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## **A causal comparative ex post facto study of the effects of preschool attendance on reading achievement at the first grade level**

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A CAUSAL COMPARATIVE  
EX POST FACTO  
STUDY OF THE EFFECTS OF  
PRESCHOOL ATTENDANCE  
ON READING ACHIEVEMENT  
AT THE FIRST GRADE LEVEL

A PROJECT

Presented in Partial Fulfillment of the Requirements for  
the Master's Degree in Education in the School  
of Education of California State College  
San Bernardino


By

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California State College  
San Bernardino

1974

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## INTRODUCTION

Fifty percent of an individual's mature intelligence is developed between conception and age four, according to Benjamin Bloom after summarizing 1000 research studies. Further, Bloom states, "from ages 4 to 8 he develops another 30%, and from ages 8-17 the remaining 20%.<sup>1</sup> Based on this in depth research Bloom gives three reasons why early environment is of significant importance: (1) some characteristics that develop rapidly are shaped by variations in the early environment during the most rapid formation periods; (2) later development depends upon the base provided by early development; and (3) learning something new is easier than unlearning a set of behaviors and replacing the old behaviors with the new set.<sup>2</sup>

Currently, there is widespread interest in the early childhood education field with many studies being completed and much more knowledge needed. Evelyn Weber believes the focus of most of this research is on the cognitive development; however, many researchers are trying to fit the new knowledge of cognitive growth into the

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<sup>1</sup>Report of the Task Force on Early Childhood Education, (Sacramento, California: California State Department of Education, 1972), p. 36.

<sup>2</sup>Ibid.



larger framework of human development.<sup>3</sup> She credits the belief that intelligence was genetically developed as holding back the change from fixed intelligence to developing intelligence. However, recognizing that the kinds of experiences provided a child has an influence on a youngster's intelligence "new hope has impelled a search for the 'appropriate' and 'optimal' stimuli which will enable the child with meager background to function more adequately intellectually".<sup>4</sup>

As a result of Piaget's theory that the greater the variety of situations to which a child must accommodate his behavioral structures, the more differentiated they become, Butler concluded that "a wide variety of activities involving social and intellectual interactions with children and adults greatly enhances a child's ability to learn".<sup>5</sup> She also believes the reverse of this may be true. Being deprived in the early years when growth and change are most rapid may have the most damaging effect. For this reason we will probably be realizing a large number of state and federally sponsored early childhood programs.

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<sup>3</sup>Evelyn Weber, Early Childhood Education (Worthington, Ohio: Charles A. Jones Publishing Company, 1970), p. 39.

<sup>4</sup>Ibid.

<sup>5</sup>Annie L. Butler, et. al., "Literature Search and Development of an Evaluation System in Early Childhood Education. I, Researched Characteristics of Preschool Children," Office of Education (DHEW), Washington, D.C. (April, 1971), p. 5.

## DEFINING THE PROBLEM

The purpose of this study is to determine if preschool attendance has any effect on reading achievement of children by the end of first grade. The type of preschool program will not be a factor. Also, the study will attempt to show any significant difference in preschool attendance as it applies to boys and girls.

## NULL HYPOTHESES

Null Hypothesis Number One - Preschool attendance has no effect on a child's reading achievement at the first grade level.

Null Hypothesis Number Two - Sex is not a factor in the effects of preschool attendance on a child's reading achievement at the first grade level.

Null Hypothesis Number Three - There is no interaction between sex and preschool attendance that affects reading achievement at the first grade level.



## REVIEW OF THE LITERATURE

The nation's interest in the development of pre-reading skills has been sharply increased through the medium of television, especially by "Sesame Street." The premise that the pre-kindergarten years are a period of substantial and significant intellectual development is now widely accepted.<sup>6</sup> Longitudinal research studies on the effects of "Sesame Street" will probably reveal much interesting information regarding their treatment of reading readiness.

