Early Education: Preschool to Kindergarten, a Critical Period

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EARLY EDUCATION:
PRESCCHOOL TO KINDERGARTEN,
A CRITICAL PERIOD

by

John R. Chirco

A Project Report
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Specialist in Education Degree

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Throughout the course of one's education several persons are actively involved in the shaping of a student's knowledge. Several of these people leave the student with deeply rooted gratitude. Such gratitude exists for Doctors Neil Kent, Galen Alessi, and Howard Farris for the many various ways of helping this author. Another note of gratitude must be given to Doctor Fred Gault for his assistance and to my wife Judy, for her patience and clerical skills.

John R. Chirco
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CHAPTER I

EARLY EDUCATION: A REVIEW OF THE LITERATURE

The following review of literature is an attempt to sample a portion of the volumes of study and research in the area of early education, prior to first grade. In some instances these works extend from the newborn child and upward into the elementary grades as a means of longitudinal follow up on the effects of early education. This review will focus on the areas of prediction, influences of early education on later achievement, current trends and collecting data.

Prediction

Predicting future performance is a very difficult task if it is even possible. Ross (1976) explains that:

"An intelligence test is no more than a measure of performance on tasks where prior learning materially affects how well or how poorly one does."

Bradley and Caldwell (1976) conducted a study on the effects of early familial home environment and changes in mental test performance in children from six to thirty-six months old. They concluded that home environment does contribute to the instability of performance on infant tests. Lewis and Mc Gurk (1972) also support the contention that infant intelligence tests are unsuitable for evaluation of the infant. In an article edited by Mc Glannan (1974)
reference is made to the 1955 effort of Bayley. The results of a longitudinal study on the growth of intelligence were examined. Bayley attempted to find predictive items from the first year scale on the Berkely Growth Study children.

She used thirty-one items and "studied the relationship between the scores obtained at six, nine, and twelve months and the intelligence scores at ages sixteen, seventeen and eighteen years." She stated that:

"We were unable to get significant correlations even though our sample was composed in large part of the cases on whom the items were selected, including all of the extreme cases that would determine a relationship. So far, none of these efforts has been successful in devising an intelligence scale applicable to children under two years that will predict their later performance."

This same article states the question of other researchers that it is uncertain where the difficulty lies: the nature of verbal intelligence or measuring infant behaviors. Although there are difficulties, researchers such as Behrmann (1972) have stressed that prediction is very essential especially when early identification and learning are concerned. She deviates from attempting to predict readiness for school in the sense of the child's preparedness for reading and math. She addresses several topics: such as, comfort, nutrition, clothing and sense of time by listing a series of eighteen questions for parents to answer. Behrmann feels that parents may find
it very natural to send their children off to school and at the same time feel that parental responsibility ends at that point. Such questions as: "can he manipulate his clothing; does he know the layout of the school; does he know what is expected of him at school and can your child follow directions?" approach school readiness as the parent's responsibility.

Mardell and Goldenberg (1975) have dealt with the prediction of school readiness based on the development in the areas of social behaviors, concepts, communications (speech and language), gross motor and fine motor. They developed an evaluation instrument called the Development Indicators for the Assessment of Learning (DIAL). The purpose of this test was to incorporate essential elements found separately in many other tests and thus provide preliminary identification on "high risk" children. This instrument was developed through pilot studies and validity tests where an independent diagnostic team evaluated the children by another means. The initial pilot study detected only one variation between the DIAL and the independent diagnostic team out of the twelve subjects evaluated. The field testing of 4,423 children was based on a stratified sample of children between the ages of thirty and sixty-six month. Sex, race, geographic location and socio-economic status were considered. The predictive value (validity) was assessed by a retest method the following year. The indications point to high predictive...
validity as did an additional follow up retest in the third year of the project. As a result of the pilot and field studies, several items were statistically eliminated since they were not age relevant and the children did not do better on the items with increased age. Sex differences were also noted as females scores exceeded that of males in every case on fifteen selected items of the one hundred eighteen total items. Separate male and female norms were established.

The DIAL was administered by five adults, each having a specified assessment area. Paraprofessionals were utilized for administration of the DIAL after training and passing a written and performance test at 80% criterion. Two professionals were used as part of every group of five adults. Administration time was twenty-five to thirty minutes per child.

Project Genesis (Jens, 1970) was a preschool study which also attempted to identify children with potential learning problems before they entered kindergarten. The children were screened in such areas as preceptual, motor, vision, hearing, speech and developmental history. The information collected was distributed to the kindergarten teachers and remedial programs were developed and continued into the first and second grades.

The results of this study indicated that the children that had been identified by the preschool testing and exposed to remedial programs for three years scored significantly
higher on tests of auditory perception and visual motor integration when compared to those in control schools. Therefore, early identification at the preschool level and remedial programs based on the identification are of primary importance.

Satz and Friel (1974) conducted research in the area of predicting specific reading disabilities by means of a developmental and neuropsychological test battery with a population of four hundred seventy-three white male kindergarten children in Florida public school systems. In addition to the initial study, a two-year preliminary follow-up was conducted. The standardization battery consisted of twenty-two variables such as age, handedness, finger tapping, Peabody Picture Vocabulary Test (IQ scores), Berry-Buktenica Developmental Test of Visual-Motor Integration, Right-Left Discrimination Test, Auditory Discrimination, and Similarities subtest of the Wechsler Intelligence Scale for Children.

The children were rated by their teachers as "High Risk" (severe or mild) or "Low Risk" (average or superior) as an indicator of their reading level based on a ten-item scale (severe 0-2, mild 3, average 4-5, superior 6-0). No readiness constituted a score of zero while Advanced Third Reader received a score of nine. In the "High Risk" group, seventy-three children were identified, while the remainder or "Low Risk" were rated as average.

Substantial differences were found between the
criterion groups on the majority of the tests. The "Low Risk" group performed consistently better than the "High Risk" group. The results strongly suggested that reading achievement levels of the children at the end of first grade can be validly predicted from an assessment of their developmental and neuropsychological performance at the beginning of kindergarten. The severely disabled readers (100%) and the superior readers (95.1%) were validly detected while the prediction errors were made with the mildly disabled or average readers.

The overall results of this study suggest that early detection for "High Risk" children before they enter formal reading is possible and its value is found in working with the child at a time when:

"...he is responsive to change and at a time when he is less subject to the shattering effects of repeated academic failure."

Book (1974) also demonstrates the predictive validity of a screening battery administered to kindergarten children by follow-up for two additional years. Again, his purpose was to develop a method for early identification of academic high risk children and to provide the necessary information needed to develop academic programs as a result of the predictive assessment. Kapelis (1975), on the other hand, cautions against the use of screening devices as the sole predictor for placing children in special programs due to the various degrees of error. She suggests the need for teacher ratings in conjunction with screening devices such as tests. She also points out
the fact that even though several tests may have high predictive value, the outcomes being predicted would be wrong in a considerable number of cases. Ross (1976) suggests that:

"... by determining the optimal conditions for adequate learning, one obtains important clues for remedial work for which the assessment is merely a means."

