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# The Relationship Between Reading Achievement Test Scores of Pre-Kindergarten Entrants and Standard Entrants at the Beginning of Kindergarten

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THE RELATIONSHIP BETWEEN READING ACHIEVEMENT  
TEST SCORES OF PRE KINDERGARTEN ENTRANTS AND  
STANDARD ENTRANTS AT THE BEGINNING OF KINDERGARTEN

THESIS

Submitted to the Graduate Committee of the  
Department of Curriculum and Instruction

Faculty of Education

State University College at Brockport

In Partial Fulfillment of the Requirements  
for the Degree of Master of Science in Education

by

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## Abstract

The purpose of this study was to determine the effect of early intervention on reading achievement scores of children of urban low-income families. Need for the study was prompted by the debate among early childhood experts about whether early intervention had an influence on children from urban low-income families.

One hundred fifty kindergarten students who attended school in the city of Rochester, New York were identified. Of the one hundred fifty students, seventy-seven were prekindergarten entrants and seventy-three were standard entrants. The California Achievement Test Level 10 form E was administered to the subjects by their kindergarten teacher at the beginning of the kindergarten school year. The scores of the California Achievement Test were analyzed to determine if participation in a prekindergarten program was a significant influence on reading achievement test scores.

After testing the null hypothesis, it was found that there was a significant difference on reading achievement test scores favoring prekindergarten entrants.

## Chapter I

### Statement of the Problem

Each year many elementary schools across the country are confronted with the challenge of providing an educational program for an unpredictable number of socially, educationally, and economically disadvantaged children. These children, whether they be in California, Michigan, Florida, New York, or Maine have common needs. These needs are:

1. **EQUAL OPPORTUNITY** - Low-income urban children need educational program which offer them the same opportunity for maximum development as that which is available to any other group.
2. **ATTITUDES FAVORABLE TO SUCCESS** - These children need educational experiences to develop and strengthen self-confidence and self direction to achieve maximum development. The problems facing these children and the schools are evident at the beginning of kindergarten. To offset the educational deficiencies discussed above there is

one basic problem that must be resolved. There are not enough early intervention programs.

Prekindergarten programs for four-year-olds have been receiving a great deal of attention from state legislatures. In many states across the country, state departments of education, community service and community education agencies operate prekindergarten programs. The programs are relatively new and signal growing interest in and commitment to early education. Most of the state-sponsored programs are targeted for four-year-old children.

While interest in state-sponsored preschool education is growing, the number of children involved remains relatively small. No state offers preschool for all of its four-year-olds. The diversity in programs is considerable. Current state practice either allows interested school districts to offer programs for four-year-olds in state-sponsored programs or sets criteria for the involvement of four-year-olds in state-sponsored programs.

The State of New York targets its kindergarten program for children designated to be vulnerable or at risk for school failure. To date, Rochester City School District's Board of Education offers three such programs housed in three of its public schools.



This study is an effort to find out if early intervention has an influence on reading achievement scores of children from urban low-income families.

### Purpose

The question of early intervention's impact on children from urban low-income families has sparked the interest of teachers, parents, administrators, and school boards throughout the nation. More needs to be known about the link between the prekindergarten programs and its effect on the low-income urban child. This is important because as Flynn (1984) states, "Persons who attend prekindergarten had better grades, fewer failing marks and fewer absences" (p. 254). Smith and James (1975) concluded that although the psychological and developmental reasons for preschool were oversold, the evidence suggested that preschool intervention can make an impact, and with the right support, it could be maintained for considerable periods.

The purpose of this study was to determine whether there is a significant difference on a test of preschool reading test scores (visual recognition, sounds, vocabulary, and language expression) of

prekindergarten entrants and standard entrants at the beginning of kindergarten.

### Definition of Terms

In the course of surveying literature for this thesis, it was evident that certain terms applicable to the topic of early intervention's impact on children from urban low-income families were used. Therefore, for the purpose of this thesis, three terms will be defined.

Prekindergarten Entrant - a child who has attended public preschool as a four-year-old.

Standard Entrant - a child who entered kindergarten as a five-or-six-year-old and did not attend preschool as a four-year-old.

Achievement Test Scores - Reading (total) scores taken from the California Achievement Test (Level 10E) results for October, 1986, administered when the subjects began kindergarten.

