning.
12. Periodic evaluation and redesign of educational program provided?	Partially. - informally by kindergarten teacher and reassessment of child at the end of term by the learning assistance teacher.
13. In-service training of screening personnel?	Partially. - some in-service on use of Santa Clara I.D.T. for learning assistance teachers.
14. Follow through to grade one and to succeeding grades?	Partially. - informally at schools.

Information on Omnibus Screening Inventories

Table IV presents information gathered from the literature on omnibus screening inventories suitable for use in a kindergarten screening program. The inventories are compared on theoretical orientation, areas of behaviors assessed, age appropriateness, availability of statistical reliability and validity data, administration time and the availability of program and remedial suggestions.

The Santa Clara I.D.T. is presented in this comparison. How it compares is discussed in the concluding chapter.

TABLE IV

Omnibus Screening Inventories

	Theoretical Orientation	Areas Assessed	Ages	Reliability & Validity Available	Administration Time	Program & Remediation
ABC Inventory (1965)	Developmental Readiness for Kindergarten & Grade one.	Perceptual & Cognitive	4-6 yrs	No	10 minutes	No
Basic Concept Inventory (1967)	Basic educational concepts	Cognitive	4-7 yrs	No	20 minutes	No
CHILD: Early Identification Screening Inventory (1974)	Behavioral Checklist	Visual-motor Visual Speech and Hearing Physical and Behavior Psycho-motor Psychological	4-8 yrs	Yes (preliminary)	Observation time plus 20 minutes	Yes, in the Westinghouse CHILD Program
Daberon (1972)	Developmental	Perceptual Cognitive Speech and Language	18 mos. - 6 yrs	No	20 minutes	No
Dallas Preschool Screening Test (1972)	Developmental	Perceptual Cognitive Speech and Language.	3-6 yrs	No	15 minutes	No

TABLE IV continued

	Theoretical Orientation	Areas Assessed	Ages	Reliability & Validity Available	Administra- tion Time	Program & Remediation
DIAL (1972)	Developmental	Perceptual Cognitive Speech and Language	2 1/2 - 5 1/2 yrs	No	30 minutes	No
Gesell Developmental Kit (1964)	Developmental	Perceptual Cognitive Speech and Language Social Emotional	5 - 10 yrs	Yes	30 minutes	General program recommendations
Jansky Modified Screening Index (1973)	Developmental	Perceptual Cognitive Speech and Language	5-7 yrs	Yes	30 minutes	General program recommendations
Kindergarten Evaluation of Learning Potential - KELP (1963)	Kindergarten skill achieve- ment based - Behavioral	Perceptual Cognitive Speech and Language Social- Emotional	K age	No	over the entire year	Yes - teaching and evaluation based

TABLE IV continued

	Theoretical Orientation	Areas Assessed	Ages	Reliability & Validity Available	Administra- tion Time	Program & Remediation
K-Q: Kinder- garten Ques- tionnaire (1972)	Developmental	Physical Motor Perceptual Cognitive Speech and Language Social- Emotional	early kinder- garten	No	30 minutes +	No
Meeting Street School Screening Test (1969)	Information Processing	Perceptual Speech and Language Social- Emotional	5-7 yrs	No	30 minutes	Yes general
Preschool Inventory -Revised Edi- tion (1970)	Developmental	Perceptual Cognitive Speech and Language Social- Emotional	3-6 yrs	No	30 minutes +	Yes general
Preschool Screening System (1974)	Information Processing	Physical Motor Perceptual Cognitive Speech and Language	3-6 yrs	No	15-20 minutes	Yes general

TABLE IV continued

	Theoretical Orientation	Areas Assessed	Ages	Reliability & Validity Available	Administration Time	Program & Remediation
Riley Pre-school Developmental Screening Inventory (1969)	Developmental	Perceptual Speech and Language Social-Emotional	3-6 yrs	No	3-10 minutes	No
Santa Clara Inventory of Developmental Tasks (1974)	Developmental and Information Processing	Gross Motor Perceptual Cognitive Speech and Language	3-7 yrs	No	1 hour to 1 1/2 hours	Yes
The Yellow Brick Road (1975)	Developmental and Information Processing	Perceptual Cognitive Speech and Language	3-6 yrs	No	stations approach 4 to 8 examiners 30 minutes	No
Vallet Developmental Survey (1966)	Developmental and Information Processing	Physical Motor Perceptual Cognitive Speech and Language Social-Emotional	2-7 yrs	Yes	1 hour to 1 1/2 hours	Yes

TABLE IV continued

	Theoretical Orientation	Areas Assessed	Ages	Reliability & Validity Available	Administration Time	Program & Remediation
Vane Kindergarten (1968)	Developmental Information Processing	Perceptual Cognitive Speech and Language Social-Emotional	4-6 yrs	Yes	30 minutes	general
ZEIS (Zeitkin Early Identification Screening)	Developmental Information Processing	Gross Motor Perceptual Cognitive Speech and Language	3-7 yrs	some validity	15-20 minutes	No

Information on the Identification Effectiveness of the Kindergarten Screening Program

In order to assess the identification effectiveness of the kindergarten screening program, the child's categorization on the kindergarten screen of 'high risk' (HR) or 'not high risk' (NHR) was crosstabulated with his teacher rating (1, 2, or 3) and his Gates-MacGinitie standard scores (60$^+$, between 40 - 60, and 40$^-$) at the end of grade one. The resulting data for those 'screened' children who were teacher rated and given the Gates-MacGinitie at the end of grade one are presented in the following tables.

TABLE V crosstabulates the grade one teacher ratings with categorization on the kindergarten screening program.

TABLE VI crosstabulates the grade one standard score results on the Vocabulary subtest of the Gates-MacGinitie Reading Test (Level 1, Primary Form A) with categorization on the kindergarten screening program.

TABLE VII crosstabulates the grade one standard score results on the Comprehension subtest of the Gates-MacGinitie Reading Test (Level 1, Primary Form A) with categorization on the kindergarten screening program.

TABLE V

Crosstabulation of Grade One Teacher Ratings (TR) and Kindergarten
Screen (KS) of 1078 Subjects

KS:

KS: HR - 'high risk'
    NHR - 'not high risk'

TR: 1 - no learning
       problems
    2 - uncertain
    3 - definite learning
       problems

		HR	NHR	
	1	74	641	715
TR:	2	84	171	255
	3	70	38	108
		228	850	1078

TABLE VI

Crosstabulation of Grade One Vocabulary (Voc) Standard Score Categories
on the Gates-MacGinitie (G-M) and Kindergarten Screen (KS) of 1051 Subjects

KS:

	HR	NHR	
60^+	40	377	417
Between 40 and 60	130	422	552
40^-	46	36	82
	216	835	1051

G-M (Voc)

KS: HR - 'high risk'

NHR - 'not high risk'

G-M: 60^+ - standard score of 60 or greater

Between standard score 40 and 60

40^- - standard score of 40 or less

TABLE VII

Crosstabulation of Grade One Comprehension (Comp) Standard Score Categories
on the Gates-MacGinitie (G-M) and Kindergarten Screen (KS) of 1037 Subjects

KS:

	HR	NHR	
60^+	37	411	448
Between 40 and 60	120	378	498
40^-	51	40	91
	208	829	1037

G-M: (Comp)

KS: HR - 'high risk'

NHR - 'not high risk'

G-M: 60^+ - standard score of 60 or greater

Between standard score 40 and 60

40^- - standard score of 40 or less

To get an estimate of the reliability of the teachers' ratings, ten percent (17),randomly selected grade one teachers re-rated their own students (a total of 381 children) one month after their initial ratings. Hoyt's estimate of reliability, using the LERTAP program, yielded a coefficient value of 0.95.

From the crosstabulation tables were calculated the percentages of true negatives, true positives, false negatives and false positives for the purpose of answering the identification effectiveness research questions.

