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GRADUATE COLLEGE

EVALUATION OF DEVELOPMENTAL FIRST GRADE CLASSES IN OKLAHOMA CITY PUBLIC SCHOOLS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

By

JON D. CARGILL

Norman, Oklahoma

1972

EVALUATION OF DEVELOPMENTAL FIRST GRADE CLASSES

IN OKLAHOMA CITY PUBLIC SCHOOLS

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CHAPTER I

INTRODUCTION

Psychologists have attempted to investigate the learning process to discover how learning takes place. Educators have sought to provide experiences through which children learn. During the past decade much has been written about specific learning problems and why they occur. Early identification of specific learning problems has been discussed for many years in educational, psychological, and medical circles; however, the literature suggests that little has been done to predict specific learning problems before they occur in children of average intelligence.

Intelligence depends, in part, upon environmental stimulation, as well as the neurological integration of the child. Children who are provided with more stimulation early in life tend to behave more intelligently than their deprived peers. Studies of three to five-year-old children from lower socio-economic environments have shown them to be retarded or below average in intellectual ability. The degree of retardation is

not always large, nor always statistically significant, but the differences between lower and middle class children invariably favor the middle class group. "What is most shocking is that the differences are largest in those abilities most pertinent to success in school." (Bereiter-Engelman, 1966).

After examining many longitudinal studies of the changes in human characteristics, (Bloom, 1962), it was concluded that environmental effects, whether of deprivation or abundance, appear greatest in the earliest years, and in the period of most rapid intellectual development. The implication is that the earlier a sound educational program is begun, the greater its effectiveness.

Children with specific learning problems and/or behavioral difficulties may show developmental imbalances or lags in specific developmental tasks in any one, or all areas of development. These imbalances may be the result of developmental lags, minimal cerebral dysfunction, emotional problems, cultural deprivation, or any combination of these problems, and can be identified early and trained accordingly.

There is a general concensus among leaders in the field of child growth and development that the earlier a possible school adjustment-learning can be identified, the greater are the chances for correcting the difficulty. What often occurs is that many children become academically and intellectually retarded because normal avenues of learning are blocked, rather than that they cannot learn because they are retarded. When

one or more of the perceptual systems are deprived or otherwise impaired, the functional ability of the child is affected.

Some researchers have been optimistic about the effects of early identification. Myklebust, 1968, has said, "If the child is identified early and managed accordingly, the outcome is favorable for learning and adjustment." In the book Predicting Reading Failure, Katrina DeHirsch states, "To admit very immature youngsters into first grade, where their chances to succeed are slim, and where, at the very beginning of their school career, they are exposed to damaging experience of failure, is highly undesirable."

Research, reported by Dr. Gilbert Schiffman, Maryland State Supervisor of Reading, is noteworthy. "If the child cannot be identified and remediated on the elementary level, what chance does he have in the complex secondary program? No longer can teachers afford to wait for the child to be referred for special help. Only after continued academic failure, atypical behavior, or the efforts of over-anxious or over-aggressive parents may they be discovered. Early identifications and preventive practices are the solution." (Educational Therapy).

The "High Risk" child has been in existence since we have had schools. Current surveys by the United States Office of Education report that about 2% of the total school population has learning problems so severe that they will not be able to survive without specific diagnostic remediation. This figure

refers to pupils of average or above-average potential. (Screl). The early identification of these "High Risk" children could be a major objective; however, equally important is providing at the earliest possible time, an educational approach which will enable these children to realize their potential.

Design of the Program

The basic educational point of view of the preventive program is that: Children should be entered in first grade, and consequently grouped, on the basis of their developmental or behavioral age, not on the basis of chronological age or I.Q. This project is based on the hypothesis that young children with problems in perceptual-motor-language development, body schema, and visual perception can be identified at kindergarten age, and then trained in their areas of deficit. (Ferguson).

Levels of development of the psycho-motor functions have been considered good predictors of intellectual and academic growth. (Gesell, 1925). Emphasis has been placed on perceptual-motor functioning (Cratty-Barsch, 1967), language development (Myklebust, 1968), visual perception (Frostig, 1965), and body schema (Kephart, 1966), and their relationships to reading and intelligence. With these basic assumptions in mind, the term Developmental First Grade seemed to be a most fitting and appropriate title for these classes, and it has been well accepted by parents and educators.

In April, 1969, every kindergarten pupil in the school system was administered Form A of the 1965 revision of the Metropolitan Readiness Test. This was used as a measure of total academic readiness. Kindergarten teachers were instructed in an in-service program, and they, in turn, administered and scored the tests. Subtests I, II, III, and IV are considered measures of reading readiness. Subtest V is considered a number readiness test. This test also yields a linguistic maturity, listening ability, ability for visual perception involving matching, ability to recognize lower case letters of the alphabet by name, and finally, a visual-motor ability, such as is required in writing. The Metropolitan yielded a letter rating of A-B-C-D-E. Those scoring in the D and E range were considered "High Risk" and were referred for further testing.

In addition to administering the Metropolitan test, teachers were asked to identify those youngsters whom they considered to be "High Risk." Research, such as that reported by the Gesell Institute, indicates that there is 83% agreement between results of the developmental examination and the teachers' estimates for kindergarten subjects. There were a few pupils who scored average or above on the Metropolitan that were considered "High Risk" by the teachers. In general, these were youngsters whose behavior was of such a nature that it evidenced further evaluation; i.e., short attention span, motoric involvement, behavioral symptoms, etc.