### Summary

Early intervention's impact on children from low-income families is not a new field in education. Although much has been written in regard to early intervention's impact on children from urban low-income families, there is a shortage of information relating to its impact on children of the city of Rochester, New York.

This study examined the effect of early intervention's influence on reading achievement scores of children of urban low-income families.

## Chapter II

### Review of the Literature

Prekindergarten programs for four-year-olds have been receiving a great deal of attention from state legislatures. This interest can be traced to well-publicized research documenting the positive long-term effects and cost effectiveness of preschool programs (Berrutta-Clement, Schweinhart, Barnett, Epstein & Weikart, 1984; Lazer & Darling, 1982).

#### Characteristics of State-Supported Prekindergarten Programs

In some states, prekindergarten programs are more similar to state's kindergartens; in other states programs more close resemble privately sponsored preschool programs (Morado, 1986).

Most prekindergarten programs are part-day programs (three or fewer hours per day or three or fewer days a week) and enroll three- and-four year olds who are targeted children at risk for school failure. They are selected by using demographic family characteristics that tend to be associated with school failure (Morado, 1986).

New Jersey, Pennsylvania, Oklahoma, and Ohio base eligibility solely on age. Maryland and Massachusetts base student eligibility on

age, but each state restricts wholly or in part, the areas or school districts in which programs may be offered (Morado, 1986).

Louisiana, South Carolina, California, New York, Maine, Florida, Texas, and Illinois target their prekindergarten programs for children designated to be vulnerable or at risk for school failure (Weikart, 1984). One half of Michigan's programs are similarly targeted. States use two approaches to identify vulnerable children. Environmental or other risk conditions are used to identify potential candidates for school failure, or states screen children and select these children with apparent deficiencies. Maryland targets its program for low-achieving school districts by using third grade achievement data to determine eligible school districts; all four-year-olds in participating districts are eligible without further screening. Massachusetts has specified that three quarters of its programs must be located in low-income residential areas. New York, California, Maine, Texas, and Washington base program eligibility on family income but use varying definitions of low-income ranging from federal Head Start standard of 100% of poverty level to family income below a specified percentage of the state median income. Children with limited English proficiency are eligible for programs in Texas and Florida.

South Carolina, Louisiana, and Illinois define their programs as compensatory programs. All children who participate in programs in

these states must be individually assessed to establish that readiness deficiencies exist (Morado, 1986).

### Values of Prekindergarten Programs

The Consortium for Longitudinal Studies found that high quality infant and preschool services improve the ability of low-income children to meet the minimal requirements of further schooling (Brown, 1985).

What were the specific findings of the Consortium for Longitudinal Studies on the long-term effects of early intervention?

First, early education programs significantly reduce the number of children assigned to special education classes. This benefit extends to all participants, regardless of their initial abilities or early home backgrounds (Karnes, Schwedel, Williams, 1970).

Second, early education programs significantly reduce the number of children retained in grade school.

Third, preschool programs produce a significant increase in the IQ and school achievement of low-income children through at least the critical early primary years (Jester & Guinagh, 1983).

Last, children who attended preschool are more likely to give achievement-related reasons for being proud of themselves. Their mothers also have high vocational aspirations for them (Brown, 1985).

A recent study on one of the Consortium programs, the High/Scope Perry Preschool Project, found that this early intervention program has benefits that lasts into early adulthood (Miller, 1974). In addition to improving the school success and achievement, the program helped to prevent delinquency and teenage pregnancy and to improve the likelihood of employment. A cost benefit analysis determined the net benefit to society to be \$28,933 for a year of preschool, a seven to one return on investment!

### Opposition to Prekindergarten Programs

Elkind, author of The Hurried Child, is a champion of traditional early childhood education who disapproves the trend of toward formal education programs a the preschool level. "Young children today are

no more and no less intellectually competent than they were fifty or one hundred years ago (Elkind, 1981, p. 7).

Zigler, one of the originators of the Head Start program, goes even further in opposing the movement toward universal preschool education for four-year-olds. He feels that "Whenever that family situation permits it, the best place for a preschool child is often at home" (Zigler, 1986, p. 12).

Winn notes in Children Without Childhood (1983) that premature schooling can replace valuable playtime, to the injury of the child's development.

Lazerson, (1970) writes "If we wish to improve the lives of the economically disadvantaged we must abandon short-term solutions and work for much deeper social reforms instead of relying on educational innovations alone to solve the problems of poor children. Preschools are asked to do too much, and given too little support to accomplish what they are asked" (p. 13).