He goes on to say that assessment should not be an end in itself but should be of direct benefit to the child in the form of specific remedial or educational services as a result of the assessment.

Cruikshank (1975) advocates the use of the criterion referenced evaluation which is applicable at all ages. By this method a goal is set and determination is made as to the child's performance in relation to that goal. The criterion goals are "observable, quantifiable and sequential". In this manner, a determination can be made as to what is known or not known about the child. The level of learning can be identified in regards to where teaching should begin and what should be taught.

Proger and Mann (1973) describe three criterion referenced measurements that can be used. The Individually Prescribed Instruction (IPI) is used to place children with the "sequenced curriculum of instruction units". The Comprehensive Achievement Monitoring (CAM) samples an "entire year's content each time monitoring
is done". The third method is "precision teaching" where the rate of behavior is recorded on a "Standard Daily Behavior Chart". The recorded rates refer to ratio of correct responses divided by the "amount of time in minutes needed to yield the frequency". The rates are plotted daily on a graph. Remedial techniques are checked by the performance as recorded on the graphs. This technique also applies to academics as well as behavior.

Influences of Early Education on Later Achievement

Many areas of learning are influenced by early education as evidenced by later achievement. Several authors have dealt with many of these various topics: incidental teaching of language (Hart and Risley, 1975), social behavior (Halverson and Waldorp, 1975), emotional impairment (Kohn and Cohen, 1975) and cognitive results (Austin and Postlethwaite, 1974).

Austin and Postlethwaite suggest that not only age but sensorimotor activities, qualitative planning and the effects of home background may influence the attainment of instructional objectives.

Pusser and Mc Candless (1974) demonstrated that inner-city, economically disadvantaged girls who attend preschool do better in first and, possibly, second grade than do males from the same socio-economic background who also attended preschool. They also measured five factors
of socialization:

a. verbal facility (verbal skills and speech)
b. coping with anxiety by withdrawal
c. coping with anxiety by aggression
d. alienation (level of identification with others)
e. sex

These factors were compared for degree of correlation with the Metropolitan Readiness and/or Achievement Tests. The results indicated that verbal facility produced the greatest degree of correlation for males (.459) and females (.564) at the readiness level. The only other significant correlation was also found to be in verbal facility for females (.552) at the end of second grade.

Evans and Bangs (1972) have demonstrated the effects of preschool training on later academic achievement in the areas of language and learning disabilities. Their study incorporated the use of four groups: a control normal group without suspected problems (CN), a control group with suspected learning disabilities (CLD), and experimental group that did not complete the program or dropped out (EDO), and an experimental group that completed or graduated from the program (EGR). These subjects (N=257) were evaluated by the Language and Learning Assessment for Training (LLAT) to identify language and learning problems. The ages of the subjects ranged from three to six years.
Those children that had been identified by the LLAT were placed in a curriculum designed to teach the skills necessary for academic success such as oral language, basic vocabulary, appropriate behavior, preacademic, motivation and home training hints for parents. Follow up on the academic achievement of these children was conducted at the beginning of grade one. Expected grade levels were individually computed and the subjects were then administered the Science Research Achievement Test (SRA). Total reading achievement and total arithmetic achievement scores were considered for all four groups. It was demonstrated, based on the SRA test results, that the following percentages of the four groups were at grade level in total reading and total arithmetic:

- CN = 75% reading  67% arithmetic
- CLD = 18% reading  9% arithmetic
- EDO = 25% reading  50% arithmetic
- EGR = 70% reading  66% arithmetic

Additional follow up indicated that the EGR group has maintained the preschool gains through the second grade of public school, however, the authors suggest that additional long range study is needed on the effect of early childhood education.

Goulet, Williams and Hay (1974) found a positive relationship between chronological age, amount of time in school and mental age. A similar relationship existed between amount of time spent in school and IQ.

Being able to predict achievement is a difficult
task and is subject to criticism. The areas that prediction are being made on are subject to the influences of many past variables and will continue to be influenced by those to come.

Current Trends

The value of prekindergarten screening is, in part, supported by its purpose of early identification (Long, 1971). The increasing growth of early learning programs such as Head Start and preschools for the handicapped attest to the concern for early learning and identification.

The early identification of potential reading problems has received considerable attention (Zamm, 1973; Silberberg et al., 1972) but over the years more extensive information has been made available as to the many different ways in which a person learns (Hammell and Larson, 1974). One such means has been found in diagnostic teaching (Severson, 1972), a method offered as an alternative to making predictions about learning. This approach utilizes observations of the student's various ways of learning that are specific to that individual while teaching is being attempted. Additional approaches to teaching are gained from this method.

Collecting Data

Prekindergarten screening for the purpose of early identification of potential learning problems has evolved over the recent years and has varied in methods from
school district to school district. The depth of the
evaluation itself varies from the evaluation by school
counselors (Rephart, 1974) to each child being evaluated
by school psychologist, school social worker, physical
education teacher, speech therapist, reading consultant
and kindergarten teacher (Handbook of Early Identification
of Potential Reading Problems, 1975).

As the method varies so does the application of the
information gained by such an evaluation. Some school
districts advise parents that their child would benefit
from an additional year at home and therefore, they should
not enroll their youngster in kindergarten for the up­
coming school year (Rephart, 1974).

Other methods suggest that the application of the
testing results be used in conjunction with other stand­
ardized methods (Davis, 1976) in the development of a
specific curriculum for the individual child.

The State of Michigan, on the other hand, has suggested
in its guidelines for Mandatory Special Education (1974)
that the information gained through prekindergarten screen­
ing is sufficient to serve as an appropriate evaluation
for the consideration for placement of a child in special
education.

The rationale for all of the various methods of
prekindergarten screening are basically the same: ident­
ification and prevention of learning problems at an early age.
Just how that information is gained varies widely and the reliability, validity and usefulness of that information is highly dependent on the method of evaluation. Data such as readiness scores, mental age levels or IQ scores do not provide specific diagnostic or prescriptive data. The use of this data is not the most reliable way to draw conclusions about a child's abilities or intelligence. Low income children as demonstrated by Wylle (1975) have been shown to:

"...pay closest attention to those features of the environment that are significant in their personal-social world: what attracts is related to need fulfillment."

More objective data, such as that gained from the criterion referenced evaluation, eliminates the comparison of the child with a normative group but does provide the necessary information relevant to his/her specific individual strengths and weaknesses (Boehm, 1974).