Trained psychological examiners administered the Vane Kindergarten Test (1968) to the "High Risk" pupils. This test was developed by Julia Vane, in order to evaluate the intellectual and academic potential and behavioral adjustment of young children. It was used as a predictive test, and served as a guide for individualized, diagnostic teaching. The Vane consists of three parts: A perceptual-motor subtest, a man subtest, and a vocabulary subtest. Mental age equivalents and I.Q. scores for each student's subtest, as well as a full scale I.Q. score, are available. Research on the Vane indicates that there is no significant difference between the mean Vane I.Q. and the Binet I.Q.

In order to operationalize the project in a two year period, forty schools were selected from the most heavily populated, lower socio-economic areas. These schools, also, had the largest number of low achievers, and the highest percentage of learning-behavior problems. A total of 1200 students were administered the entire battery of tests, and finally, twenty students were selected from each school to be placed in the Developmental First Grade class for the 1969-70 school year.

Each child was also examined by the school physician, Gloria Rogers, M.D., using a motor screening tool that she and Ellidee Thomas, M.D., designed. (Dr. Rogers is the school physician for the Oklahoma City Public Schools. Her interests include learning disorders in children. Dr. Thomas is

a pediatric neurologist, and Director of the Child Study Center, a branch of the University of Oklahoma Medical School.) This tool yields a motor score on each child, ranging from 0-10. A motor score of five, or below, is considered to be low. Youngsters who had unusual physical problems were referred to the University of Oklahoma Medical Center, or to private agencies, for further diagnostic evaluation. The psychological examiner found youngsters who were in need of a diagnostic battery, which included the Wechsler Preschool Primary Scale of Intelligence (WPPSI), Bender-Gestalt, the Illinois Test of Psycholinguistic Abilities (ITPA), and the Frostig Developmental Test of Visual Perception. If mental retardation was suspected from the Vane, a Binet or WPPSI was administered, in order to support the evidence obtained on the previously given tests. The psychological examiner evaluated all tests, as well as the teacher's recommendation in determining whether the child exhibited "High Risk" behavioral characteristics. Final selection of the students chosen was made in a staff meeting, including the principal, the kindergarten teachers, and the psychological examiner. A profile sheet was designed for each student, making available all test information for the receiving teacher.

Identification of "High Risk" pupils can be considered Phase I of the program. Phase II consisted of training teachers in the project in a very comprehensive workshop during

the summer. The teachers who had been in the experimental project the year before, served as instructors and constultants to the 40 experienced first-year teachers, chosen by their principals, to be the teachers in the project. The core curriculum for the training of teachers included the use and interpretation of test results in developing an individualized, prescriptive curriculum for each child. Training included techniques for sensory-motor development, as suggested by Cratty, Janson, Masston, Valett, and others. Language development by Kirk, Myklebust, McCarthy, Bereiter, and Engelman was studied. Perceptual development and training, as taught by Cruickshank, Frostig, Kirk, Strauss, and others, was a part of the training, as well as proper use of the equipment and didactic materials. Behavior modification, as well as the social and emotional needs of these children, was a part of the workshop training.

CHAPTER II

THE PROBLEM

Statement of Purpose

There are many children who seem to possess average intelligence, but who manifest learning problems of cognitive, psychomotor, or affective nature as they enter into the first grade. There is the possibility of early identification at the kindergarten level with preventive educational therapy at the first year level for these children.

The purpose of this study is to test, not only the feasibility of early identification of learning problems and educational intervention during the first year, but also to see how effective such a program has been, in terms of academic achievement (reading, spelling, and arithmetic) and in adjustment, as opposed to the traditional first grade program, where children are placed according to chronological age, rather than according to readiness.

Statement of Problem

Do students who manifest learning problems of a cognitive, psychomotor or affective nature as measured by

standardized instruments (Vane Kindergarten Test and Metropolitan Readiness Test), and who have been designated as "High Risk" for first grade by their kindergarten teachers, make greater gains in perceptual-motor development, academic achievement, and adjustment, in a preventive educational program (Developmental) than do students in a traditional first grade program (Non-Developmental)?

Statement of Hypotheses

The following hypotheses were tested for significant statistical differences between the Developmental and Non-Developmental groups:

1. There is no significant statistical difference between Developmental and Non-Developmental students on the Vane full scale I.Q. at the end of first grade. (Post test).

2. There is no significant statistical difference between Developmental and Non-Developmental students on the Vane Vocabulary subtest at the end of first grade. (Post test).

3. There is no significant statistical difference between Developmental and Non-Developmental students on the Vane Perceptual Motor subtest at the end of first grade. (Post test).

4. There is no significant statistical difference between Developmental and Non-Developmental students on the Vane Draw-a-Man subtest at the end of first grade.

5. There is no significant statistical difference between the Developmental and Non-Developmental students on the

Wide Range Achievement Test Reading subtest at the end of the first grade.

6. There is no significant statistical difference between the Developmental and Non-Developmental students on the Wide Range Achievement Test Spelling subtest at the end of the first grade.

7. There is no significant statistical difference between the Developmental and Non-Developmental students on the Wide Range Achievement Test Arithmetic subtest at the end of the first grade.

8. There is no significant statistical difference between the Developmental and Non-Developmental students on adjustment as measured by the Vane Draw-a-Man subtest at the end of the first grade.