Finally, Zigler (1986) writes "We simply cannot inoculate children in one year of preschool against the ravages of a life of deprivation" (p.13).



### Summary

This chapter has reviewed some of the available literature in the area of prekindergarten education. Characteristics of state-supported prekindergarten programs were identified. Research on early education indicates that children do benefit from kindergarten experiences. Then there is a body of literature indicating that children do not benefit from prekindergarten experiences.

The real question is: Do we provide a prekindergarten experience for low-income children?

## Chapter III

### Design of the Study

#### Purpose

The purpose of this study was to determine whether there is a significant difference in the mean reading achievement test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

#### Hypothesis

There will be no significant difference between the mean reading achievement test scores of prekindergarten entrants and the mean reading achievement test scores of standard entrants at the beginning of kindergarten.

#### Methodology

##### Subjects

The subjects of this study were 150 students of the Rochester City School District.

Of the 150 students seventy-seven were prekindergarten entrants and seventy-three were standard entrants.

### Instruments and Procedure

The subjects were administered Form E level 10 of the California Achievement test. The total reading score was used to identify good readers and the poor readers. The good readers scored in the stanines four through nine (percentile ranks from 41 through 99). The poor readers scored in stanines one through three (percentile ranks from 1 through 20). The stanine scores were used to calculate the mean.

### Analysis of Data

A t test using the stanine scores of the 150 subjects was calculated to determine any significant difference in the reading achievement test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

### Summary

This study examined whether there was a significant difference in reading achievement test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

The California Achievement Test Level 10 Form E was administered to identify good readers and poor readers.

A t test using the stanine scores of the 150 subjects was calculated to determine any significant difference.

## Chapter IV

### Analysis of Data

#### Purpose

This study examined whether there is a significant difference in the mean reading test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

#### Findings and Interpretations

A review of the literature revealed numerous research studies that demonstrated that children who attended a prekindergarten program before entering kindergarten were better prepared for school than those who had no previous school experience. In this study a  $t$  test for independent means was used to assess significance.

The results of the  $t$  test are summarized in Table 1 below.

Table I

Difference Between Mean Stanine Scores for Prekindergarten Entrants and Standard Entrants

California Achievement Test 10 E	Prekindergarten Entrant	Standard Entrant
Mean Stanine	5.403	2.904
+ Ratio	16.787	
critical $t_{(120)} = 1.98, p < .05$		

Since the calculated  $t$  score (16.787) was greater than the critical value (1.98), the data reject the null hypothesis; there is a significant difference between reading test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

## Chapter V

### Conclusions and Implications

#### Purpose

This study examined whether there is a significant difference in the mean reading test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

#### Conclusions

Research has established significant evidence that when three or four year olds attend a prekindergarten program before entering kindergarten, they have higher reading test scores than those entrants who had no previous prekindergarten experience.

In concluding an extensive research study on the effects of early intervention, the Consortium for Longitudinal Studies found that high quality infant and preschool services improve the ability of low income children to meet minimal requirements of further schooling. (Consortium, 1979, 1983; Darlington, Lazer, Murray, Royce & Snipper, 1982; Hubbell, Lazer, Murray, Rosche & Royce, 1977).

The findings of the present study also support preschool programs in concluding that a prekindergarten experience has a definite influence on reading achievement scores of urban low income kindergarten children.

### Implications of Education

This research indicates that what happens to children and what children do during the first few years of life is critical to their future education. Research has also convincingly demonstrated a connection between childhood poverty and school failure. Research has shown that good early childhood programs help prevent school failure among the poor.

An assessment of the Perry/Preschool Program, conducted by the High/Scope Educational Research Foundation (Featherstone, 1986, p. 17) showed that a good one-year preschool program for disadvantaged children returns to taxpayers six dollars for every dollar invested. Governors, state legislators, state education leaders, and the local board of education would be wise to consider carefully the research findings related to early childhood education.

No one wants children to fail. If preschooling becomes available to all, thousands of youngsters who would otherwise repeat a grade or require a special placement will meet their teachers' expectations and



proceed through school alongside others of their age. The benefits will come to rich children as well as poor ones and will be felt in every sort of family and in the total society.