Unfortunately, a criterion referenced evaluation is not possible in a prekindergarten screening when norm referenced standardized instruments are used. It would therefore seem logical that the next step would be to change the instruments used for the evaluation. However, change is not always readily received as was pointed out by Sarason (1971) in his research which indicated those ideas which were most widely accepted were the ones which represented the least amount of change from the status quo.
Wirt and Kirst (1972) supported the research of Sarason and go on to list six basic attitudes or approaches toward change:

1. Acceptance of existing situations with minimal expectation for change.
2. Centering choices in policy on only a few alternatives and eliminating radical options.
3. Consideration of only as few or limited number of consequences of any given policy change.
4. Adjustment of objectives to fit policy.
5. Willingness to reformulate the problems as new data comes up.

Assuming then, that change is complicated and difficult, other alternatives should be developed which clearly and empirically support such change. These alternatives will be discussed in the following chapters.
The importance of prekindergarten screening is found in its predictive value. In order to judge this factor an assessment must be made as to its accuracy of identifying children with existing or potential learning problems.

Teacher referrals of seventy individual kindergarten students for special services such as school psychologist, school social worker or speech and language pathologist, were used as the source of gathering information to judge the predictive value of prekindergarten screening. However, some of these children were referred for two or more of the special services. As a result, fifty-five referrals were made for only one special service while eleven referrals were made for two of the services and five for all three special services. The total number of referrals (individual or combined) was ninety-two.

Teacher judgement, via referrals, was selected as Bower and Lambert (1971) suggested and Orvik (1973) demonstrated that teacher judgement is a valid and basically reliable source of information. Ferinden and Jacobson (1970) also found that test profiles indicated that teacher observations were:
"...80% effective in predicting potential learning problems at the kindergarten level employing subjective judgement alone."

Method:

The kindergarten students (N=587) of two Michigan (Kent County) school districts during the 1976-1977 school year were used as subjects. The subjects varied in socio-economic background, race religion and sex. Only thirty-four of those referred individuals were available for prekindergarten screening while thirty-six were not due to the subjects' unavailability at the time of the screening or screening was provided through some other means.

Children who were screened were to be considered identified as possibly having learning difficulties if the prekindergarten screening committee, consisting of school psychologist, school social worker, reading teacher, kindergarten teacher, principal, speech and language pathologist and physical education instructor jointly agreed that the child exhibited significant weaknesses. The criterion of significance was reached if a child was more than 20% below that which is considered developmentally average for his chronological age when using the A B C Inventory to Determine School Readiness, Developmental Test of Visual-Motor Integration, Draw a Person Test and informal evaluation by the school social worker, speech
and physical education instructors. The findings and recommendations were recorded in the child's cumulative record (CA-60) by the screening committee. This author then referred to these records in an attempt to verify if these children were identified.

Results:

Of the thirty-four children that had gone through prekindergarten screening and were referred for special services, nine had not been considered as identified by the prekindergarten screening committee.

When computed for percentage the accuracy level of prekindergarten screening can be determined:

\[
\frac{\text{number referred}}{\text{number referred but not identified}} = \frac{34}{9} = 73.5\%
\]

To determine the degree of relationship between those children identified by prekindergarten screening \((X=25)\) and the number of teacher referrals \((Y=34)\), the Pearson product-moment correlation method \((\text{Freeman, 1965})\) was used. This statistical method was selected due to its usefulness in demonstrating a relationship between two separate variables \((\text{children identified by prekindergarten screening and teacher referrals})\) that utilizes a single common factor \((\text{same population for both variables})\). A score of one \((1)\) was assigned to each \(X\) and \(Y\) for computation purposes \((\text{see illustration pg. 18})\). The total population \((N=287)\) included only those kindergarten students who were evaluated by the prekindergarten screening method and attending the same two school districts mentioned earlier in this chapter \((\text{see Method})\). A correlation of \(0.84\) was found.

One final point should be mentioned. When considering that four of these children were referred for more than
Pearson's Product-Moment Correlation: Relationship Between Those Children Identified by Prekindergarten Screening (X) and the Number of Teacher Referrals (Y).

\[ X = 1 \quad Y = 1 \]

\[ \sum X = 25; \quad \sum X^2 = 25; \quad \sum Y = 34; \quad \sum Y^2 = 34; \quad \sum XY = 25 \]

\[ N = 287 \]

\[
r = \frac{\sum XY - (\sum X)(\sum Y)}{N} \]

\[
\sqrt{\left[ \frac{\sum X^2 - (\sum X)^2}{N} \frac{\sum Y^2 - (\sum Y)^2}{N} \right]} \]

\[
r = \frac{25 - (25)(34)}{287} \]

\[
\sqrt{\left[ \frac{25 - (25)^2}{287} \frac{34 - (34)^2}{287} \right]} \]

\[
r = \frac{22.04}{26.16} \]

\[
r = 0.84 \]
one special service, a 76.9% overall accuracy level can be computed:

\[
\text{total number referred} \quad \frac{\text{total number referred but not identified}}{= \frac{39}{9} = 76.9}\%
\]

Evaluation at the Preschool Level: An Alternative

In an attempt to provide more objective data regarding the strengths and weaknesses of children a study was initiated to evaluate the performance of the preschool children while in preschool, thus eliminating the need for prekindergarten screening.

Method:

During the 1975-1976 school year 310 children attended the preschool classes operated by the Wyoming Community Education program. Of these 310 children, thirty were either too young, by state law, to enroll in kindergarten the following year or were anticipated to enroll in private schools. The remaining 280 children were anticipated as enrollments in the kindergarten classes of the Wyoming and Godfrey/Lee public school districts during the following school year and were therefore used as subjects. These subjects varied in socio-economic background, sex, race and religion. None of the subjects were younger than fifty-two months of age nor older than sixty-eight months of age. These 280 students were evaluated by observations of the preschool teachers. Each teacher observed her classroom only. The observations covered areas that are traditionally associated with school readiness, such as
motor development, cognitive, social, emotional, speech and language.

The project involved eight preschool teachers. Inservice training via demonstrations were provided by a school psychologist, school social worker and speech and language pathologist in an effort to train the teachers what and how to observe. The teachers were instructed in a group setting and then individual appointments were made with the various inservice trainers to answer specific questions that arose after the initial meeting. The observations were conducted for approximately ten weeks after the initial inservice training had been completed. The school psychologist, school social worker and speech and language pathologist were available for consultation.

The observations centered on five main classifications: Cognitive (verbal concepts, colors, numbers, auditory and visual memory), gross motor (balance, jumping, hopping, running, catching a ball), fine motor (cutting, tracing, drawing shapes), speech and language (articulation, sentence structure, fluency), social-emotional (peer and adult relations, play, self-care, self confidence). The results were recorded for each child (see illustration, pg. 21) and were distributed to the appropriate kindergarten teachers.