CHAPTER III

METHOD

Design of Study

This is a longitudinal study of two groups of first grade students identified during 1968-69 school year, with the final evaluation being done a year later during 1969-70. These students were matched for age, sex, race, and I.Q. A t-test revealed there was no significant difference at the .05 level of confidence in full scale I.Q. and age. Random sampling was used to select students in the Developmental and Non-Developmental groups. The two groups differed on the basis of curriculum treatment during first grade. The students identified were from 20 schools and 20 classrooms; therefore, one can assume there is no teacher differential.

Subjects

Developmental Group - This group will be defined as first graders whose full intelligence scores ranged from 73-114, as measured by the Vane Kindergarten Test, and who fell in the D or E range of the Metropolitan Readiness Test, and who were designated as "High Risk" by their kindergarten

teachers on an objective check list for first grade. These students had been enrolled in the Developmental First Grade program since September, 1969, where therapeutic procedures had been used based upon the child's individual needs, whether it was of a perceptual, conceptual, integrative, or coordinative nature.

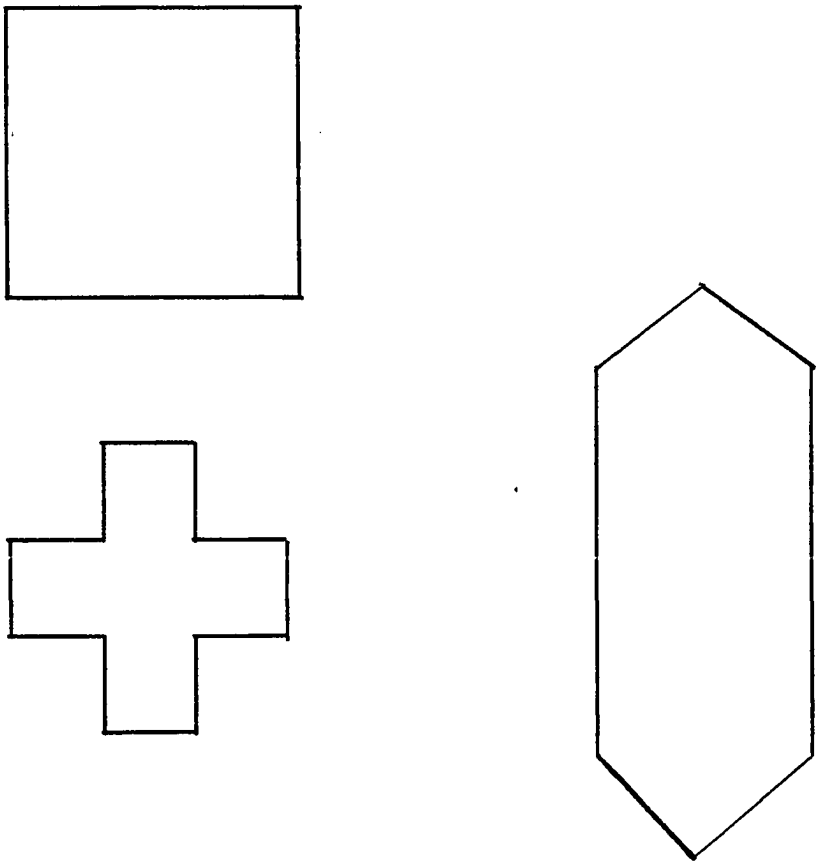
Non-Developmental Group - This group will be defined as first graders whose full intelligence scores ranged from 81-122 as measured by the Vane Kindergarten Test, and who fell in the D or E range of the Metropolitan Readiness Test, and who were designated as being "High Risk" for first grade by their kindergarten teachers on an objective check list. These students had been enrolled in regular first grade classes since September, 1969.

Students of both groups had a full year in kindergarten in the Oklahoma City Public Schools prior to their present first grade placement. There will be twenty-six students in each group. The students were in several regular and developmental first grade classes within the Oklahoma City Public Schools during the 1969-70 school year.

Instrument I - The Vane Kindergarten Test (1968). This test was developed by Julia Vane, in order to evaluate the intellectual and academic potential and behavioral adjustment of young children. It was used as a predictive test, and served as a guide for individualized, diagnostic teaching. The Vane

consists of three parts:

(1) Perceptual Motor Subtest. Abilities measured by this subtest are related to basic perceptual motor skills which are developmental in nature. Skills needed for success on this type of test have been shown to be related to mastery of reading and writing in the primary grades. Poor performance on the subtest frequently is indicative of a developmental lag in motor or perceptual development. Very poor performance may be suggestive of central nervous system dysfunction or brain injury. On this subtest, the following figures must be duplicated:



(2) Vocabulary Subtest. Abilities measured by this subtest are related to intelligence and ability to succeed with academic work. The responses to the beginning words measure knowledge and, as such, function as a general information test. Responses to the more difficult words require language facility as well as knowledge of the meaning of the words. As an example, many young children are aware of what the word straight means, but few have the language facility to define it properly. Samples of vocabulary words are used as follows:

fork	alone
wheel	short
birthday	jolly
gift	silence
calendar	wise
straight	

(3) Man Subtest. This subtest is similar to the Drawing Test of Intelligence developed by Goodenough and the Goodenough-Harris Drawing Test developed by Harris, but the directions, scoring, and standardization are different. Such tests have been shown to be a measure of both intelligence and adjustment at the preschool and primary level and an index of future achievement.

For each subtest, equivalents and I.Q. scores are available. The Vane also yields a full I.Q. score.

Usability and Reliability - The Vane Kindergarten Test incorporates the features of short administration time, simple directions, and rapid scoring. It also yields an estimate of the intelligence and emotional adjustment of children at an early age.