The identification effectiveness questions and calculations were as follows:

1. What percentage of those children identified as 'high risk' (HR) by the kindergarten screening program were also identified as having learning problems (a 3 rating) by grade one teacher ratings (TR) at the end of grade one? (percentage of true negatives)

   Calculation:

   $$\frac{(HR) \text{ and } (TR:3)}{total\ HR} = \frac{70}{228} \times 100 = 30.7\%$$

The teachers were uncertain (a rating of 2) about the learning ability of a number of grade one students. The calculation as to the percentage that these students were of the HR group is as follows:

   Calculation:

   $$\frac{(HR) \text{ and } (TR:2)}{total\ HR} = \frac{84}{228} \times 100 = 36.8\%$$

2. What percentage of those children identified as 'high risk' (HR) by the kindergarten screening program were also identified as having reading problems (standard score 40⁻) by the Gates-MacGinitie (G-M) Reading Test (Level 1, Primary Form A) administered at the end of grade one? (percentage of true negatives)

   Calculation:

   $$\frac{(HR) \text{ and } (Vocabulary\ score\ 40^-)}{total\ HR} = \frac{46}{216} \times 100 = 21.3\%$$

$$\frac{\text{(HR) and (Comprehension score 40}^-)}{\text{total HR}} = \frac{51}{208} \times 100 = 24.5\%$$

3. What percentage of those children identified as 'not high risk' (NHR) by the kindergarten screening program were also identified as not having learning problems by grade one teacher ratings (TR) at the end of grade one? (percentage of true positives)

Calculation:

$$\frac{\text{(NHR) and (TR:1)}}{\text{total NHR}} = \frac{641}{850} \times 100 = 75.4\%$$

4. What percentage of those children identified as 'not high risk' (NHR) by the kindergarten screening program were also identified as not having reading problems by the Gates-MacGinitie Reading Test (Level 1, Primary Form A) administered at the end of grade one? (percentage of true positives)

Calculation:

$$\frac{\text{(NHR) and (Vocabulary score 60}^+)}{\text{total NHR}} = \frac{377}{835} \times 100 = 45.2\%$$

$$\frac{\text{(NHR) and (Vocabulary score between 40-60)}}{\text{total NHR}} = \frac{422}{835} \times 100 = 50.5\%$$

$$\frac{\text{(NHR) and (Comprehension score 60}^+)}{\text{total NHR}} = \frac{411}{829} \times 100 = 49.6\%$$

$$\frac{\text{(NHR) and (Comprehension score between 40-60)}}{\text{total NHR}} = \frac{378}{829} \times 100 = 45.6\%$$

Since the Gates-MacGinitie manual states that the group between standard scores 40 and 60 cannot be considered as having reading problems, the percentages for this group and the 60^+ group can be combined as groups not having reading problems. Combined percentages of true positive identifications by the kindergarten screening program are 95.7% for the Vocabulary subtest and 95.2% for the Comprehension subtest of the Gates-MacGinitie Reading Test (Level 1, Primary Form A).

5. What percentage of those children identified as 'not high risk' (NHR) by the kindergarten screening program were identified as having learning problems (a 3 rating) by grade one teacher ratings (TR) at the end of grade one? (percentage of false positives)

$$\frac{(NHR) \text{ and } (TR:3)}{\text{total } NHR} = \frac{38}{850} \times 100 = 4.5\%$$

The teachers were uncertain (a rating of 2) about the learning ability of a number of grade one students in the NHR group. The calculation as to the percentage that these students were of the NHR group is as follows:

Calculation:

$$\frac{(NHR) \text{ and } (TR:2)}{\text{total } NHR} = \frac{171}{850} \times 100 = 20.1\%$$

6. What percentage of those children identified as 'not high risk' (NHR) by the kindergarten screening program were identified as having reading problems (standard score 40⁻) by the Gates-MacGinitie (G-M) Reading Test (Level 1, Primary Form A) administered at the end of grade one? (percentage of false positives)

Calculation:

$$\frac{(NHR) \text{ and } (Vocabulary \text{ score } 40^-)}{\text{total } NHR} = \frac{36}{835} \times 100 = 4.3\%$$

$$\frac{(NHR) \text{ and } (Comprehension \text{ score } 40^-)}{\text{total } NHR} = \frac{40}{829} \times 100 = 4.8\%$$

7. What percentage of those children identified as 'high risk' (HR) by the kindergarten screening program were identified as not having learning problems (a 1 rating) by grade one teacher ratings (TR) at the end of grade one? (percentage of false negatives)

Calculation:

$$\frac{(HR) \text{ and } (TR:1)}{\text{total } HR} = \frac{74}{228} \times 100 = 32.5\%$$

8. What percentage of those children identified as 'high risk' (HR) by the kindergarten screening program were identified as not having reading problems by the Gates-MacGinitie Reading Test (Level 1, Primary Form A) at the end of grade one? (percentage of false negatives)

Calculation:

$$\frac{(HR) \text{ and } (Vocabulary \text{ score } 60^+)}{\text{total HR}} = \frac{40}{216} \times 100 = 18.5\%$$

$$\frac{(HR) \text{ and } (Vocabulary \text{ score between } 40\text{-}60)}{\text{total HR}} = \frac{130}{216} \times 100 = 60.2\%$$

$$\frac{(HR) \text{ and } (Comprehension \text{ score } 60^+)}{\text{total HR}} = \frac{37}{208} \times 100 = 17.8\%$$

$$\frac{(HR) \text{ and } (Comprehension \text{ score between } 40\text{-}60)}{\text{total HR}} = \frac{120}{208} \times 100 = 57.7\%$$

For the same reason as in research question four these groups can be combined as groups not considered to have reading problems. Combined percentages of false negative identifications by the kindergarten screening program are 78.7% for the Vocabulary subtest and 75.5% for the Comprehension subtest of the Gates-MacGinitie Reading Test (Level 1, Primary Form A).

TABLE VIII summarizes the descriptive outcome statistics that answer the first eight identification effectiveness research questions.

TABLE VIII

Summary of Descriptive Outcome Statistics

			HR	NHR
N o P r o b l e m s	Teacher Rating	1	N: 74 P: 32.5%	N: 641 P: 75.4%
	G-M (Voc)	60^+	N: 40 P: 18.5%	N: 377 P: 45.2%
	G-M (Comp)	60^+	N: 37 P: 17.8%	N: 411 P: 49.6%
U n c e r t a i n	Teacher Rating	2	N: 84 P: 36.8%	N: 171 P: 20.1%
	G-M (Voc)	between 40 and 60	N: 130 P: 60.2%	N: 422 P: 50.5%
	G-M (Comp)	between 40 and 60	N: 120 P: 57.7%	N: 378 P: 45.6%
D e f i n i t e P r o b l e m s	Teacher Rating	3	N: 70 P: 30.7%	N: 38 P: 4.5%
	G-M (Voc)	40^-	N: 46 P: 21.3%	N: 36 P: 4.3%
	G-M (Comp)	40^-	N: 51 P: 24.5%	N: 40 P: 4.8%

HR - 'high risk'   Teacher Rating: 1 - no learning problems
NHR - ' not high risk'   2 - uncertain
                                          3 - definite learning problems
G-M - Gates-MacGinitie
      Vocabulary subtest (Voc)
      Comprehension subtest (Comp)

9. What is the relationship between kindergarten identification by the screening program and grade one teacher ratings at the end of grade one?

TABLE IX crosstabulates categorization on the kindergarten screen (KS) with end of grade one teacher ratings (TR), with expected frequencies added in brackets.

TABLE IX

Crosstabulation of Grade One Teacher Ratings (TR) and Kindergarten Screen (KS) with Observed Frequencies and (Expected Frequencies)

	KS: HR	NHR	
TR: 1	74 (151)	641 (564)	715
2	84 (54)	171 (201)	255
3	70 (23)	38 (85)	108
	228	850	1078

KS: HR - 'high risk'

NHR - 'not high risk'

TR: 1 - no learning problems
2 - uncertain
3 - definite learning problems

The above table indicates that if there were no relationship between categorization on the kindergarten screening program and the teacher ratings at the end of grade one, the numbers of children in brackets would be the number of expected observations in each cell.

Since there are (i) fewer HR children with no learning problems than would be expected, (ii) more HR children with definite learning problems than would be expected, (iii) more NHR children with no learning problems than would be expected and (iv) fewer NHR children with definite learning problems than would be expected, there is a positive relationship between categorization on the kindergarten screen and end of grade one teacher ratings.

The chi-square value calculated using the Statistical Package for the Social Sciences (SPSS) for the kindergarten screen by teacher ratings was 194.74239 with 2 degrees of freedom and statistical significance (p = 0.0000). This indicates a statistically significant relationship at even the α= 0.0001 level.

The contingency coefficient calculated was 0.39117. The estimated maximum value that a contingency coefficient can have for this contingency table is 0.7071067 (Hinkle et al. 1979, pp. 349 - 350); therefore, the magnitude of the relationship between categorization on the kindergarten screen and end of grade one teacher ratings may be described as a moderate one.