Children were considered as identified as having actual or potential learning problems if they were functioning below a criterion of 80% of that which is traditionally considered developmentally average for the individual child's chronological age based on the teacher's classroom observations of the performance of these children. The children who were rated as average or above were not
Recording Form for Preschool Teacher Observation/Rating
Individual Children Enrolled in Preschool

Date ___________
School ___________

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<tr>
<th>Name</th>
<th>Cognitive</th>
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<th>Fine Motor</th>
<th>Speech-Language</th>
<th>Social-Emotional</th>
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recommended for evaluation by the prekindergarten screening method. The results of these observations were forwarded to the anticipated kindergarten teacher via the cumulative file (CA-60) that had been prepared at the preschool.

Approximately fifty children of the original 280 were recommended by the raters for additional diagnostic testing through the prekindergarten screening. These fifty preschool children were identified as having at least one weakness from the five categories listed. As a result of this weakness these children were recommended for further evaluation to be conducted by a person from the prekindergarten screening team who specialized in the specific area. These children were not evaluated in any additional area by the prekindergarten screening team as the data from the preschool ratings was utilized. Again, all data was filed in the CA-60 file.

To assess the value of this observation/rating method a comparison was made with prekindergarten screening as to the reliability of each method as measured by the number of referrals by the kindergarten teachers requesting special services from school psychologist, school social workers, speech and language pathologist. The CA-60 files were referred to for the necessary data.
Results:

The population used in the first section of this chapter was utilized (N=587 kindergarten students). From this number, 280 (47.7%) had attended the Wyoming Community Education preschool program. Seventy individual children were referred for special services. Twenty-one (30.3%) of these children had participated in the preschool programs. Those children that were evaluated by the prekindergarten screening method totaled thirty-four (N=34) while fifteen others had not received either evaluation. As demonstrated in the first section of this chapter (Prekindergarten Screening) a 76.9% overall accuracy level was established by the prekindergarten screening method.

Of the twenty-one individual children that had been evaluated at the preschool level and also referred for special services only two had not been considered as identified as having any learning problems; therefore, a 91.5% accuracy level was established:

\[
\frac{\text{Number evaluated and referred}}{\text{Number evaluated, not identified but referred}} = \frac{21}{2} = 91.5\%
\]

However, five of these children, although identified as having at least one learning problem, had multiple weaknesses (see chart, pg. 24) and were consequently referred to more than one of the special services. As a result, thirty-one total referrals were made for special services for an overall level of 83.9 percent accuracy:
Subjects Evaluated at the Preschool Level That Were Also Referred for Special Services: A Comparison of the Number of Teacher Referrals and the Number of Identification Made by the Preschool Observation Method.

<table>
<thead>
<tr>
<th>Subject</th>
<th>(N=21)</th>
<th>Number of Teacher Referrals</th>
<th>Number of Identified by Preschool Observation</th>
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<tr>
<td>1</td>
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</table>

Totals 21 | 31 | 26

Total Referred but not Identified = 5
\[
\frac{\text{Total number referred}}{\text{Total number of unidentified areas of weakness}} = \frac{31}{5} = 83.9\% 
\]

In an effort to determine the relationship between the teacher referrals and preschool observation method the Pearson product-moment correlation study was used. Each child identified by the preschool teacher observation method was assigned a score of one \((X=1)\) and those children that were referred for special services were also assigned a score of one \((Y=1)\). The total population \((N=280)\) consisted of those subjects that attended the Wyoming Community Education preschool program. A correlation of \(.94\) was established (see figure illustration pg. 26).

**Discussion:**

The lower accuracy rate caused by the multiple referral is subject for further investigation as many children that have problems in one area may develop problems in other areas also. As a result, the accuracy of identification from both procedures could possibly be changed. On the other hand, both of the identifying procedures as well as the ways in which the data were utilized should also receive further investigation.

One final point should be made. Assuming that teacher referrals are highly reliable sources of identifying children with learning problems it should be safe to assume that prekindergarten screening and the observation method at the preschool level are also
Pearson Product-Moment Correlation:
Relationship Between the Preschool Teacher Observation Method and Teacher Referrals

\[ r = \frac{\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\left(\frac{\Sigma X^2}{N} - \frac{(\Sigma X)^2}{N}\right)\left(\frac{\Sigma Y^2}{N} - \frac{(\Sigma Y)^2}{N}\right)}} \]

\[ r = \frac{19 - (19)(21)}{280} \]

\[ r = \frac{17.58}{344.29} \]

\[ r = .94 \]
reliable sources based on the high correlations between the two procedures and teacher referrals. With these high correlations it can be safely assumed that both methods related well with teacher referrals however, the use of preschool observations tended to produce a higher correlation (.94) than the prekindergarten screening method (.84). These correlations do not necessarily suggest the use of one method over the other however, it was previously established that data collected over an extended period of time is more reliable than that which is collected by brief observation. The criterion referenced evaluation should also provide more useful information than the norm referenced standardized test. The use of the preschool observation method is an attempt to produce an objective, reliable source of data collected over an extended period of time. This procedure also relied on the use of the criterion referenced evaluation by means of observations (see pg. 20). The use of the preschool observation method is therefore more reliable, objective and useful than the prekindergarten screening method. Further study will be necessary to determine the longitudinal effects of the preschool observation method. Additional support for the use of preschool data will be provided in a later chapter.
As mentioned in Chapter One many different reasons are given for the support and value of prekindergarten screening. They vary widely but all appear to have the same objectives of early identification of learning problems and what can be done about them.

A. Maturity or Readiness to Learn

One specific result of prekindergarten screening was the recommendation that certain children should remain home an additional year and not enter kindergarten until the following school year based on the assumption or diagnosis of immaturity (Kephart, 1974). This particular recommendation has been a source of controversy and other researchers (Aggas, et. al. 1968) have suggested the development of highly structured and engineered programs to teach the preschool age child reading, writing, mathematics, communication, problem solving, self control, motor skills and perceptual skills. They have proposed teaching academics:

"...as rapidly and intensely as the child will respond". (pg. 178)

A few of the suggested terminal behaviors of this project would be:
"...to read comprehensively through the level considered average for a fourth grade public school student...use addition, subtraction, multiplication and division operations...work for long-postponed reinforcement without immediate feedback". (pg. 182-284)

They propose that the natural environment can be structured through appropriate management to increase the preschooler's productivity and social adjustment. Other studies on early learning have supported this proposal (Evans and Bangs, 1972).

A program recently developed called the Brookline Early Education Project (BEEP) is described by Pines (1975) as probably the first public school system to include "babies". BEEP services children almost from the time of birth, the majority being one and two years old. The program is based on the theory that the general ability to learn is determined largely before three years of age and that parents are performing the major education job rather than teachers. The program is free to parents but the cost runs from $530-$1600 per child. The money is provided from the Robert Wood Johnson Foundation and Carnegie Corporation. The success of the program has not been assessed as to its effect on later learning because these children have not yet entered school.