Test-Retest Reliability of the Vane Kindergarten Test was a correlation coefficient of +.88.

Instrument II - Level I of the 1965 revision of the Wide Range Achievement Test was used to measure reading, spelling, and arithmetic levels of the Developmental Group and of the Non-Developmental Group at the end of the first year. This test was developed by J. F. Jastak and S. R. Jastak (1936). The three subtests are:

Test I - Reading. Recognizing and naming letters and pronouncing words. The reading subtest consists of the following parts:

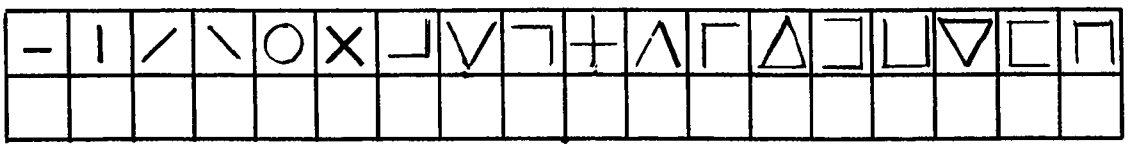
At the pre-reading level:
(1) Naming two (2) letters in previously written letters of own name.
(2) Identifying 10 letters by form: A R Z H I Q S E B O
(3) Naming 13 letters of the alphabet: A B O S E R T H P I U Z Q

At the reading level:
(4) Pronouncing 74 words, several of which are:

cat	see	red	to
big	work	book	cat
was	him	how	then
open	letter		jar
deep	even	spell	

Test II - Spelling. Copying marks, resembling letters, writing the name, and writing single words to dictation.

Sample of copying marks:



Sample of dictation of words:

go	cat	in	boy	and
will	make	him	say	cut
cook	light			

Test III - Arithmetic. Counting, reading number symbols, solving oral problems, and performing written computations.

Sample of counting (counting 15 dots):

. . . . . .

Sample of reading number symbols:

3 5 6 17 41

Sample of oral problems:

"Which is more - 3 fingers or eight fingers?"

"If I have 3 pennies, and spend 1, how many will I have left?"

Sample of written problems:

1 + 1 _____	6	5	32
	+2	-3	24
4 - 1 _____			+40

This instrument is widely used by clinicians to determine academic strengths and weaknesses. It can be quickly administered and scored. Scoring systems contain grade equivalents, standard scores, and percentiles.

Usability and Reliability - The Wide Range Achievement Test was used because of the quick administration time, and the quick scoring. The WRAT yields a grade level of functioning in the areas of reading, spelling, and arithmetic. The WRAT yields a standard score, with a mean of 100 and a standard deviation of 15. It is statistically comparable to the I.Q.'s obtained from the Wechsler Scales and also partially to the I.Q.'s from the Stanford-Binet (form L-M) which has a standard

deviation of 16.

The WRAT satisfies the statistical conditions of reliability most adequately. Numerous populations with differing degrees of homogeneity have been studied by Jastak and Jastak during the past twenty years. The correlation coefficients, using split-half correlation have shown coefficients ranging from .92 to .98 for reading and spelling tests and from .85 to .92 for the arithmetic subtests.

Instrument III - The Man subtest of the Vane was used as a measure of adjustment between the Developmental and Non-Developmental Groups. Evaluation of adjustment is based upon the child's behavior during the testing. Behavioral signs that have been found to be associated with poor adjustment at ages 5 and 6 are:

(1) Continued talking out after several admonitions.

(2) Repeated interference with the work of other children.

(3) Refusal to do any of the drawings.

(4) Refusal to stay seated during the testing session. Walking about the testing room.

Adjustment is also based on the Man drawing itself. Studies have shown that the following drawing signs are associated with poor adjustment at ages 5 and 6. The older the child the more significant the signs are likely to be.

(1) Grotesque drawing.

(2) Absence of body (not significant below 5-0 years.)

(3) Absence of arms (not significant below 5-0 years.)

(4) Absence of mouth.

(5) Slanting figure (not significant below 5-0 years.)

(6) Three or more figures drawn spontaneously.

(7) Drawings containing an obvious penis.

CHAPTER IV

RESULTS

Fifty-two first grade boys and girls participated in this study. Two groups of students were identified through testing during the last month of the 1969-1970 school year. The two groups were matched for age, sex, race, I.Q., and prior kindergarten training. These students came from all socio-economic backgrounds. The students were randomly placed on the basis of their scores on the Vane Kindergarten Test.

The Developmental Group was made up of thirteen boys and thirteen girls with I. Q.'s ranging from 73-114 as measured by the Vane Kindergarten Test, with a full I.Q. mean of 96.8 and a S.D. of 9.30.

The non-Developmental Group was made up of thirteen boys and thirteen girls with full I.Q.'s ranging from 81 to 122 as measured by the 1968 Vane Kindergarten Test, with a mean I.Q. of 97.5 and a S.D. of 9.93.

This study was longitudinal in nature, with testing being during the last three weeks of April, 1969, and the final data being collected the week of May 4 through 8 of the 1969-70 school term. All of the students who began the

study remained in the Oklahoma City Public Schools; therefore, the population of the groups remained the same during the study.

In Hypothesis Number I, it is stated that there is no significant statistical difference between the Developmental and the Non-Developmental students on the Vane full scale I.Q. at the end of the first grade. Table II, p. 25, reveals the results are statistically significant. This is significant at the .05 level of confidence; thus, Hypothesis I is rejected with a t score of 2.71.