These statistics indicate that overall there is a significant relationship between categorization on the kindergarten screen and teacher ratings and this holds up strongly for the NHR group. However, looking at the HR group, the chances are 50/50 that the child could be rated a definite learning problem. Within the HR group there is about the same number of children in the 1 group as there is in the 3 group (74 and 70 respectively), indicating that the chances are equal for a HR child to end up in either group.

10. What is the relationship between kindergarten identification by the screening program and grade one achievement on the Gates-MacGinitie Reading Test (Level 1, Primary Form A) administered at the end of grade one?

TABLE X and TABLE XI crosstabulate categorization on the kindergarten screen with results on the Vocabulary and Comprehension subtests of the Gates-MacGinitie with expected frequencies added in brackets.

TABLE X

Crosstabulation of Gates-MacGinitie (G-M) Vocabulary (Voc) Standard Score and Kindergarten Screen (KS) with Observed Frequencies and (Expected Frequencies)

KS:

	HR	NHR	
60^{+}	40 (86)	377 (331)	417
Between 40 and 60	130 (113)	422 (439)	552
40^{-}	46 (17)	36 (65)	82
	216	835	1051

G-M: (Voc)

KS: HR - 'high risk'
NHR - 'not high risk'

G-M: 60^{+} - standard score 60 and greater
Between standard scores 40 and 60
40^{-} - standard score 40 or less

TABLE XI

Crosstabulation of Gates-MacGinitie (G-M) Comprehension (Comp)
Standard Score and Kindergarten Screen (KS) with Observed Frequencies
and (Expected Frequencies)

KS: KS: HR - 'high risk'
                                          NHR - 'not high risk'
        HR   NHR
                                      G-M: 60^+ - standard score
                                               60 and greater
                                            Between standard scores
                                               40 and 60
60^+ 37   411   448 40^- - standard score
        (90)   (358)   40 or less

Between
G-M: 40   120   378   498
(Comp)   and   (100)   (398)
          60

40^- 51   40   91
        (18)   (73)

        208   829   [1037]

The above tables indicate that if there were no relationship between
categorization on the kindergarten screening program and the standard
scores on the Gates-MacGinitie Vocabulary and Comprehension subtests
given at the end of grade one, the numbers of children in brackets
would be the number of expected observations in each cell. Since there
are fewer HR children in the standard score 60^+ cell than would be
expected, more HR children in the 40^- cell than would be expected, more
NHR children in the standard score 60^+ cell than would be expected and
fewer NHR children in the standard score 40^- cell than would be expected;
this suggests that there is a positive relationship between categorization
on the kindergarten screen and the Gates-MacGinitie Reading Test.

The Chi-square value calculated using the Statistical Package for the Social Sciences (SPSS) for the kindergarten screen by Gates-MacGinitie Vocabulary standard score was 97.16861 with 2 degrees of freedom and statistical significance (p = 0.0000). This indicates a statistically significant relationship at a very high confidence level.

The contingency coefficient calculated by the SPSS program for kindergarten screen by Vocabulary standard score was 0.29091. The estimated maximum value that a contingency coefficient can have for this contingency table is 0.7071067; therefore, the magnitude of the relationship between categorization on the kindergarten screen and end of grade one standard score on the Vocabulary subtest of the Gates-MacGinitie Reading Test (Level 1, Primary Form A) may be described as a moderate one.

The Chi-square value calculated using the SPSS program for kindergarten screen by Comprehension standard score was 117.45509 with 2 degrees of freedom and statistical significance (p = 0.0000). This indicates a statistically significant relationship at a high level of confidence.

The contingency coefficient calculated by SPSS for kindergarten screen by Comprehension standard score was 0.31897. The magnitude of this relationship is a moderate one.

These statistics indicate that overall there is a significant positive relationship between categorization on the kindergarten screen and Gates-MacGinitie standard scores and this holds up strongly for the NHR group. Looking within the HR group the chances are again, as with teacher ratings, about 50/50 that the HR child could fall in the 60$^+$ group or the 40$^-$ group on the Vocabulary subtest. There are about equal

numbers of children in the 60$^+$ group and the 40$^-$ group (40 and 46
respectively). Looking at the distribution of HR children in the
'between 40 and 60' group, there are about equal numbers each side of
the mean of 50 (60 children below the mean, 66 children above the mean
and 4 children at the mean).

Looking at the results for the Comprehension subtest, more HR
children fell into the 40$^-$ group than into the 60$^+$ group (51 and 37
respectively). Looking at the distribution of HR children in the
'between 40 and 60' group, there are about equal numbers each side of
the mean of 50 (54 children below the mean, 57 children above the mean
and 9 children at the mean). This indicates that the chances of a HR child
having a reading problem (i.e., 40$^-$) may be only slightly greater than
scoring 60$^+$ on the Gates-MacGinitie Comprehension subtest.

Overall on the Gates-MacGinitie, considering groupings 60$^+$ and
'between 40 and 60' as not demonstrating reading problems (as per the
Gates-MacGinitie manual), the number of non-reading problem children
in the HR group is greater (170 and 157 for Vocabulary and Comprehension
respectively) than the number of children with reading problems (46 and
51 respectively).

. TABLE XII summarizes the identification effectiveness data for
each of the research questions.

TABLE XII

Summary of Identification Effectiveness Data

Research Question	Outcome
1. Percentage of true negatives using teacher ratings as criterion.	30.7% of 'high risk' group were definite learning problems. 36.8% of 'high risk' group were rated 'uncertain' in learning ability.
2. Percentage of true negatives using the Gates-MacGinitie Reading Test as criterion.	21.3% of 'high risk' group had a standard score of 40 or less on the Vocabulary subtest. 24.5% of 'high risk' group had a standard score of 40 or less on the Comprehension subtest.
3. Percentage of true positives using teacher ratings as criterion.	75.4% of 'not high risk' group had no learning problems.
4. Percentage of true positives using the Gates-MacGinitie Reading Test as criterion.	95.7% of 'not high risk' group were above the standard score of 40 on the Vocabulary subtest. 95.2% of 'not high risk' group were above the standard score of 40 on the Comprehension subtest.
5. Percentage of false positives using teacher ratings as criterion.	4.5% of the 'not high risk' group had definite learning problems. 20.1% of 'not high risk' group were rated 'uncertain' in learning ability.
6. Percentage of false positives using the Gates-MacGinitie Reading Test as criterion.	4.3% of 'not high risk' group were 40 or less on the Vocabulary subtest. 4.8% on the Comprehension subtest
7. Percentage of false negatives using teacher ratings as criterion.	32.5% of 'high risk' group were rated as having no learning problems.

TABLE XII cont'd

Research Question	Outcome
8. Percentage of false negatives using the Gates-MacGinitie Reading Test as criterion.	78.7% of 'high risk' group achieved more than 40 (Voc). 75.5% of 'high risk' group achieved more than 40 (Comp).
9. Relationship overall between kindergarten screen and teacher ratings.	Positive and significant.
10. Relationship overall between kindergarten screen and Gates-MacGinitie Reading Test.	Positive and significant.

CHAPTER VI

CONCLUSIONS

The Kindergarten Screening Organizational and Assessment Procedures

The kindergarten screening procedures, based on information gathered from interviews with the administrative guiding committee and the school based personnel, are discussed and evaluated in light of the general screening guidelines determined from the review of the literature. This discussion follows the sequence of the general guidelines presented earlier (p. 31).

Keogh and Becker (1973) state that it is important to specify the expected outcomes in an early identification program. This forces people to think of immediate goals and steps to achieve them. Thus, the predictive validity of early identification may be increased. Zeitlin (1976) also emphasizes the specification of goals and objectives.

The school district's kindergarten screening program had a planning committee which oversaw, directed, evaluated and modified the program. This guiding committee had screening program goals, but these goals were not specified in writing for screening personnel and others to see. Only some of the objectives were specified (e.g., the time table for ratings and assessments). Missing were procedural objectives for such matters as how and when to notify parents; the amount and type of parent involvement before, during, and after the screening; the routines for the child, parent, and staff; and training and supervision of the involved personnel. The overall plan was not specified. Zeitlin (1976) states that these are important procedural considerations for a screening program.

The assessment part of the screening program provided a way of gathering

teacher data on all children (teacher ratings), subjective teacher data on some children (Westinghouse Checklist) and assessment data on some children (Santa Clara I.D.T.). The screening was really the teacher ratings alone, as only children nominated as having learning problems were assessed on the Santa Clara I.D.T.