Already, Virginia Shipman is at the midpoint of a longitudinal study of 1800 disadvantaged children attempting to identify any causal relationships between a child's early social environment and later school progress.<sup>7</sup> There are, of course, many interpretations of readiness, but Wills says that the generally accepted premise is that a child who is ready will usually be able to learn easily and quickly. Further, she says that one cannot

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<sup>6</sup>Edward L. Palmer, "Can Television Really Teach? Preschoolers Across the Nation Will Provide Some Answers this Fall as They Watch 'Sesame Street'," American Education, V (August-September, 1969), 2-6.

<sup>7</sup>Phyllis L. McDonald and Marylane Soeffing, "Prevention of Learning Problems: Capsule Summaries of Research Studies in Early Childhood Education," Exceptional Children, XXXVII (May, 1971), 681-86.



consider intellectual readiness without giving consideration to social, physical, and emotional readiness as well.<sup>8</sup> On the other hand, LaCrosse takes the concept a step further to add that anything in the environment that leads to enhanced curiosity and exploratory behavior, mental as well as physical, leads to a readiness in reading and for general competence in coping with life's tasks.<sup>9</sup>

Dolores Durkin questions the entire concept of readiness. Stating that "different kinds of instruction make different demands of the learner,"<sup>10</sup> she contends we should be thinking in terms of several kinds of readinesses. It would be erroneous to think that a certain set of abilities would make a child ready to cope with diverse methods of instruction. To Durkin, readiness is being able to take the first step in reading and, hopefully, the first step would prepare him for the second.

Her concern for various considerations of readiness is supported somewhat by Walter MacGinitie who reviewed some of the types of research currently taking place on

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<sup>8</sup>Clarice Dechent Wills, "Readiness: Recognized or Developed," in Nursery-Kindergarten Education, ed. by Jerome E. Leavitt (New York; McGraw-Hill Book Company, 1958), pp. 296-311.

<sup>9</sup>E. Robert LaCrosse, Jr., "Reading Readiness in the Preschool Years: A Total Preparation by the Environment," Claremont Reading Conference 35th Yearbook (Claremont, California: Claremont Graduate School Curriculum Laboratory, 1971), pp. 27-33.

<sup>10</sup>Dolores Durkin, "What Does Research Say About the Time to Begin Reading Instruction?" The Journal of Educational Research, LXIV (October, 1970), 55.



readiness. He offers three cautions in interpreting the readiness research: (1) Particularly when the sample is small and when the methods and materials of instruction are not specified, interpreting the findings is hazardous. (2) Especially in inferences of no relationship retrospective inferences can be misleading, and (3) a number of faulty interpretations of correlational relationships need to be avoided.<sup>11</sup> He concludes, "The question underlying explorations of readiness should become 'What and how is this child ready to learn?' Only when we have learned to ask the right question will we begin to get more meaningful answers."<sup>12</sup>

Indications are many among the disadvantaged that preschool programs are a great asset in preparing youngsters with skills necessary to cope with the educational program and the social relationships they meet upon entering the public school. One teacher in a Follow-Through program announced, "The difference in the children is tremendous. So often a six-year-old would begin school without knowing his own name. Sometimes it would take us until Christmas just to get the correct spelling. Now with Head Start and Follow-Through, the children are alert, informed, and able

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<sup>11</sup>Walter H. MacGinitie, "Evaluating Readiness for Developmental Language Learning: Critical Review and Evaluation of Research," International Reading Association Conference Proceedings, XIII Part 1, (Newark, Delaware: 1969), pp. 508-16.

<sup>12</sup>Ibid., p. 516.



to do things on their own."<sup>13</sup> Apparently, for this teacher, the preschool program is a success.