Satterly (1975) has pointed out that concern by teachers over developmental stages such as those suggested
by Piaget is not always warranted and that these teachers should place more stress on knowledge of the "culture" of the school rather than on the theory of developmental stages.

Legislation in the form of the Child and Family Services Act of 1975 is supporting the downward extension of early childhood education and day care for two and three year old children. Murphy (1975) cites the support of the National Education Association and the American Federation of Teachers for early childhood education programs with both organizations suggesting that such programs be housed and directed by public schools. They offer several reasons: qualifications of the teachers, available space due to declining enrollments, and the availability of teachers.

Marcovich (1975) demonstrated the value of early education in a program funded by Title I (Elementary and Secondary Education Act). This program focused its attention in a low income area which had traditionally produced many children with learning problems. Their goal was to search the area for eligible preschool age children and go into the homes of these children, work with the child and at the same time teach the parents how to work with their own child. The benefits of the program were gained from the early detection of problems, help for the children and parents, and appropriate school
placement at enrollment time. Of the first twenty-eight children in the program, nineteen were in regular kindergarten, one in a Learning Disabilities classroom and eight were placed in a developmental kindergarten program.

The term maturity, or readiness to learn, leaves wide room for interpretation. The literature supports the statement that early education is appropriate and essential for many children and that by appropriate management of the environment and methods by which we learn, higher achievement and success can be experienced, especially by those who have traditionally been labeled slow learners.

B. Health

Good health is a vital asset to learning at any-time (Galante et. al. 1972). If physical, medical, dental or other health problems exist they can interfere with the learning process (Havard, 1973). This has been a concern to educators. The concern is demonstrated in the extensive use of health related services such as state laws requiring physical examinations and immunizations prior to kindergarten enrollment, school and/or county health nurse services for school districts, vision and hearing evaluations provided by the public school and dental hygiene programs.

Many prekindergarten screenings have identified several medically related problems that are not only
obvious to the casual observer but also those that are more difficult to pinpoint without specific knowledge of symptomatology.

Vision, hearing, dental, nutritional, and various health problems have been referred to the appropriate professional services and have been treated, controlled or eliminated thus reducing the probability and/or severity of associated early learning problems due to poor health and/or physical handicaps.

C. Speech and Language

Speech and language pathologists evaluate the child in an attempt to identify gross areas of weakness. Recommendations are also given for more indepth testing of children with less severe problems or those that cannot be accurately diagnosed by this type of evaluation.

The children with gross speech and language disorders would receive immediate attention while the less severe or suspected may be thoroughly evaluated soon after kindergarten enrollment.

These professionals are also looking for symptoms of problems associated with the voice, teeth, tonsils and tongue. Referrals to other professional services, such as an orthodontist or family pediatrician, would be initiated if symptoms were identified.

An extremely critical part of the testing would include the evaluation of language skills beyond the
development of syntax. How well is the child able to express or label? Kirk et. al. (1975) and Hunt et. al. (1975) have demonstrated that children in Headstart programs, when compared with children from nursery school programs, are significantly weaker in their language development on the receptive and expressive levels. Both groups were able to match shapes but the Headstart children were significantly less able to indicate the names of the shapes when asked to verbally identify them. They were also significantly weaker than the nursery school children in identifying the shapes when the shapes had been named for them.

The results of these studies indicate the need for early identification, prevention and remediation of language problems in lower socio-economic groups.

D. Motor Development

Physical education teachers are able to plan programs for individuals students not only in their group classes but also to help the kindergarten teacher develop specific performance classroom objectives in the gross motor development area.

If more extensive problems are identified, physical or occupational therapist consultation can be sought and services provided to the school and home.

E. Kindergarten Programs or Curriculum

The prekindergarten screening is particularly
useful for the kindergarten teacher. The kindergarten general education classroom is where almost all of the children will eventually come together. With this information available to the teacher she can begin to prepare by gathering materials and developing objectives for the individual child.

A recent survey was conducted by this author in the Wyoming (Michigan) Public Schools. This survey asked the question:

"How often have you found it necessary and/or helpful to refer to the information that was gained through the pre-kindergarten evaluations?"

Specific periods of time were selected (May-June; September-October; November-December) to provide this author with two main sources of information: how frequently is the information referred to and when, at what time of the school year, is it most useful.

Referred to can be defined as any reference or use made of the data whether the reference was for one child or several children on a single occasion. Some teachers reviewed the entire list of children that would be attending or had been enrolled in their particular school, in one setting.

The dates of May-June were used in this particular survey mainly because the prekindergarten screening had been completed by May of the school year prior to
kindergarten entry and the information was immediately made available to the prospective kindergarten teachers.

Eleven kindergarten teachers in nine elementary schools were surveyed (see cumulative record, pg. 36). The total number (thirty-five) of references to the data were greatest in the September-October period which, incidentally, is the beginning of the school year. The lowest frequency of reference (twenty-two) occurred during the May-June period. Thirty references were made to the data during the November-December time period.

Several incidental facts were learned from this survey. Of the eleven teachers questioned, eight utilized the prekindergarten screening data during the May-June period. All of the teachers utilized the data at least one time during the September-October period thus making it the most frequent and consistently utilized period. Only six of the teachers referred to the data during the November-December segment. This was the most inconsistent but not the least frequently used period.

Although speculative, it would appear that the period in which the children were already attending kindergarten was viewed as the most crucial time to review the data. There may be several reasons for this. As Sarason (1971) indicated resistance to change itself may be a contributing factor while on the other hand, simple procrastination or lack of time during the May-June period could
Cumulative Number of References Made to Prekindergarten Evaluation Data by Individual Teachers Over a Specified Period of Time

Number of Teachers Making Reference to Prekindergarten Evaluation Data
easily account for the higher September-October data use period. Consideration must also be made for the fact that in the September-October period enrollments are basically set and when that is accomplished, individual programs can be developed for the child who is actually attending kindergarten as opposed to the anticipated attendance that is provided by the prekindergarten screening and the information made available at the May-June period. Additional study will be necessary to empirically substantiate these speculations and will therefore, be the topic of future research at a later date.

F. Summer Recreation Programs or Group Activities

Summer recreation programs are available to provide experience for the prekindergarten child. This exposure may better prepare the child for the group experiences of kindergarten as well as providing socialization opportunities and a wealth of other enrichment activities.

G. Title I Summer School

This is a federally funded program (Public Law 93-380) which is administered by the individual states. Funds have been allotted for the education of children with learning problems in arithmetic and/or reading.

Several eligible children are identified by the prekindergarten evaluation and can begin to receive educational services in a summer school program prior to
kindergarten entry.

H. Further Diagnosis

The reliability of the prekindergarten screening can be questioned due to its brevity in depth. As a result a survey was conducted in two Wyoming (Michigan) public school systems which gives support to the contention that the prekindergarten screening is not a thorough method of evaluating children but is provided to identify significant abnormalities or potential learning problems with the end results of this identification leading to prevention, remediation or treatment of the problem.