Keogh and Becker (1973) state that on the basis of past research, it is the classroom teacher who is most sensitive to 'high risk' indicators and often the most accurate in predicting later achievement. Haring and Ridgeway (1967), Dykstra (1967), and Keogh and Smith (1970) also support the use of structured teacher observation in identification of the 'high risk' child.

The Westinghouse Checklist and the Santa Clara I.D.T. assessment were used in this screening program to structure teacher observation and provide more information on the children selected by the teacher rating screen.

The Westinghouse Checklist was not completed for all children, but only for those whom the teacher had designated as having difficulties. Thus, the Westinghouse did not structure the teacher's initial observations, but did help the teacher specify problem behaviors. It was hoped by the planning committee that the teacher's use of the checklist would help in subsequent observations. However, it was stated in the information collected from the school based personnel (p. 57) that only about half of the children who were assessed had Westinghouse Checklists completed. Two of the learning assistance teachers reported that the Westinghouse was a waste of time because the information did not relate well to the Santa Clara I.D.T. and to remedial activities. Perhaps the value of the information obtained was too small for the amount of time involved.

In comparing the Santa Clara I.D.T. to other omnibus screening inventories (TABLE IV), the Santa Clara I.D.T. demonstrated some strengths as well as

weaknesses.

Adelman (1970), Keogh and Becker (1973), Haring and Ridgeway (1967), and Zeitlin (1976) all emphasize the importance of a close relationship between the assessment and the classroom program, i.e., teacher observation and remediation should occur in the natural routine of the classroom. The assessment should include the child's strengths. An important aspect of any identification program, these authors agree, is a viable intervention program to follow through to grade one.

One of the strong points of the Santa Clara I.D.T. was that it did provide remedial activities based on demonstrated weaknesses in the child's performance in the one-to-one assessment outside the classroom. However, it did not provide remedial suggestions for observed difficulties in the child's behavior in the natural routine of the classroom. The instrument provided information on the child's weaknesses in terms of modalities and cognitive deficits. The information provided may or may not fit with a teacher's training and teaching style, and it would provide little help in terms of teaching strategies, curriculum modifications and overall educational planning. The assessment provided information for short term intervention and specific activities for specific deficits; it did not provide information on the child's strengths as they may relate to the kindergarten classroom and kindergarten tasks. It also did not provide information for long range planning for the child.

The Santa Clara I.D.T. assessment was reported to take an hour to an hour and a half to administer over three or four sittings. This is somewhat long, as one-half hour is recommended in the literature (Jansky and DeHirsch, 1972; Zeitlin, 1976). This was a major drain on learning assistance teacher time and a high cost factor for the school district. Several

learning assistance teachers reported this time difficult to budget given the other demands on them. Depending on the priorities for learning assistance teacher time within schools, this could lead to some schools' not implementing the screening program as effectively as possible.

The Santa Clara I.D.T. appears to be suitable for use with kindergarten aged children. As with most omnibus inventories, theoretical orientation of the Santa Clara I.D.T. is a combination of developmental and information processing theories. While it is important to know the child's developmental and information processing skills, the instrument would be improved if it took into consideration kindergarten and grade one readiness skills that are important for success in the classroom. The assessment would also be improved if it took into consideration social, cooperative, and attentional skills needed for learning in a structured group setting (Jansky and DeHirsch, 1972). Assessment of these skills, based on observations in the classroom by the teacher, could be added to the individually assessed gross motor, perceptual, cognitive, and speech and language skills already assessed in the battery.

A major weakness of the Santa Clara I.D.T. is that it has no reported reliability and validity. The Santa Clara is a structured observation guide, and thus is not intended to be used as a diagnostic instrument. However, in this kindergarten screening program it was used with children already nominated by teacher ratings as having learning problems and used in a diagnostic way further to pin-point areas of difficulty. In order to be used in this way the instrument requires reliability and validity data.

In summary, the Santa Clara I.D.T. assessed some developmental skills that seem to be important abilities for kindergarten aged children to have in order to learn effectively, but misses assessing other skills. The Santa Clara suggests activities to ameliorate recognized weaknesses, but does not

offer ways to capitalize on recognized strengths in the child's learning style. Major weaknesses are that the Santa Clara I.D.T. lacks reliability and validity data and is too long to use as a screening instrument.

The kindergarten screening program did provide for referral for diagnostic assessment to the district Special Counsellors in the instructions in the planning committee's booklet (Appendix IV), section E, "Referrals to Special Counsellor: Referrals must be in to Special Counsellor by April 21st, 1978." However, more specific guidelines as to what kinds of referrals, how to refer, and referrals prior to April 21 may be necessary. According to Zeitlin (1976), such follow-up diagnostic assessment is important for a screening program.

The key person in the kindergarten screening program seemed to be the learning assistance teacher rather than the kindergarten teacher. The literature (Adelman, 1970; Haring and Ridgeway, 1967; Zeitlin, 1976) suggests that it is the kindergarten or regular classroom teacher who should be the key person in the screening program. This is the person who needs to be able to relate the assessment (subjective and objective) information to the kindergarten program in a way that leads to teaching strategies and remedial activities. The kindergarten teacher should gather the information, interpret it, and choose activities. The learning assistance teacher should assist in this process.

The remedial activities were to be evaluated and revised by the kindergarten teacher or learning assistance teacher in an informal way if they thought the activities were not succeeding. While the learning assistance teacher retested children on the Santa Clara on those tasks they had previously failed, this was a check on the child's growth rather that an evaluation of the remedial program. A more structured way for the kindergarten

teacher periodically to evaluate the classroom program for all the children and redesign individual programs as necessary should be devised (Zeitlin, 1976).

The school district provided some in-service training to the learning assistance teachers in the administration of the Santa Clara. Special Counsellors and to some extent other learning assistance teachers provided in-service. In addition to this informal in-service in assessment, screening personnel, especially the kindergarten teachers if they are to be the key, require in-service in understanding the goals and objectives of the screening program, gathering assessment information, interpreting the data, planning and implementing individual educational programs and evaluating and redesigning these programs (Zeitlin, 1976).

The learning assistance teachers, for the most part, were responsible for seeing that there was follow-through to grade one. This occurred in meetings with the grade one teachers and in making the children's files available to the grade one teachers in September. However, it is important that there be programs established or modified to help the identified 'high risk' child succeed in grade one (Keogh and Becker, 1973; Zeitlin, 1976). This would be each school's responsibility, but some district guidelines and in-service for grade one teachers may be necessary.

Finally, Jansky and DeHirsch (1972), Wilborn and Smith (1974), and Zeitlin (1976) all recommend the active involvement of parents in the screening program. From providing background and developmental information to planning remedial and long range educational programs, parents need to be involved. Zeitlin (1976) suggests that eliciting this parent involvement right from the start of a child's education can prepare the ground for future cooperation.

In most schools in the school district (13 out of 19 surveyed), the parents were not informed that the kindergarten screening was taking place, nor did any schools gather parental background data or involve the parents in the assessment phase. However, in most schools (18 out of 19 surveyed), parents were notified when their child was considered 'high risk' and asked to do some form of at-home remedial activity.

In summary, the kindergarten screening program demonstrated strengths and weaknesses in its procedures. Strengths were noted in that the screening program had a planning committee and had available follow-up diagnostic services. Weaknesses were observed in that the screening program had goals and objectives and an overall plan only partially specified in writing. The assessment phase was weak in that it was not fully structured, and not related to the kindergarten classroom. No parental data were gathered. Not all children were assessed. The assessment itself was too long to administer, took too much learning assistance teacher time, and lacked established reliability and validity data. The remedial program phase was only partially meaningful to the kindergarten classroom. This was largely due to the fact that the learning assistance teacher was made the key person in the screening program. Only weaknesses in the child's learning style were revealed in the assessment, and strengths were not utilized in remediation. No real evaluations were made of the remedial programs, but child reassessments were conducted near the end of the year. Another weakness was in-service. Learning assistance teachers received some instruction on administering the Santa Clara, and this was minimal, but kindergarten teachers received only a brief orientation. Follow-through to grade one was also weak. TABLE XIII summarizes the evaluation of the kindergarten screening procedures.