In Hypothesis Number 2, it is stated that there is no significant statistical difference between the Developmental and the Non-Developmental students on the Vane Vocabulary subtest at the end of the first grade, Table II, p. 25, reveals the results are statistically significant, at the .05 level of confidence; hence, Hypothesis 2 is rejected, with a t score of 2.20.

In Hypothesis Number 3, it is stated that there is no significant statistical difference between the Developmental and the Non-Developmental students on the Vane Perceptual-Motor subtest at the end of the first grade. Table III, p. 26, indicates the results are not statistically significant; therefore, the hypothesis is accepted.

In Hypothesis Number 4, it is stated that there is no statistical difference between Developmental and Non-Developmental students on the Vane Draw-a-Man subtest at the

end of the first grade. Table II, p. 25, reveals that the results are statistically significant at the .01 level of confidence; thus, Hypothesis 4 is rejected, with a t score of 2.82.

In Hypothesis Number 5, it is stated that there is no statistical difference between Developmental and Non-Developmental students on the Wide Range Achievement Test Reading subtest at the end of the first grade. Table III, p. 26, indicates that there is no statistically significant difference; therefore, Hypothesis Number 5 is supported and accepted.

In Hypothesis Number 6, it is stated that there is no statistical difference between Developmental and Non-Developmental students on the Wide Range Achievement Test Spelling subtest at the end of the first grade. Table III, p. 26, reveals that there is no statistically significant difference; likewise, Hypothesis Number 6 is supported and accepted.

In Hypothesis Number 7, it is stated that there is no statistically significant difference between Developmental and Non-Developmental students on the Wide Range Achievement Test Arithmetic subtest at the end of the first grade. Table III, p. 26, indicates that there is no statistically significant difference; hence, Hypothesis Number 7 is supported and accepted.

In Hypothesis Number 8, it is stated that there is no statistically significant difference between Developmental and Non-Developmental students on adjustment as measured by

the Vane Draw-a-man subtest at the end of the first grade. Table IV, p. 27 reveals that there was no statistically significant differences at the .05 level between the Developmental and Non-Developmental groups on the adjustment scores of the Vane; therefore, Hypothesis Number 8 is supported and accepted with a t score of 1.75.

TABLE I

T-TESTS BETWEEN VANE PRE-TEST SCORES OF DEVELOPMENTAL AND NON-DEVELOPMENTAL GROUPS

Subtest	Developmental Group		S.D.	Non-Developmental Group		S.D.	t-ratio	Level of Significance
	Mean	Variance		Mean	Variance			
Per.-Mot.	94.9	227.0	15.07	96.3	171.3	13.09	0.36	N.S.
Voc.	95.8	353.8	18.81	98.5	349.7	18.70	0.51	N.S.
Man	100.6	304.4	17.45	99.0	170.9	13.07	0.37	N.S.
Full I.Q.	96.8	86.5	9.30	97.5	98.7	9.93	0.26	N.S.

TABLE II

T-TEST BETWEEN VANE POST-TEST SCORES OF DEVELOPMENTAL AND NON-DEVELOPMENTAL GROUPS

Subtest	Developmental Group Mean	Variance	S.D.	Non-Developmental Group Mean	Variance	S.D.	T-ratio	Level of Significance
Per.-Mot.	96.8	87.8	9.37	94.7	146.6	12.11	0.70	N.S.
Voc.	105.0	209.7	14.48	94.7	362.1	19.03	2.20	.05*
Man	103.4	130.3	11.41	94.5	129.5	11.38	2.82	.01**
Full I.Q.	100.9	57.5	7.58	94.3	99.6	9.98	2.71	.05

* .05 t(25) = 2.06 df = 26-1=25

** .01 t(25) = 2.79

TABLE III

WIDE RANGE ACHIEVEMENT POST-TEST SCORES OF DEVELOPMENTAL AND NON-DEVELOPMENTAL GROUPS

Subtest	Developmental Group		S.D.	Non-Developmental Group		S.D.	t-ratio	Level of Significance
	Mean	Variance		Mean	Variance			
Reading	96.9	42.6	6.53	100.07	61.2	7.82	1.90	N.S.
Spelling	96.0	43.6	6.60	99.3	58.8	7.67	1.66	N.S.
Arithmetic	99.3	170.6	13.06	100.0	145.1	12.05	0.20	N.S.

TABLE IV

T-TESTS BETWEEN VANE MAN AND ADJUSTMENT SCORES OF DEVELOPMENTAL AND NON-DEVELOPMENTAL GROUPS

Test	Developmental Group Mean	Variance	S.D.	Non-Developmental Group Mean	Variance	S.D.	t-ratio	Level of Significance
Man	103.40	130.30	11.41	94.50	129.50	11.38	2.82	P .01*
Adjustment	0.15	0.13	0.36	0.50	0.96	0.98	1.75	P > .05

* .01 t(25) = 2.79 df = 26-1 = 25

CHAPTER V

SUMMARY AND RESULTS

Early identification of specific learning problems has been discussed for many years in educational, psychological, and medical circles; however, the literature suggests that little has been done to predict specific learning problems before they occur. The present study was designed to evaluate an attempt made by the Oklahoma City Public Schools to identify learning problems at the kindergarten level, and the educational intervention which followed during their first year in school.

Students of both groups had a full year in kindergarten in the Oklahoma City Public Schools prior to their first grade placement. There were twenty-six students in each group. The students were in several Non-Developmental and Developmental first grade classes within the school system during the 1969-1970 school year.