Factors of the student population, such as sex, ethnic background and socio-economic levels were not specifically dealt with. However, both school districts receive funds from Public Law 93-380 (Elementary and Secondary Education Act) as administered through Title I Programs by the Michigan Department of Education (1976).

Method:

Forty-eight staff members in eleven elementary schools were surveyed. Of those, twenty-seven responded to the questionnaire. A representative sample of all the professional staff members included: principals, school social worker, remedial reading teachers, kindergarten teachers, physical education teachers, school psychologists, and speech and language pathologist.
Two specific questions were asked:

1. Do you see prekindergarten screening as:
   a. a rough estimate of a child's abilities or
   b. a thorough evaluation of a child's abilities?

2. As specifically as possible, what do you believe the goals or objectives of prekindergarten screening are?

Five categories from the responses to the second question were selected by this examiner due to the frequency of use by the subjects. The reliability of these categories were checked by having a second examiner read the statements and responses of the questionnaire and classify the responses as to their frequency. The second examiner did not have previous knowledge of the conditions of the questionnaire nor its purpose but was given the five categories in which the responses would be listed.

The reliability check was based on the suggestions of Hall (1971) that observer bias is possible if only one person is conducting the observation. He suggests that reliability checks are needed for:

"....added confidence that it is indeed the behavior and not the observer's recording of the behavior which changes from one experimental condition to another and....whenever possible the second independent observer should be unaware of the experimental conditions in effect."
This will help reduce the possibility of observer bias affecting the record obtained." (pg. 18-19)

Hall goes on to say that a level of 80% agreement should be set as the minimal acceptance level.

Results:

The responses to the first question indicated that 90.0% of the subjects felt that prekindergarten screening is "a rough estimate of a child's abilities" while the remaining 10.0% saw the evaluation as thorough. ($\frac{30}{27} = 90.0\%$).

The responses to the second question could be placed in five basic categories:

1. Gain knowledge about the strengths and weaknesses of a child.

2. Make recommendations for helping the child before he enters school in the fall including summer programs and suggestions made to parents.

3. Further diagnostic testing is needed.

4. Recommend that children not attend kindergarten in the fall.

5. Inform parents of test results.

The illustration of the reliability check (see pg. 41) indicates that the number of responses listed by the first examiner totaled fifty-seven while the second examiner tallied fifty-nine. Thus, an overall reliability level was established at 96.6 percent. An item analyses
Percentage of Reliability Between Two Independent Examiners Based on the Total Number of Responses, of Twenty-Seven Subjects, and Five Categories Which Resulted From Those Responses.

Total Responses:

\[
\begin{align*}
\text{Total number of responses listed by the second examiner} &= 59 \\
\text{Total number of responses listed by the first examiner} &= 57
\end{align*}
\]

\[
\frac{59}{57} = 96.9\% \text{ reliability}
\]

Category I:

\[
\begin{align*}
\text{Number of responses listed by first examiner} &= 23 \\
\text{Number of responses listed by second examiner} &= 22
\end{align*}
\]

\[
\frac{23}{22} = 95.6\% \text{ reliability}
\]

Category II:

\[
\begin{align*}
\text{Number of responses listed by first examiner} &= 7 \\
\text{Number of responses listed by second examiner} &= 7
\end{align*}
\]

\[
\frac{7}{7} = 100\% \text{ reliability}
\]

Category III:

\[
\begin{align*}
\text{Number of responses listed by first examiner} &= 8 \\
\text{Number of responses listed by second examiner} &= 8
\end{align*}
\]

\[
\frac{8}{8} = 100\% \text{ reliability}
\]

Category IV:

\[
\begin{align*}
\text{Number of responses listed by first examiner} &= 9 \\
\text{Number of responses listed by second examiner} &= 8
\end{align*}
\]

\[
\frac{9}{8} = 88.8\% \text{ reliability}
\]

Category V:

\[
\begin{align*}
\text{Number of responses listed by second examiner} &= 14 \\
\text{Number of responses listed by first examiner} &= 10
\end{align*}
\]

\[
\frac{14}{10} = 71.4\% \text{ reliability}
\]
indicates that category one yielded a 95.6% reliability; categories two and three yielded 100% reliability; while category four yielded 88.8% and category five, 71.4% percent.

The significantly low reliability of category five is partially explained by the selection of the categories. "Informing parents" (category five) and "make recommendations for helping the child before he enters school in the fall" (category two) had been used by the subjects separately and in combination, eg. "tell parents the test results"; "provide recommendations for summer programs to work on problem areas" or "tell parents the test results and make suggestions to them as to how they may help their child improve his readiness for school". If "informing parents" was not clearly stated by the subject, its intent was not presumed by either examiner. However, category two "making recommendations..." was included as part of "informing parents" on at least three occasions by the subjects. The separation of the statements occurred when they were used in combination, eg. "informing the parents and providing help before school entry" by the first examiner and not the second. Refined methods of gathering data and further study could serve to clarify this issue.

When interpreting the hierarchy of importances of the categories (see graph, pg. 43) based on fifty-seven total responses (N=57), 40.4% of the total responses
Hierarchy of Importance of Five Categories Pertaining to the Goals or Objectives of Prekindergarten Testing

- N = 57 responses
- I = 23 responses = 40.4%
- II = 10 responses = 17.5%
- III = 9 responses = 15.8%
- IV = 8 responses = 14.0%
- V = 7 responses = 12.3%

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referred to gaining "knowledge about the strengths and weaknesses of a child" (category one = $\frac{57}{23} = 40.4\%$).

Informing parents was the least frequently stated topic (category five = $\frac{57}{7} = 12.3\%$).

Making recommendations for help, further testing and recommendations that the child not attend kindergarten ranked second ($\frac{57}{10} = 17.5\%$), third ($\frac{57}{9} = 15.8\%$) and fourth ($\frac{57}{8} = 14.0\%$) respectively.

Discussion:

To summarize this hierarchy it would appear that to "gain knowledge" as to the child's strengths and weaknesses is the predominant concern but using that knowledge in various ways to prevent or treat learning problems is of even more importance. Gaining knowledge about strengths and weaknesses totaled 40.4\% of the responses while the remaining responses, which focus on what to do with the information, total 59.6\% of the responses made by the subjects. However, the suggestions are not specific but rather vague and general. Further diagnostic assessment of the child may be necessary to provide the specific types of objectives and goals needed. This assessment may be accomplished in several ways. Having extensive and reliable information from preschool programs, refer the child for further testing by school psychologist, school social workers, and physicians or observe the child during the summer months or when he enrolls in
kindergarten in the fall. Finally, the fact that 89.9% of the subjects regard prekindergarten evaluations as "a rough estimate" of the child's ability also lends support to the need for further diagnostic information or a more efficient and reliable means of gathering the data, especially about those children that have been identified as having or suspected of having learning problems.