TABLE X III

Evaluation of the Kindergarten Screening Procedures

General Guideline Criteria	Observation of Screening Program	Judgement
1. Planning committee?	Yes	Strength
2. Goals and objectives specified?	Partially	Major weakness
3. Overall plan specified?	Partially	Weakness
4. Parental information gathered and structured way to relate assessment information?	No parental information. Partially structured assessment.	Weakness
5. All children assessed?	No	Weakness
6. Short assessment with reliability and validity established?	No	Major weakness
7. Strengths revealed in assessment?	No	Weakness
8. Assessment meaningful to kindergarten program?	Partially	Weakness
9. Follow-up diagnosis?	Yes	Strength
10. Kindergarten teacher key person?	No	Major weakness
11. Parents involved in remedial programs?	Partially	Weakness
12. Periodic evaluation?	Partially	Weakness
13. In-service training?	Partially	Weakness
14. Follow through to grade one?	Partially	Weakness

The Identification Effectiveness of the Kindergarten Screening Program

The results of the kindergarten screening program were discussed in terms of how effective the screening program was in identifying children who were judged as having learning and reading problems at the end of grade one.

The kindergarten screening program was quite effective in identifying as 'not high risk' (NHR) those children who were judged not to have learning and reading problems by the end of grade one. About 75 percent of the NHR group did not have learning problems according to grade one teacher ratings. The teachers were uncertain about the learning ability of another 20 percent of the NHR group. About 95 percent of the NHR group did not have reading problems according to results from the Gates-MacGinitie Reading Test administered at the end of grade one. Only about five percent of the NHR group were identified as having learning and reading problems at the end of grade one.

The kindergarten screening program was not as effective in identifying as 'high risk' (HR) those children judged as having learning and reading problems at the end of grade one. Only 31 percent of the HR kindergarten children apparently had serious learning problems according to their grade one teachers. However, their teachers were uncertain about the learning ability of another 37 percent of the HR group. About 21 percent of the HR group were judged as having reading problems according to the results of the Vocabulary subtest of the Gates-MacGinitie and 25 percent on the Comprehension subtest. However, about 32.5 percent of the HR group were rated by their grade one teachers as having no learning problems and 79 and 75 percent (for Vocabulary and Comprehension respectively) had no reading problems according to the Gates-MacGinitie. If you take into consideration that some of the

children from the HR group rated as 'uncertain' by their grade one teachers had learning problems, and if you take into consideration that some of the children from the HR group falling into the standard score range of just above 40 on the Gates-MacGinitie had reading problems, the data suggest that the chances of a child categorized as HR by the kindergarten screening program having learning and reading problems is about 50/50. Since this would be the outcome of random assignment to each group (e.g., 1 or 3), it can be concluded, with the limitations discussed later, that in this study the kindergarten screening program was not very effective in identifying, from the HR group, children who would be judged as having learning and reading problems at the end of grade one.

Overall the relationship between the kindergarten screening program and the outcome measures is positive and significant, largely because the screening program is relatively effective in identifying children who probably will not have learning and reading problems at the end of grade one. The screening program missed few (about five percent of the NHR group) children who later had learning and reading problems.

The literature (Haring and Ridgeway, 1967; Keogh and Becker, 1973; Keogh and Smith, 1970) suggests that this kind of outcome would be expected. The argument that Keogh and Smith (1970) put forward is that more predictive information is gained from the fact that a child does perform well on a school task than from the fact that he does not perform well. Because a child does not perform well on readiness measures does not mean that he could not be a successful school achiever. Specification of deficiencies, as on the Santa Clara I.D.T., may be less valid for school prediction than is specification of competencies. For the 'high risk' child, differences in maturity rates, experience, school atmospheres, teaching styles, and

motivational variables are more critical for school success than they are for the 'not high risk' child (Keogh and Smith, 1970). It is far easier to predict that a 'not high risk' child will do well at school than to predict that a 'high risk' child will do poorly.

These writers, along with Satz et al. (1977), suggest that more research be done to determine what factors are most predictive of later school failure and what remedial and educational program changes are necessary to overcome these factors.

Summary

In summary, it can be concluded that the kindergarten screening organizational and assessment procedures accomplished adequate prediction of those children who would not have learning and reading problems at the end of grade one. It missed few children who later were found to manifest learning and reading problems. However, the procedures were less effective in determining that a child categorized as 'high risk' would indeed manifest learning and reading problems.

The literature (Haring and Ridgeway, 1967; Keogh and Smith, 1970) says that accurate 'high risk' prediction is difficult to accomplish. However, the literature does suggest that when the assessment instruments explore areas which more validly predict later school failure, as Jansky and DeHirsch (1972) and Satz et al. (1977) did, the accuracy of identifying the truly 'high risk' child is increased. The literature (Adelman and Feshback, 1971; Haring and Ridgeway, 1967; Keogh and Smith, 1970) further suggests that careful structuring of the regular classroom teacher's observations will increase the accuracy of identifying the truly 'high risk' child.

In this screening program, the teacher's observations were initially

adequate in determining which children would do well in school, but the Santa Clara I.D.T., with its diagnostic specification of deficiencies, did not seem to add sufficiently to the prediction for the truly 'high risk' child. A shorter assessment measure, with better established predictive validity and structured classroom teacher observations, followed by remedial activities appropriate to the kindergarten classroom program, is necessary.

Limitations

This research was descriptive research, and thus it did not control for the factors affecting the outcome. Therefore it is only possible to suggest what factors may have influenced the study.

Procedures. What if parental background and social-emotional data were combined with teacher subjective data by the kindergarten teacher, and these data were further combined in some meaningfully structured way with short, objective, valid and reliable test data on all children? What if program goals and objectives were clearly specified, and uniform directions for the screening program were followed throughout the school district? What if in-service on classroom observation, assessment, and remedial program planning were implemented throughout the school district? Would the screening program then have been more effective in identifying children who manifest learning and reading problems at the end of grade one?

Measures. Did the kindergarten teachers in evaluating their children in the screening program base their judgements of who might have a learning problem on totally different criteria from the grade one teachers and/or the Gates-MacGinitie Reading Test? Were the grade one teachers and the Gates-MacGinitie results inaccurate? Was the Santa Clara I.D.T. not a valid and reliable instrument for identifying 'high risk' children?

Time. Perhaps one year is not long enough for the emergence of the potentially identified learning problem. Perhaps in grade three the children identified as 'high risk' will have learning and reading problems. Perhaps these identified children matured over time, and at the end of grade one were no longer considered learning and reading problems.

Remediation. Perhaps the remedial help the 'high risk' children received from their teachers and from the learning assistance teachers along the way resulted in their no longer being considered learning problems and/or in satisfactory achievement on the Gates-MacGinitie.

Suggestions for Further Research

A suggestion for further research would be to continue to follow the originally identified 'high risk' group for several years and to monitor their achievement. Perhaps in the longer run the percentage of true negatives would be greater.

Research comparing the criteria which kindergarten teachers use in identifying 'high risk' children against the criteria which grade one teachers use would be valuable. Research comparing the criteria of grade one teachers against a standardized reading test's criteria for identifying reading problems would also be useful.

The Santa Clara I.D.T. should have its validity and reliability established, so research in this area would be valuable.

Research using control groups to allow for the effects of maturity and remedial help for identified 'high risk' learners would also be useful.

Perhaps research implementing the suggestions to improve the kindergarten screening procedures would result in a greater percentage of true negatives.

Research comparing the procedures and identification effectiveness of two or more different kindergarten screening programs in different school districts would be useful as well.

BIBLIOGRAPHY

Adelman, H. S. Learning problems. Part 1: An interactional view of causality. Academic Therapy, 1970, 6, 117-124.

Adelman, H. S. The not so specific learning disability population. Exceptional Children, 1971, 37, 528-533.

Adelman, H. S. & Feshback, S. Predicting reading failure: Beyond the readiness model. Exceptional Children, 1971, 38, 349-354.

DeHirsch, K., Jansky, J., & Langford, W. S. Predicting reading failure. New York: Harper and Row, 1966.

Dykstra, R. The use of reading readiness tests for diagnosis and prediction: A critique. In T. C. Barrett (Ed.), The evaluation of children's reading achievement. Newark, Del.: International Reading Assn., 1967.

Eaves, L. G., Kendall, J. V., & Crichton, M. B. The early identification of learning disabilities: A follow-up study. Journal of Learning Disabilities, 1974, 7(10), 42-48.

Gallagher, J. J., & Bradley, R. H. Early identification of developmental difficulties. In I. J. Gordon (Ed.), Early childhood education (Vol. 71:2). Chicago: The National Society for the Study of Education, University of Chicago Press, 1972.

Gruen, R. S. Prediction of end-of-year reading achievement for first and third grade pupils. Proceedings of the American Psychological Association, 1972.