The results of the study were as follows:

I - A t-test between pretest Vane Kindergarten Test scores indicated no significant statistical differences

between Developmental and Non-Developmental students before the Developmental program. Vane post-tests indicated that the students who were admitted into the program (Developmental Group) showed significant statistical gains on the test compared to the Non-Developmental Group that was in the program. A comparison of the means indicated that while the Developmental students gained in Vane scores and I.Q. scores related to the Vane, Non-Developmental students decreased below their original pre-test score levels and I.Q. levels, i.e., Non-Developmental students lost ground in I.Q.

II - On the Wide-Range Achievement, a comparison of post-test scores indicated that a significant difference occurred only on the Reading subtest; the Developmental program students scored significantly higher in reading than did the Non-Developmental students. No statistical differences occurred between the groups of WRAT Spelling and Arithmetic subtests.

III - A t-test between scores obtained by the Developmental and Non-Developmental students on the Vane Draw-a-man subtest indicated no statistically significant differences in adjustment occurred between groups.

IV - One disappointing finding concerned the perceptual-motor subtest of the Vane. Students in the Developmental program did not score higher on this subtest even though they received special perceptual-motor training.

CHAPTER VI

DISCUSSION AND RECOMMENDATIONS

The author is aware of the limitations of this research. As a result of this study and from a review of available literature, the author thinks that early identification of children who manifest problems of cognitive, psychomotor, or affective natures, make greater gains in a program designed for educational intervention of those problems.

Hopefully, kindergarten children who appear immature, or who manifest problems of a cognitive, psychomotor nature to the classroom teacher, will continue to be referred for diagnostic testing. The Vane Kindergarten Test, used as a measure of intellectual, academic, and behavioral adjustment, could be used, along with other instruments in evaluating the child's abilities and limitations. These children, hopefully, will continue to be given the opportunity to participate in Developmental programs.

The author hopes that school systems adopting or using Developmental first grade programs will continue to upgrade their particular programs by:

(1) On-going evaluation of each participating student's progress.

(2) On-going evaluation of the teachers' progress in their role as Developmental teachers.

(3) Frequent in-service meetings relating to problems encountered in the classroom; new techniques and procedures for dealing with children with various problems.

(4) Evaluation of the total program at the end of each school year.

The author recommends that the Oklahoma City Public Schools, who have screened and tested over 5,000 children for possible learning problems in the last three years, do follow-up studies on those children who have participated in the Developmental program during the past three years to see how successful the programs have been. It is also recommended that those children who were screened and tested and found to be "High Risk," but were not placed in the Developmental program, be located and assessed as to their current status. Comparison of these two groups might well confirm or reject some of the predicted outcomes concerning placement of children with learning problems.

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APPENDIX I

ORIGINAL DATA

TABLE V

DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	C.A.	P-M	Voc.	Man	Full I.Q.
Jana	6-8	79	101	106	95
Gail	6-10	76	88	97	87
Robert L.	6-6	86	95	102	94
Michelle	6-7	81	125	128	108
Brenda	7-1	95	103	79	92
Keith	6-7	106	79	106	97
Ronney	7-2	84	84	103	90
Angela	6-7	106	110	90	102
Julia	6-6	85	134	115	111
Todd	6-8	107	79	131	106
Towana	6-10	110	79	122	100
Sherry	7-2	86	74	92	84
Ronnie A.	7-4	82	70	62	73

TABLE V CONT'D

DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	C.A.	P-M	Voc.	Man	Full I.Q.
Tina	7-0	119		114	116
Sheila	6-7	128	71	90	96
Kirk	6-7	119	79	103	100
Dean	6-8	119	132	90	112
Walter	6-10	97	89	76	87
Kim	6-8	91	109	78	92
Mike	6-9	84	94	122	95
Roslyn	6-9	91	91	109	97
Robert H.	6-5	95	105	97	99
Mark	6-7	72	112	91	92
Kevin	6-9	81	107	110	99
Jimmy	6-7	94	112	81	96
Kara	6-5	95	73	121	96

TABLE VI

DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	P-M	Voc.	Man	Full I.Q.
Jana	79	112	111	100
Gail	106	91	82	93
Robert L.	104	96	103	101
Michelle	91	125	109	106
Brenda	90	101	96	95
Keith	95	114	91	100
Ronney	87	119	93	99
Angela	95	95	101	97
Julia	92	131	127	116
Todd	101	105	115	107
Towana	106	110	128	114
Sherry	90	90	104	94
Ronnie A.	87	90	104	93

TABLE VI CONT'D

DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	P-M	Voc.	Man	Full I.Q.
Tina	90	90	87	89
Sheila	110	87	105	100
Kirk	110	114	105	109
Dean	101	128	108	112
Walter	117	110	94	101
Kim	93	122	106	107
Mike	90	79	100	89
Roslyn	93	104	99	98
Robert H.	90	97	94	93
Mark	91	114	101	102
Kevin	93	122	114	109
Jimmy	103	87	91	93
Kara	113	97	121	107

TABLE VII

DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	C.A.	P-M	Voc.	Man	Full I.Q.
Eddie	6-8	100	91	109	100
Tye	6-9	103	146	103	117
Chris O.	6-6	112	134	119	122
Walter Q.	7-2	77	93	95	88
Chris F.	6-8	91	100	97	96
Roy	6-9	78	148	97	108
David	6-6	109	82	117	103
Terry	7-1	109	93	91	98
Keith	6-10	83	91	70	81
Neil	7-5	97	90	87	91
John	7-5	95	111	76	94
Reginald	6-11	89	89	99	86
Ronald P.	7-0	106	76	113	98