I. Special Education and Alternative Program Development

In addition to all the previously mentioned ways in which data can be used from the prekindergarten screening, occasionally the development of special education classrooms will be needed for the more significantly impaired child.

Many states and local school districts have set aside funds for the development and support of special education classrooms. In their handbook and filmstrip, *Introducing Public Law 94-142* (1976), the Council for Education for the Handicapped explains the guidelines of Public Law 94-142 which sets aside special federal funding for "a free, appropriate education for all handicapped children" ages five to seventeen. This law also offers a $300.00, per child, incentive for special programs that are developed for children between the ages of three and five. The total funding of Public Law 94-142 will increase significantly over the first three years of its existence, which begins in October of 1977.
Local, state and federal authorities recognize the importance of the need for special help and early education programs not only to remediate or treat learning problems but also to prevent them; however, special education is not always the answer (Morsink, 1971) nor is it always available as Onyer and Richardson (1974) have indicated. They suggest that regular education classrooms need to enhance the child's learning. On the other hand, teachers are concerned about not having enough time, materials or training to work with and meet the needs of the "slow" child. There is also a concern for the growing amount of expectations being placed on kindergarten children in school. Elkind and Lyke (1975) state that kindergarten is the most demanding level of instruction. They point out that the new kindergarten child will be faced with a host of significant changes during his first year of formal schooling. The child will be separated from the parent, structured activities will be planned, many children will go from the social structure and cognitive freedom of preschool years to the social freedom and cognitive structure of kindergarten. Not all children will come from the same background thus bringing different skills, knowledge and developmental levels.

Various public schools have taken these concerns seriously and have developed regular education programs for kindergarten age children. One school district has
been using what they call a "Developmental" kindergarten for those children that have been identified through prekindergarten screening procedures as having potential learning problems. These are children who are not eligible for special education but will need some form of special help in developing learning tools such as listening, basic concepts, expressive skills and motor skills.

One of the four sections, two morning and two afternoon sections of kindergarten classes, had been set aside for these children. The classroom consisted of fifteen to eighteen students, one teacher and one teacher's aide. The main objective of the program was to allow more time for the individual child with the teacher and teacher's aide for the development of the "total" child. The pace of the curriculum is slower than that of the regular kindergarten. The results of the program have been assessed by the success of the children who have been in the program and are now doing well in the regular kindergarten or first grade program without assistance beyond that which is normally available in a regular classroom.

Elkind and Lyke (1975) have also suggested the need and trend for more state supported programs and current moves toward a full day of kindergarten, as opposed to the present half day method, in the face of declining enrollments and space utilization.
CHAPTER IV

TOPICS FOR FURTHER DISCUSSION AND STUDY

State and Federal Recognition and Support

The likelihood of new programs becoming a reality rest largely on federal and state laws recognizing this need and financially supporting such programs. The Michigan Department of Education (1972) in their position statement on Education Accountability recognized the preschool years as being that of the ages of three through five but in their (1976) booklet on Early Childhood Education they lower the age grouping for early education to zero years of age.

The Mandatory Special Education Act of 1973, insures the educational rights of handicapped persons from ages zero through twenty-five. This act brings with it funding for special education preschool programs on the state level. California (Riles, 1975) has also enacted legislation geared toward comprehensive early childhood education. The states of Illinois, Ohio and Pennsylvania are also leaders in this area and represent the widely spreading recognition that early education is currently receiving and must continue to receive in order to be expanded from each state to each local school district.

The federal government has also set aside funding for
preschool level special education needs (see Chapter Three).

Improving the Relationship Between Preschool and Kindergarten Teachers

Continued development is needed in the preschool program area and part of the development should include the upgrading of the concept of preschool. For years the preschool was thought of as a place for "babysitting" or the teacher was viewed as a "mother surrogate" (Elkind and Lyke, 1975) with little educational significance. These attitudes have also been joined by the tension between preschool and kindergarten teachers due to the overlap in curriculums.

As a means of solving this conflict two possible suggestions may be offered:

1. State regulations regarding the design of programs including qualifications of certified teachers;

2. Joint meetings between preschool and kindergarten teachers to share ideas on curriculum planning and development with additional inservice training for both groups in the area of early education.

Using Preschool Data

Many schools attempt to evaluate the new prospective kindergarten enrolle by various methods generally called prekindergarten screening. This screening attempts to
make predictions as to the potential learning of the individual child. Although these methods are viewed as highly predictive (see previous chapters) they usually are most accurate with the identification of children with gross deficits. The information is gathered over a very brief period of time and usually compares the child with others his age as determined by standardized tests.

On the other hand, a considerable number of children attend preschool programs prior to kindergarten. Many of these children attend preschool for up to a full year or more in the same program or some of them for a single session (semester) or less. For those children who attend preschool programs for a least one session a wealth of information could be collected as to the individual child's learning and development.

If early identification of learning problems is critical and the purpose of prekindergarten screening is to predict or identify children with existing or potential learning problems it seems logical that the earlier this could be accomplished and the more accurate, the better. Earlier and more accurate information can be provided through preschool programs by means of direct observation, criterion referenced evaluations and diagnostic teaching. This data can be utilized by the public school or kindergarten teacher in preparing objectives and designing a curriculum based on that information for the incoming
students. By using this information it would not be necessary to have these preschool students participate in prekindergarten screening. By eliminating this significant number of students (see Chapter Two) from the prekindergarten screening more time is given for the evaluation of other children that may have never had any school experience or are identified as having learning problems. This method also would tend to reduce the number of staff hours required to complete the prekindergarten screening evaluations.

For many schools several days are set aside and devoted to the prekindergarten screening. This requires that the members of the screening team alter their routine assignments and that the school facilities being used must also undergo schedule alterations.

In a pilot project the above suggested procedure of using preschool data was employed in the Godfrey/Lee Public Schools in Kent county, Michigan. By employing their traditional method of prekindergarten screening where all the children (N=76) would be tested, a total of 144 staff hours would have been required from a total of eight staff member over a period of three consecutive days. Without altering the testing instruments, the prekindergarten screening method for this school district was used with the only change being that of utilizing the preschool data. Some of the children from preschool did attend the prekindergarten screening but were only seen
by a screening team member that was recommended by the preschool data. These particular children (N=13) were identified as possibly having a specific weakness and further assessment was the recommendation stated in the preschool data. The prekindergarten screening team member was thus able to make a more indepth assessment of the child based on the previously gathered data. The remainder of the preschool children (N=35) did not attend prekindergarten screening.

The time reduction for the use of staff members and facilities was very significant (see comparison chart, pg. 53). The total number of days were reduced by one. The total number of staff was reduced from eight to six and the total hour reduction went from 144 to sixty-eight (47.2% reduction).