Hainsworth, P. K., & Sigueland, M. L. Early identification of children with learning disabilities. Crippled Children and Adults of Rhode Island, Inc., 1969.

Haring, N. G., & Ridgeway, R. W. Early identification of children with learning disabilities. Exceptional Children, 1967, 33, 387-395.

Hinkle, D. E., Wiersma, W., & Jurs, S. G. Applied statistics for the behavioral sciences. Chicago: Rand McNally, College Publishing Company, 1979.

Ilg, F. L., & Ames, L.B. School readiness. New York: Harper and Row, 1964.

Jansky, J., & DeHirsch, K. Preventing reading failure. New York: Harper and Row, 1972.

Johnson, S. W., & Morasky, R. L. Learning disabilities. New York: Allyn and Bacon, Inc., 1977.

Kapelis, L. Early identification of reading failure: A comparison of two screening tests and teacher forecasts. Journal of Learning Disabilities, 1975, 8(10), 39-42.

Keogh, B. K., & Becker, L. D. Early detection of learning problems: Questions, cautions, and guidelines. Exceptional Children, 1973, 40, 5-11.

Keogh, B. K., & Smith, C. E. Visual motor ability for school prediction: A seven year study. Perceptual Motor Skills, 1967, 25, 101-110.

Keogh, B. K., & Smith, C. E. Early identification of educationally high potential and high risk children. Journal of School Psychology, 1970, 8(4), 284-290.

Lindgren, S. D. The early identification of children at risk for reading disabilities: Finger localization ability, verbal skills, and perceptual-motor performance in kindergarten children. Unpublished masters thesis, University of Iowa, 1975.

Medvedeff, E., & Dearth, B. Early identification screening inventory. Iowa City: Westinghouse Learning Corporation, 1974.

Popham, J. W. Educational evaluation. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975.

Rogosky, M. M. Screening kindergarten children: A review and recommendations. Journal of School Psychology, 1968, 7(2), 18-27.

Rourke, B. P., & Orr, R. R. Prediction of the reading and spelling performances of normal and retarded readers: A four year follow-up. Manuscript in preparation, 1976.

Santa Clara Unified School District. Santa clara inventory of developmental tasks. Richard L. Zweig Associates, 1974.

Satz, P., & Friel, J. The predictive validity of an abbreviated screening battery: A preliminary cross validation study. Submitted to Journal of Learning Disabilities, 1976.

Satz, P., Taylor, G. H., Friel, J., & Fletcher, J. M. Some developmental and predictive precursors of reading disabilities: A six year follow-up. Unpublished manuscript, University of Florida, 1977.

Stufflebeam, D. L., Foley, W. J., Gephart, W. J., Guba, E. G., Hammond, R. L., Merriman, H. O., & Provars, M. M. Educational evaluation and decision making. Itasca, Ill.: F. E. Peacock, 1971.

Wilborn, B.L., & Smith, D. A. Early identification of children with learning problems. Academic Therapy, 1974, 9(5), 363-371.

Wright, P. W. Reading problems and delinquency. Paper presented at World Congress of Dyslexia, Mayo Clinic, Rochester, June 1974.

Zeitlin, S. Kindergarten screening: Early identification of potential high risk learners. New York: Charles C. Thomas, 1976.

APPENDIX I

Interview Questionnaire for the Delta Kindergarten

Screening Program Planning Committee

1. What is the district rationale for the Delta Kindergarten
   Screening Program?

2. State the goal(s) of the Delta Kindergarten Screening
   Program.

3. What are the specific objectives for each phase of the
   program?

   Phases are a) planning for implementation of screening

           i) parent involvement
          ii) time and place
        iii) method of administration
         iv) cost
          v) areas of assessment
         vi) techniques and/or instruments
       vii) personnel choice and training

     b) screening

     c) interpretation of data

     d) diagnosis and/or referral

     e) planning individual learning prescriptions

     f) parent notification

     g) in-service training of personnel

     h) implementing learning prescriptions

     i) evaluation and redesign

     j) follow through to grade one

4. How is each phase in the program to be carried out?

5. What overall evaluation procedures are planned to see if
   the program has reached the objectives in each phase?

APPENDIX II

INTERVIEW QUESTIONNAIRE TO SCREENING PERSONNEL

The information requested by this questionnaire will be gathered in interviews with kindergarten and learning assistance teachers and elementary principals. The information will be confidential and used as total group data to evaluate the Delta kindergarten screening program.

The Delta kindergarten screening program is the combined activities of kindergarten teacher ratings and checklists; the Santa Clara Inventory of Developmental Tasks and the remedial program activities implemented for individual children.

This interview questionnaire is designed to gather information about the phases of the screening program from each elementary school.

PHASES

1. Planning before the screening program.
   A. Planning for parent involvement

   Were parents notified, other than in the district handbook, before the screening program began? _____

   When were they notified? _____

   How were they notified? _____

   Did parents provide information about their child for the screening program? _____ What kind of information? _____

   _____

   _____

   B. Planning for time

   What was the time schedule planned for the kindergarten teacher ratings?

   _____

   _____

   _____

   What was the time schedule planned for the Santa Clara I.D.T. administrations? _____

   _____

   _____

C. Method of administration

How did the kindergarten teachers proceed in rating the kindergarten

children? _____

_____

_____

_____

Was any procedure used in observing the kindergarten children by

the teacher in order to fill out the Westinghouse checklist? _____

If so, what? _____

_____

Specify the procedures planned for the administration of the Santa

Clara I.D.T.?_____

_____

_____

_____

D. Plans for costs

Were costs budgeted for by the school?_____

If so, how much for the year?_____

What did the budgeted costs include? _____

_____

E. Areas of assessment

Was assessment of any other areas (besides those on the Santa Clara

I.D.T.) planned? _____ If so, what areas? _____

_____

F. Techniques and/or instruments

Were any techniques of instruments, other than the Santa Clara I.D.T.

and the Westinghouse checklist, used? _____ If so, what were they?

_____

How and when were they planned to be administered? _____

_____

_____

G. Personnel training

Did kindergarten teachers receive any prior training in the administration of the initial ratings and the Westinghouse checklist? _____

If so, who did the training and what was involved? _____

_____

Did those who administered the Santa Clara I.D.T. receive any prior training? _____ If so, who did the training and what was involved?

_____

_____

2. Screening

How many children were rated by the kindergarten teachers?_____

How many children received ratings of 1?_____ 2?_____ 3?_____

How many rating periods were completed this year? _____

When was the first rating completed? _____ the second?_____

_____ the third?_____ any others? _____

How many children had the Westinghouse checklist completed on them? _

_____

Where were the kindergarten children given the Santa Clara I.D.T.? __

_____

Who administered the Santa Clara? _____

How many children were given the Santa Clara I.D.T. after the first

kindergarten teachers' rating? _____ After the second? _____

After the third? _____ After any others? _____

Was the Santa Clara administered in one sitting or more? _____

If more, how many on the average per child?_____

How long was each sitting in general? _____

Approximately how long did it take to administer the Santa Clara to

each child? (in minutes) _____

Approximately how long did it take to administer the Santa Clara to all

the children? _____

3. Interpretation of data

Who did the interpretation of the combined data from all sources? ____

_____

From what sources were the data gathered that went into the interpretation?

_____

_____

How was this interpretation communicated to the kindergarten teachers?

_____

_____

If the kindergarten teacher rated a child as a '3' or two '2's in a row

and the Santa Clara assessment showed no weaknesses, how were the data

interpreted? _____

_____

4. Diagnosis and/or referral

Were any children referred for further diagnosis within the school
system, based on the kindergarten screening program results? _____

How many?_____ Who did the diagnosis? _____

Based on the kindergarten screening program results, were any children

referred to agencies outside the school? _____ How many? _____

What agencies? _____

Who made the decision as to further diagnosis or referral? _____

5. Planning the individual remedial activities program.

Who prepared the individual remedial activities? _____

From what source(s) were suggestions gathered to make up the remedial

activities? _____

_____

6. Parent notification

Were parents of identified children notified?_____

When were they notified? _____

How were they notified? _____

Did parents play any role in the interpretation of data or the decision for further diagnosis and/or referral? _____

If yes, what roles? _____

_____

Did parents play any role in the planning of individual remedial activities? _____ What role? _____

_____

_____

Were parents asked to do activities with their children at home? ___

What kinds of activities generally? _____

_____

Were parents trained to do the activities? _____ By whom? _____

7. Inservice training of screening personnel

Was there any inservice training of personnel as to planning and implementing individual remedial activities? _____

If so, by whom and what was involved? _____

_____

_____

8. Implementing individual remedial programs

How many programs were carried out during the year? _____

Did the kindergarten teacher, the learning assistance teacher or both work with the identified child? _____

If the learning assistance teacher worked with the identified child, were small groups established or were children worked with individually?