TABLE VII CONT'D

DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	C.A.	P-M	Voc.	Man	Full I.Q.
Penny	6-6	121	103	107	110
Kerry	6-10	107	99	110	105
Tammi	6-7	84	110	113	102
Sherri	7-3	99	83	88	90
Angela	7-0	79	104	85	89
Lillie	6-9	84	101	90	92
Sherry T.	6-9	100	88	85	91
G. Varn	6-7	85	72	112	90
Sandra	6-9	109	91	112	104
L. Roberts	6-6	123	95	106	108
V. Straw	6-9	84	93	110	92
Janis	7-1	89	89	96	91
Q. Cortes	6-10	90	90	87	89

TABLE VIII

DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	P-M	Voc.	Man	Full I.Q.
Eddie	94	94	100	96
Tye	107	133	110	116
Chris O.	92	96	92	93
Walter Q.	98	101	87	95
Chris F.	94	112	111	105
Roy	78	133	86	99
David	125	70	102	102
Terry	116	90	93	99
Keith	88	84	66	76
Neil	90	119	93	100
John	98	119	96	104
Reginald	76	76	73	75
Ronald P.	83	90	111	94

TABLE VIII CONT'D

DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM VANE KINDERGARTEN TEST

Name	P-M	Voc.	Man	Full I.Q.
Penny	112	96	106	103
Kerry	91	77	91	86
Tammi	103	106	91	100
Sherri	98	83	93	91
Angela	87	108	93	96
Lillie	93	85	93	90
Sherry T.	85	85	95	88
G. Varn	110	61	81	84
Sandra	100	104	99	101
L. Roberts	96	108	118	107
V. Straw	85	65	95	82
Janis	87	83	90	86
Q. Cortes	77	84	91	84

TABLE IX

DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO SCORES OBTAINED ON THE WIDE RANGE ACHIEVEMENT TEST

Subjects	STANDARD SCORES		
	Reading	Spelling	Arithmetic
Eddie	103	96	96
Tye	123	110	114
Chris O.	101	97	108
Walter Q.	87	85	96
Chris F.	92	97	105
Roy	105	96	114
David	101	110	119
Terry	106	104	103
Keith	107	99	96
Neil	97	93	100
John	103	101	103
Reginald	96	94	88
Ronald P.	113	107	96

TABLE IX CONT'D

DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO SCORES OBTAINED ON THE WIDE RANGE ACHIEVEMENT TEST

Subjects	STANDARD SCORES		
	Reading	Spelling	Arithmetic
Penny	105	107	103
Kerry	105	96	97
Tammi	96	92	103
Sherri	88	93	94
Angela	90	91	85
Lillie	105	118	108
Sherry T.	103	107	108
G. Varn	99	101	89
Sandra	105	107	114
L. Roberts	103	103	110
V. Straw	94	92	86
Janis	96	94	103
Q. Cortes	95	92	61

TABLE X

DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO SCORES OBTAINED ON THE WIDE RANGE ACHIEVEMENT TEST

Subjects	STANDARD SCORES		
	Reading	Spelling	Arithmetic
Jana	99	99	63
Gail	94	94	88
Robert L.	96	97	88
Michelle	97	101	79
Brenda	90	85	94
Keith	97	96	99
Ronney	88	87	88
Angela	94	96	103
Julia	99	99	105
Todd	94	97	105
Towana	103	96	103
Sherry	85	87	96
Ronnie A.	87	85	96

TABLE X CONT'D

DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO SCORES OBTAINED ON THE WIDE RANGE ACHIEVEMENT TEST

STANDARD SCORES

Subjects	Reading	Spelling	Arithmetic
Tina	85	85	76
Sheila	97	97	92
Kirk	94	92	121
Dean	103	103	103
Walter	105	101	128
Kim	97	94	103
Mike	96	97	108
Roslyn	103	107	103
Robert H.	112	112	105
Mark	103	94	105
Kevin	99	99	92
Jimmy	97	94	108
Kara	105	101	114

APPENDIX II

FREQUENCY DISTRIBUTION
BASED ON ORIGINAL DATA

TABLE XI

FREQUENCY DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES FROM THE VANE KINDERGARTEN TEST

C.A.		P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f	Score	f
7-4	1	128	1	134	1	131	1	116	2
7-2	1	119	3	132	1	128	1	114	1
7-0	1	110	1	125	1	122	2	112	1
6-10	3	107	1	112	2	121	1	107	1
6-9	3	106	2	110	1	115	1	101	1
6-8	4	97	1	109	1	114	1	100	2
6-7	7	95	3	107	1	110	1	99	3
6-6	2	94	1	105	1	109	1	97	2
6-5	2	91	2	103	1	106	2	96	3
6-2	1	86	2	101	1	103	2	95	1
6-1	1	85	2	95	1	102	1	94	1

TABLE XI CONT'D

FREQUENCY DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES FROM THE VANE KINDERGARTEN TEST

P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f
84	2	94	1	97	2	93	2
82	1	91	1	92	1	92	1
81	2	89	1	91	1	87	1
79	1	88	1	90	3		
76	1	84	1	81	1		
72	1	79	1	79	1		
		74	1	78	1		
		73	1	76	1		
		71	1	62	1		
		70	1				
X	94.9	X	95.8	X	100.6	X	96.8
S.D.	15.07	S.D.	18.31	S.D.	17.45	S.D.	9.30