This method not only saves time utilization of staff, and utilization of facilities, but also is more accurate than prekindergarten screening. In addition, data is available much sooner thus lending to earlier identification of learning problems which should lead to earlier intervention.

Using Criterion Referenced Evaluations

As was demonstrated in Chapter One, standardized testing can produce unreliable results that have very little predictive value as to later achievement. It was suggested that criterion referenced evaluations can
Comparison of Time (Days and Hours) Between Two Methods Used for Prekindergarten Screening

<table>
<thead>
<tr>
<th></th>
<th>Tradition Prekindergarten Screening</th>
<th>Traditional Prekindergarten Screening Method Utilizing Preschool Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Days Needed</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Staff Hours:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Social Worker</td>
<td>36</td>
<td>10</td>
</tr>
<tr>
<td>Speech Teacher</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>School Psychologist</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Teacher Consultant</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Reading Teacher</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Physical Education Teacher</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Paraprofessional</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Total hours:</td>
<td>144</td>
<td>68</td>
</tr>
</tbody>
</table>
produce information about a child that is based on that child's achievement rather than comparing him with other children his same age as is the case in standardized testing.

Perrone (1975) supports the use of criterion referenced evaluations over norm-referenced standardized tests but goes on to state that:

"...the criterion referenced test tend to relate to a narrow range of learning activities. And criterion referenced tests, like some of the diagnostic tests, loose a great deal of their force when teachers place more reliance on the testing than on direct observation of children's responses to ongoing classroom activity."

This misuse of the criterion referenced tests may well be founded in the users resistance to change. This may lead to an inaccurate interpretation of the value of this form of evaluation thereby reducing its acceptance into the schools. On the other hand, the narrowness of this type of evaluation results from the range of topics that are covered and/or how much time is available for test administration. Research in this area must then focus on the comprehensiveness of the criterion referenced evaluation and on the development of explicit instructions for use and interpretation of the instrument along with specific teaching suggestions for each area evaluated.
Evaluating All Students

The evaluation of children for the purpose of early identification of learning problems can take place in many different settings (preschool, prekindergarten testing facilities, kindergarten classrooms) and by various methods (direct observation, criterion referenced evaluation, norm referenced standardized testing) however, there is no guarantee that all children will be evaluated in any one setting by any one method. Every effort should be made to ensure that some form of evaluation is provided for every child before the formalized education process gets into full swing, especially by kindergarten.

Many of the children that enroll in kindergarten programs may not have attended preschool or were not available for kindergarten screening. These children could then easily begin schooling with learning problems that have not been previously identified.

Such was the situation that occurred in the two school districts that were used in the studies described in chapter two and although not an intended part of the studies, it was learned that fifteen of the children referred for special services had not received any form of evaluation. This figure (see chart, pg. 56) represent 75% of the total number (N=20) of the children who were attending kindergarten and had not been evaluated. This compares with 7.5% of the kindergarten children evaluated by the preschool method who were referred for special
## Percentage Comparisons of Referrals for Special Services for Three Groups

<table>
<thead>
<tr>
<th>Method of Evaluation</th>
<th>Number of Enrolled</th>
<th>Number of Referrals</th>
<th>percent of those enrolled who were referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool</td>
<td>280</td>
<td>21</td>
<td>7.5%</td>
</tr>
<tr>
<td>Prekindergarten</td>
<td>287</td>
<td>34</td>
<td>11.8%</td>
</tr>
<tr>
<td>No Evaluation</td>
<td>20</td>
<td>15</td>
<td>75.0%</td>
</tr>
</tbody>
</table>
services and 11.8% of the kindergarten children evaluated by the prekindergarten screening method who were also referred for special services.

Several question come to mind as a result of these figures:

1. By not receiving an evaluation, could early signs of learning problems go undetected?

2. If these problems go undetected, will these children, as a group, achieve at a lesser rate than the other two groups?

3. Even if symptoms of problems are detected, will they be properly diagnosed and remediated?

4. Why or what common characteristic, if any, can be attributed to this group that increases the likelihood that these children will not be evaluated? Is sex, age, religion, race and/or socio-economic background an influencing factor of significance?

Regardless of the reasons, although they can provide potentially useful data, the only way to avoid the future problems that could arise is to make every effort to have all children properly evaluated.

Parent Intervention

Wenig and Brown (1975) along with Marcovich (1975) and Bronfenbrenner (1975) have dealt with the need for parental involvement in early education. The latter author attempted to answer several questions pertaining to this topic:
1. Do children in experimental programs continue to gain in intellectual development so long as intervention continues, or at least do they maintain the higher level achieved in the initial phase?

2. Do children continue to improve, or hold their own after termination of the program, or do they regress?

3. Is development enhanced by beginning intervention at earlier ages, including the first years of life?

4. In terms of long-range impact, what kinds of programs are most effective?

5. Which children from what curriculum are most likely to benefit in the long run from early intervention?

Bronfenbrenner evaluated three sources from which early education can be measured: preschool settings, home-based tutoring, and parent-child intervention. The preschool settings yielded the following data:

1. Substantial gains in IQ and other cognitive measures in the first year of the program.

2. Cognitive structured curriculum produced greater gains than play-oriented programs.

3. By the first or second year after completion, children began to show progressive declines and had fallen back into the problem range by the third year.
4. The sharpest decline period was after the child's entry into regular school.

5. Children from the most deprived socio-economic backgrounds profited least from the program.

6. Results from several studies pointed to factors "in and around the home" as critical to the child's capacity to profit from preschool and elementary programs.

The home-based tutoring yielded results similar to those of the preschool programs. Dramatic gains in IQ were made but began to decline once the home tutoring was discontinued.

The parent-child intervention method, included ages one through elementary school, produced the most favorable results:

1. The substantial gains in IQ were still evident three to four years after the program was terminated.

2. The earlier the child entered the program, the greater the gains in IQ.

3. Parent intervention also benefited the siblings of the target children.

4. Children who were involved in an intensive parent intervention program prior and during enrollment in preschool or regular school "achieved greater and more enduring gains".

5. Parents involved in the intervention program improved their self concept.
6. The families that were involved in the program tended to come from the upper levels of the disadvantaged population as compared to other levels of disadvantaged.

The author summarized by stating that all is not lost for those in the low socio-economic group provided the necessary environmental changes are made that will then help them meet the basic "survival" needs. Parent-child intervention will produce the greatest and most enduring gains but this is a long term project outlined as follows:

1. Preparation for parenthood to be taught in the schools.

2. Before children come housing, health care and nutrition should be available.

3. During the first three years of life an emotional relationship between parent and child should be developed.

4. Cognitively oriented preschool programs from age four through six.

5. Parental support and participation in school activities from ages six through twelve.

Summary

Continued growth in the area of early education can only come about through the efforts of individuals in the field and in the laboratories. Without these efforts and empirical data to substantiate the theories, early education will remain in the neonatal stage of development.
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