_____

_____

How often did the learning assistance teacher and the child meet on the average? _____

For how long each time? _____

How many kindergarten children met with the learning assistance teacher in groups? _____

How many met individually? _____

Where did they meet? _____

Did the kindergarten teacher do grouping and/or individualization for instruction on the basis of the information from the screening? ___

_____

How was it carried out? _____

_____

_____

Were any other people (eg. peer tutors, volunteers) used to do activities with identified kindergarten children? _____

How was it carried out? _____

_____

9. Evaluation and redesign

Were the remedial programs evaluated? _____ By whom? _____

How was evaluation data gathered? _____

What kind of data was gathered? _____

_____

Who redesigned the remedial program? _____

10. Follow through to grade one

Is follow through of the remedial program to grade one planned? ___

Who will arrange for the follow through? _____

How will it be done? _____

_____

APPENDIX III

PREVIOUSLY COPYRIGHTED MATERIAL,

LEAVES 112-114, IN APPENDIX III,

NOT MICROFILMED.

EARLY IDENTIFICATION SCREENING INVENTORY
Eugene Medvedeff, Ph.D.

STUDENT: AGE: GRADE: DATE:

TEACHER: SEX: SCHOOL: ROOM:

CHECK LIST

VISUAL MOTOR	YES	NO	*? D.A.
1. Has difficulty catching a ball			
2. Has difficulty coloring or tracing between lines			
3. Has difficulty tying shoe laces			
4. Has difficulty with buttoning			
5. Reverses letters and numbers-poor left-right concept			
VISUAL			
6. Eye or eyes crossed			
7. Squints			
8. Eyes water			
9. Rubs eyes			
10. Complains of headaches			
11. Eyes are frequently encrusted			
12. Head tilts to one side while doing paper work			
13. Has styes frequently			
14. Complains that he cannot see the board			
15. Eyes are frequently reddened			
16. Seems to tire easily after reading or doing paper work			
17. Blinks a lot			
18. Appears unhappy about reading. cannot read			
SPEECH AND HEARING			
19. Stutters or stammers			
20. Makes sound substitutions (w for r, f for th etc.)			
21. Lisps			
22. Is reluctant to participate in oral recitation			
23. Reverts to baby talk at times (infantile speech)			
24. Covers ears, or cups ear or ears			
25. Speaks in a monotone			
26. Seems to have trouble hearing			
27. Seems to have more than his share of earaches			

*? = I Don't Know

D.A. = Doesn't Apply

PHYSICAL AND BEHAVIORAL FACTORS

	YES	NO	? D.A.
28. Salivates at times (drools)			
29. Picks at himself			
30. Has difficulty identifying body parts			
31. Fingers or toes deformed or missing			
32. Ear or ears deformed			
33. Hair appears abnormal			
34. Has a cleft lip or palate			
35. Gets up and wanders in the classroom			
36. Does the same thing(s) over and over again			
37. Has difficulty in understanding what you say			
38. Has difficulty expressing himself			
39. Seems to blank out at times			
40. Has a history of high fevers			
41. Quality and quantity of work varies widely			
42. Eyes have different colors			
43. History of seizures or has had a seizure in your class			
44. Wets the bed at night or soils self in school			
45. Has a clumsy walk			
46. Has fainted in school			
47. Is slow in responding			
48. Loses his balance			
49. Sometimes covers his eyes or ears			
50. Seems to shiver or shake at times			
51. Stares a lot			
52. Has difficulty remembering, forgets easily			
53. Has difficulty reproducing simple shapes (⊙ □ △)			
54. Eyes are abnormally close together, far apart			
55. Has difficulty completing assigned work			

PSYCHO-MOTOR

	YES	NO	? D.A.
56. Hyperactive (on the go constantly)			
57. Avoids physical activities			
58. Squirms a lot			
59. Is distractable			
60. Has difficulty in running, jumping, hopping, etc.			
61. Has difficulty drawing, printing, cutting, pasting, etc.			
62. Loses his balance easily, trips and falls			
63. Has sudden bursts of energy or activity			

PSYCHOLOGICAL FACTORS

	YES	NO	? D.A.
64. Daydreams			
65. **Wants to be left alone (withdraws)**			
66. Has tantrums			
67. Sucks thumb			
68. Is destructive			
69. Abuses other children			
70. Exaggerates a lot (tells tall tales)			
71. Always wants to hold or touch another child or teacher			
72. Seems to be overly shy			
73. Repeats the same thing over and over (broken record)			
74. Cries easily			
75. Gives up easily			
76. **Needs excessive amount of personal guidance**			
77. Bites his nails			
78. Complains of pains			
79. Covers ears at times			
80. **Violates school rules and regulations**			
81. Seems unhappy with himself			
82. Refuses to cooperate unless forced			
83. Giggles or laughs for no apparent reason			
84. Sleeps in class			
85. Complains that people are picking on him			
86. **Has unreal fear or fears (monsters, animals, etc.)**			
87. Comes from a broken home			
88. Is afraid to come to school			
89. Seems to have facial tic			
90. Seems to be moody			
91. There is a family history of emotional disturbance			
92. Swears or uses bad language in class			
93. Throws up when he is frustrated or excited			
94. Appears emotionally dull (doesn't laugh or get angry)			
95. Has poor peer relations			
96. Seems to have a fear of failing a test			
97. Soils or wets himself in class			
98. Seems to hear what he wants to hear			
99. **Disrupts the class, is difficult to control**			
100. School attendance is irregular			

APPENDIX IV

EARLY

SCREENING

PROGRAMME

School District No. 37 (Delta)   September, 1977

School District No. 37 (Delta)
September, 1977

EARLY SCREENING PROGRAMME
SCHEDULE FOR RATING & TESTING

SCHEDULE FOR PROCEDURE

A. FIRST RATING PERIOD ⎫
    FIRST CHECK LIST   ⎬ KINDERGARTEN TEACHER
                        ⎭

Week of October 24th, 1977.
Referrals to learning assistance
teacher by October 28th, 1977

    FIRST TESTING   LEARNING ASSISTANCE
                        TEACHER

Completed by November 18th, 1977

B. SECOND RATING PERIOD ⎫
    SECOND CHECK LIST   ⎬ KINDERGARTEN TEACHER
                         ⎭

Week of December 12th, 1977.
Referrals to learning assistance
teacher by December 16th, 1977

    SECOND TESTING   LEARNING ASSISTANCE
                        TEACHER

Completed by January 20th, 1978

C. THIRD RATING PERIOD ⎫
    THIRD CHECK LIST   ⎬ KINDERGARTEN TEACHER
                        ⎭

Week of February 6th, 1978.
Referrals to learning assistance
teacher by February 10th, 1978

    THIRD TESTING   LEARNING ASSISTANCE
                        TEACHER

Completed by February 24th, 1978

D. RETESTING PERIOD   LEARNING ASSISTANCE
                        TEACHER

Completed by April 14th, 1978

E. REFERRALS TO SPECIAL COUNSELLOR

By April 21st, 1978

F. GATES-MacGINITIE READING TEST -
    READINESS SKILLS

Week of May 29th, 1978

B. CHECK LIST (Early Identification Screening Inventory - Westinghouse):

1. A separate check list is completed for each child rated as a <u>3</u>.

2. On the top of the check list, please complete all information requested and add with the "AGE," the birthdate of the child as follows:

    AGE   72-11-26   (year, month, day)
                 5 - 5

3. On the check list, spaces are provided for YES, NO, ?/DA responses.

    a) <u>?</u> - means that the teacher cannot answer from his/her own observation or knowledge. Mark with a check (✓) in the ?/DA column if this applies.

    b) <u>DA</u> - means "doesn't apply" and DA should be marked in the ?/DA column, if this is the case.

        <u>Note:</u> If child has no speech - mark all items DA

              If child cannot read   - mark the column DA

              If child is unable to move physically, use the DA

4. As soon as the teacher has completed the check list on each student rated <u>3</u> it should be forwarded to the Principal of the school who will forward it immediately to the learning assistance teacher.