### Implications For Research

The study was limited to findings of reading test scores of low income urban children in one school district. Further research could include school districts in other urban areas.

It would be interesting to explore the sex of the entrant as another variable. According to Flynn (1984), preschool and kindergarten programs for these children cannot afford to ignore these differences which may affect future academic achievement.

Attendance as a variable would also give a clearer focus on the reading achievement scores.

Many of the first reports about the effects of early intervention programs underscore the importance of parents in facilitating their children's development. Bronfenbrenner's (1974) report was especially influential in arguing that early intervention was more effective when parents were involved in the program. More needs to be learned about the relationship of parents to the influence on reading achievement

scores of urban low income children who participate in a prekindergarten program.

### Summary

This chapter has considered implications for education and for further research. Provision was made for the interpretation of the data cited in Chapter IV. There was a significant difference in the reading achievement test scores of prekindergarten entrants and standard entrants at the beginning of kindergarten.

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Appendix A  
Data from California Achievement Reading Test  
Level 10 Form E  
Prekindergarten Entrants



Appendix A  
Data from California Achievement Reading Test  
Level 10 Form E  
Prekindergarten Entrants

Student Number	Percentile Score	Stanine Score
1	41	5
2	31	4
3	64	6
4	65	6
5	89	7
6	80	7
7	45	5
8	64	6
9	69	6
10	84	7
11	69	6
12	68	6
13	59	5
14	58	5
15	42	5
16	64	6
17	68	6
18	47	5
19	64	6
20	59	5
21	29	4
22	37	4
23	59	5
24	80	7
25	56	5
26	73	5
27	50	5
28	24	4
29	35	4
30	54	5

Appendix A  
Data from California Achievement Reading Test  
Level 10 Form E  
Prekindergarten Entrants

Student Number	Percentile Score	Stanine Score
31	48	5
32	68	6
33	45	5
34	49	5
35	68	6
36	43	5
37	45	5
38	57	5
39	84	7
40	59	5
41	69	6
42	72	6
43	47	5
44	64	6
45	68	6
46	69	6
47	89	7
48	70	6
49	57	5
50	91	8
51	64	6
52	70	6
53	59	5
54	28	4
55	55	5
56	67	6
57	72	6
58	28	4
59	37	4
60	55	5

Appendix A  
Data from California Achievement Reading Test  
Level 10 Form E  
Prekindergarten Entrants

Student Number	Percentile Score	Stanine Score
61	57	5
62	64	6
63	41	5
64	41	5
65	43	5
66	67	6
67	57	5
68	70	6
69	49	5
70	35	4
71	37	4
72	41	5
73	37	4
74	46	5
75	67	6
76	72	6
77	55	5

Appendix B  
Data from California Achievement Reading Test  
Level 10 Form E  
Standard Entrants

Appendix B  
Data from California Achievement Reading Test  
Level 10 Form E  
Standard Entrants

Student Number	Percentile Score	Stanine Score
1	3	1
2	13	3
3	1	1
4	18	3
5	16	3
6	18	3
7	7	2
8	13	3
9	2	1
10	16	3
11	39	4
12	19	3
13	7	2
14	5	2
15	16	3
16	19	3
17	20	3
18	7	2
19	5	2
20	20	3
21	20	3
22	11	2
23	19	3
24	13	3
25	2	1
26	22	3
27	6	2
28	10	2
29	31	4
30	11	2

Appendix B  
Data from California Achievement Reading Test  
Level 10 Form E  
Standard Entrants

Student Number	Percentile Score	Stanine Score
31	10	2
32	14	3
33	16	3
34	10	2
35	13	3
36	10	2
37	5	2
38	4	1
39	2	1
40	9	2
41	7	2
42	20	2
43	6	2
44	7	2
45	8	2
46	9	2
47	10	2
48	32	4
49	4	1
50	18	3
51	10	2
52	20	3
53	19	3
54	3	1
55	7	2
56	8	2
57	14	3
58	2	1
59	13	3
60	5	2

**Appendix B**  
**Data from California Achievement Reading Test**  
**Level 10 Form E**  
**Standard Entrants**

<b>Student Number</b>	<b>Percentile Score</b>	<b>Stanine Score</b>
61	4	1
62	2	1
63	22	3
64	7	2
65	13	3
66	8	2
67	11	2
68	16	3
69	35	4
70	13	3
71	12	3
72	11	2
73	5	2