TABLE XII

FREQUENCY DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES FROM THE VANE KINDERGARTEN TEST

C.A.		P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f	Score	f
7-5	2	123	1	148	1	119	1	122	1
7-2	1	121	1	146	1	117	1	117	1
7-1	2	112	1	134	1	113	2	110	1
7-0	1	109	3	111	1	112	2	108	2
6-11	1	107	1	110	1	110	2	105	1
6-10	3	106	1	104	1	109	1	104	1
6-9	6	103	1	103	1	107	1	103	1
6-8	2	100	2	101	1	106	1	102	1
6-7	2	99	1	100	1	103	1	100	1
6-6	4	97	1	99	1	99	1	98	2
		95	1	95	1	97	2	96	1
		91	1	93	2	96	1	94	1

TABLE XII CONT'D

FREQUENCY DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO PRE-TEST SCORES FROM THE VANE KINDERGARTEN TEST

P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f
90	1	91	3	95	1	92	2
89	2	90	2	91	1	91	3
85	1	89	2	90	1	90	2
84	3	88	1	88	1	89	2
83	1	83	1	87	2	88	1
79	1	82	1	85	2	86	1
77	1	76	1	76	1	81	1
		72	1				
X	96.3	X	98.5	X	99.0	X	97.5
S.D.	13.09	S.D.	18.70	S.D.	13.07	S.D.	9.93

TABLE XIII

FREQUENCY DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM THE VANE KINDERGARTEN TEST

P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f
125	1	133	2	118	1	116	1
116	1	119	2	111	2	107	1
112	1	112	1	110	1	105	1
110	1	108	2	106	1	104	1
107	1	106	1	102	1	103	1
103	1	104	1	100	1	102	1
100	1	101	1	99	1	101	1
98	3	96	2	96	1	100	2
96	1	94	1	95	2	99	2
94	2	90	2	93	5	96	2
93	1	85	2	92	1	95	1
92	1	84	2	91	3	94	1

TABLE XIII CONT'D

FREQUENCY DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM THE VANE KINDERGARTEN TEST

P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f
91	1	83	2	90	1	93	1
90	1	77	1	87	1	91	1
88	1	76	1	86	1	90	1
87	2	70	1	81	1	88	1
85	2	65	1	73	1	86	2
83	1	61	1	66	1	84	2
78	1					82	1
76	1					76	1
						75	1
X	94.7	X	94.7	X	94.5	X	94.3
S.D.	12.11	S.D.	19.03	S.D.	11.38	S.D.	9.98

TABLE XIV

FREQUENCY DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM THE VANE KINDERGARTEN TEST

P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f
117	1	131	1	128	1	116	1
113	1	128	1	127	1	114	1
110	2	125	1	121	1	112	1
106	2	122	2	115	1	109	2
104	1	119	1	114	1	107	3
103	1	114	3	111	1	106	1
101	2	112	1	109	1	102	1
95	2	110	2	108	1	101	2
93	3	105	1	106	1	100	3
92	1	104	1	105	2	99	1
91	2	101	1	104	2	98	1

TABLE XIV CONT'D

FREQUENCY DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO POST-TEST SCORES OBTAINED FROM THE VANE KINDERGARTEN TEST

P-M		Voc.		Man		Full I.Q.	
Score	f	Score	f	Score	f	Score	f
90	5	97	2	103	1	97	1
87	2	96	1	101	2	95	1
79	1	95	1	100	1	94	1
		91	1	99	1	93	4
		90	3	96	1	84	2
		87	2	94	2		
		79	1	93	1		
				91	2		
				87	1		
				82	1		
X	96.8	X	105.0	X	103.4	X	100.9
S.D.	9.37	S.D.	14.48	S.D.	11.41	S.D.	7.58

TABLE XV

FREQUENCY DISTRIBUTION OF STUDENTS IN THE DEVELOPMENTAL GROUP ACCORDING TO SCORES OBTAINED ON THE WIDE RANGE ACHIEVEMENT TEST

Reading		Spelling		Arithmetic	
Score	f	Score	f	Score	f
112	1	112	1	128	1
105	2	107	1	121	1
103	4	101	3	114	1
99	3	99	3	108	2
97	5	97	4	105	4
96	2	96	2	103	5
94	4	94	4	99	1
90	1	92	1	96	2
88	1	87	2	94	1
87	1	85	3	92	2
85	2			88	3
				79	1
				76	1
				63	1
X	96.9	X	96.0	X	99.3
S.D.	6.53	S.D.	6.60	S.D.	13.06

TABLE XVI

FREQUENCY DISTRIBUTION OF STUDENTS IN THE NON-DEVELOPMENTAL GROUP ACCORDING TO SCORES OBTAINED ON THE WIDE RANGE ACHIEVEMENT TEST

Reading		Spelling		Arithmetic	
Score	f	Score	f	Score	f
123	1	118	1	119	1
113	1	110	2	114	3
107	1	107	4	110	1
106	1	104	1	108	3
105	5	103	1	105	1
103	4	101	2	103	5
101	2	99	1	100	1
99	1	97	2	97	1
97	1	96	3	96	4
96	3	94	2	94	1
95	1	93	2	89	1
94	1	92	3	88	1
92	1	91	1	86	1
90	1	85	1	85	1
88	1			61	1
87	1				
X	100.7	X	99.3	X	100.0
S.D.	7.82	S.D.	7.67	S.D.	12.05