School District No. 37 (Delta)
September, 1977

II. PROCEDURE:

A. FIRST RATING PERIOD:

1. The first rating period will take place during the week in which October 24th falls. (The teacher should have had at least four weeks of observing the child in a classroom situation before a rating is done.)

2. The teacher will rate each child with a 1, 2, or 3 in the first rating column on the class list.

3. The children rated a 3 must have a check list completed for them.

4. These check lists should be completed and forwarded to the Principal by October 28th, 1977 who immediately forwards them to the learning assistance teacher.

5. The testing of these children by the learning assistance teacher using the Santa Clara Inventory of Developmental Tasks will be completed by November 18th, 1977.

6. Test results and suggested activities for each child tested should be forwarded to the classroom teacher within a week of the completion of this testing.

7. NOTE: If in your judgment a situation which you think is critical arises between the rating periods, do not wait for the next rating period. Make your rating immediately and complete the check list immediately to forward to the Principal who would then forward it to the learning assistance teacher. The learning assistance teacher would then test the child and forward the test results and suggested activities to the class-room teacher.

This would apply, for example, to a child who had been rated a 1 who suddenly develops behaviour patterns (learning or emotional) which cause or would cause you to make a rating of 3.

B. SECOND RATING PERIOD:

1. The second rating period will take place during the week in which December 12th, 1977 falls.

2. The teacher will rate each child 1, 2, or 3 in the second rating column of the class list but independently of the first rating period.

3. A check list must be completed by the teacher on any child who:

    a) is rated a 3 during this rating period even though the child may have been rated a 1 or 2 for the previous rating period;

    b) has been rated a 2 for two rating periods.

4. These completed check lists will be forwarded by December 16th, 1977 to the Principal who immediately forwards them to the learning assistance teacher.

5. The testing of these children by the learning assistance teacher using the Santa Clara Inventory of Developmental Tasks will be completed by January 20th, 1978.

6. Test results and suggested activities for each child tested will be forwarded to the classroom teacher within a week of the completion of this testing.

7. NOTE: If in your judgment a situation which you think is critical arises between the rating periods, do not wait for the next rating period. Make your rating immediately and complete the check list immediately to forward to the Principal who would then forward it to the learning assistance teacher. The learning assistance teacher would then test the child and forward the test results and suggested activities to the classroom teacher.

    This would apply, for example, to a child who had been rated a 1 who suddenly develops behaviour patterns (learning or emotional) which cause or would cause you to make a rating of 3.

C. THIRD RATING PERIOD:

1. The third rating period will take place during the week in which February 6th, 1978 falls.

2. The teacher will rate each child 1, 2, or 3 in the third rating column of the class list but <u>independently</u> of the first two rating periods.

3. A check list must be completed by the teacher on any child who:

   a) is rated a 3 during this rating period even though the child may have been rated a 1 or 2 for the previous rating periods;

   b) has been rated a 2 for two rating periods.

4. These completed check lists will be forwarded by February 10th, 1978 to the Principal who immediately forwards them to the learning assistance teacher.

5. The testing of these children by the learning assistance teacher using the Santa Clara Inventory of Developmental Tasks will be completed by February 24th, 1978.

6. Test results and suggested activities for each child will be given to the classroom teacher within a week of the completion of this testing.

7. <u>NOTE:</u> If in your judgment a situation which you think is critical arises make another rating immediately. Complete the check list immediately to forward to the Principal.

   Follow the procedure as previously stated for rating periods.

D. RETESTING PERIOD:

To be completed by the learning assistance teacher by April 14th, 1978.

All children who were tested before the third testing period must be retested at this time.

Children who were tested during the third testing period may be retested at this time at the discretion of the principal, classroom teacher and learning assistance teacher.

Children who are to be retested at this time should be retested only in the area(s) in which they showed weakness(es) in the previous testing.

E.   REFERRALS TO SPECIAL COUNSELLOR:

Referrals must be in to Special Counsellor by April 21st, 1977.

APPENDIX V

PREVIOUSLY COPYRIGHTED MATERIAL,

IN APPENDIX V, LEAF 125,

NOT MICROFILMED,

DEVELOPMENTAL PROFILE

Santa Clara Inventory
of
Developmental Tasks

Name_____ Birthdate_____

School_____ Teacher_____ Grade_____

Testing Dates:

C.D.			
L.D.			
A.M.			
A.P.			
V.M.			
V.P.			
V.M.P.			
M.C.			

Scoring:
0 — Almost never
1 — Some of the time
2 — Most of the time

Conceptual Development

0 1 2	0 1 2	0 1 2	0 1 2
assign number value	identify first, last, top, middle, bottom	tell how 2 items are alike	sort objects 2 ways
8-8	8-9	8-10	8-11

Language Development

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
give personal information	describe simple objects	relate words and pictures	define words	language usage
7-7	7-8	7-9	7-10	7-11

Auditory Memory

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
perform 3 commands	repeat a sentence	repeat a tapping sequence	repeat 4 numbers	recall story facts	repeat 5 numbers
6-6	6-7	6-8	6-9	6-10	6-11

Auditory Perception

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
locate source of sound	identify common sounds	discriminate between com. sounds	match beginning sounds	hear fine diff. between similar words	match rhyming sounds	match ending sounds
5-5	5-6	5-7	5-8	5-9	5-10	5-11

Visual Memory

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
recall animal pictures	name objects from memory	recall a 3-color sequence	recall 2 items in a sequence	reproduce design from memory	recall 3 items in a sequence	recall 3-part design	recall word forms
4-4	4-5	4-6	4-7	4-8	4-9	4-10	4-11

Visual Perception

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
match color objects	match form objects	match size objects	match size and form on paper	match numbers	match letters	match direction on design	isolate visual images	match words
3-3	3-4	3-5	3-6	3-7	3-8	3-9	3-10	3-11

Visual Motor Performance

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
follow target with eyes	string beads	copy a circle	copy a cross	copy a square	cut with scissors	tie shoes	copy letters	copy a sentence	copy a diamond
2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	2-10	2-11

Motor Coordination

0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
creep	walk	run	jump	hop	balance on one foot	use of hands and arms	skip	balance on walking beam	jump rope assisted	jump rope unassisted
1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11

PRE-SCHOOL	5 - 5½ YRS.	6 - 6½ YRS.	7 YRS.

APPENDIX VI

School District No. 37 (Delta)
September, 1977

EARLY SCREENING PROGRAMME

DEVELOPMENTAL PROFILE (CHANGES)
based on
DEVELOPMENTAL PROFILE FOR SANTA CLARA INVENTORY
OF DEVELOPMENTAL TASKS

** PLEASE MAKE THE FOLLOWING CHANGES IN THE SANTA CLARA BINDER

I. Please note that the order of the following tasks has been changed:

Auditory Perception:

TASK 5-8   - "match beginning sounds" has been re-ordered to become
               TASK 5-10

TASK 5-9   - "hear fine differences between similar words" has been
               re-ordered to become TASK 5-8

TASK 5-10   - "match rhyming words" has been re-ordered to become TASK 5-9

Visual Memory:

TASK 4-6   - "recall a 3-colour sequence" has been re-ordered to become
               TASK 4-8

TASK 4-7   - "recall 2 items in a sequence" has been re-ordered to become
               TASK 4-6

TASK 4-8   - "reproduce design from memory" has been re-ordered to become
               TASK 4-9

TASK 4-9   - "recall 3 items in a sequence" has been re-ordered to become
               TASK 4-7

Motor Co-ordination:

TASK 1-8   - "skip" has been re-ordered to become TASK 1-9

TASK 1-9   - "balance on walking beam" has been re-ordered to become TASK 1-8

II. The following task has been replaced:

Visual Motor Performance:

TASK 2-8   - "tie shoes" has been replaced by TASK 2-8 - "copy a design."
               This new task "copy a design" is attached herewith. A copy is
               to be inserted in the Santa Clara Binder.

III. The following task has been expanded for clarification:

<u>Language Development</u>:

    TASK 7-7   -   "Personal Information"

                 This task states that the child be asked, "What is your address?"

                 To clarify this question for the child, questions such as the following may be asked to get at the address:

                         "Where do you live?"
                         "What is the number of your house?"
                         "What is the name of your street? What street
                          do you live on?"

<u>Auditory Memory</u>:

    TASK 6-5   -   Sentences

<u>Language Development</u>:

    TASK 4-6   -   Vocabulary

<u>Conceptual Development</u>:

    TASK 8-6

    TASK 8-7