However, writing in 1966 Deutsch wrote that from the data gathered up to that point it was too early to say there was any direct relationship between early school experience and the school dropout, but he hypothesized as to a strong relationship between first school experiences and academic success or failure. Further, the more invariant the school experience, the more important the early experience would be to academic success. He believes that children who have had a preschool or kindergarten experience are more likely to cope with the intellectual demands of a school than are those without the experience.<sup>14</sup>

Reporting on the results of a Montessori nursery program attempting to help fifteen 3 and 4 year old inner city children prepare for formal education, Carol Reich wrote that mothers were generally satisfied that the children had increased their verbal skills, preparedness for junior kindergarten, and social maturity. However, not all the mothers were satisfied with the increased independence shown by some.<sup>15</sup>

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<sup>13</sup>Judith Reed, "Following Through in Macon County," American Education, VII (November, 1971), 7-12.

<sup>14</sup>Martin Deutsch, "Early Social Environment: Its Influence on Social Adaptation," in Pre-School Education Today, ed. by Fred M. Hechinger (Garden City, New York: Doubleday and Company, Inc., 1966), pp. 149-64.

<sup>15</sup>Carol Reich, "Preschool Education for Inner-City Children: Preliminary Results of an Experimental Montessori Programme," Toronto Board of Education (Ontario), Research Department, (November, 1971), pp. 1-25.



In a study made to evaluate the impact of kindergarten programs on boys and girls, Rubin also included the effects of a year of maturation and incidental out-of-school learning experiences compared with the effects of exposure to existing kindergarten programs on language and reading skills. One hundred and eighty-two children (93 boys and 89 girls) were used. Seventy-six children (40 boys - 36 girls) attended kindergarten and 106 (53 boys - 53 girls) did not attend kindergarten. The view that girls are more ready for school was supported by the findings. There were consistent differences favoring both groups of girls over both groups of boys. Rubin concluded that boys and girls differ on language and readiness skills before kindergarten but that the programs have a differential impact on the growth of these skills as well. Girls tend to be more advanced, but boys have the greater growth. The effects of kindergarten programs on girls are negligible. Actually, maturation and incidental learning resulted in as great an increase in these skills as did exposure to the kindergarten program.<sup>16</sup>

Pre-dating the Rubin study by four years Marshall Smith explored the differences in five-year-old boys and girls from poverty areas of a middle sized northeastern city. Fifty-five children attended pre-kindergarten classes and forty-seven did not. Using the Stanford-Binet Intelligence

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<sup>16</sup>Rosalyn Rubin, "Sex Differences in Effects of Kindergarten Attendance on Development of School Readiness and Language Skills." The Elementary School Journal, LXXII (February, 1972), 265-74.



Scale LM abbreviated form and the Peabody Picture Vocabulary Test he found that the preschool group had scores superior to the non-preschool group both in intelligence and mental age. Virtually all the difference between the two groups was contributed by the preschool girls. Scores of the preschool boys and non-preschool girls are nearly identical. Preschool boys scored only slightly higher than non-preschool boys and at about the same level as the non-preschool girls.<sup>17</sup>

Exploring the concept that a relationship exists between nursery school behavior and later school adjustments, Westman used the hypothesis that children with adjustment problems in nursery school tend to have adjustment problems in later school life. He used the following nursery school adjustment scale:

1. Nursery school relations with peers
2. Nursery school relations with teachers
3. Creativity in individual activities
4. Signs of behavioral immaturity
5. Signs of behavioral eccentricity
6. Deviance in family structure
7. Pathological family relations

He found that nondeviate family structure correlated strongly with later academic achievement and that deviant family structure correlated with later family problems. The

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<sup>17</sup>Marshall P. Smith, "Intellectual Differences in Five-year old Underprivileged Girls and Boys With and Without Pre-kindergarten School Experience," The Journal of Educational Research, LXI (April, 1968), 348-50.



only point on the scale strongly correlating with later academic achievement was the family structure.<sup>18</sup>

In 1971, a study by Chamberlin and Nader indicated that nursery school functioning was significantly related to functioning in later school years. Subjects for this study were selected on the single criterion that there were available records of nursery school and later school. Of the forty children used in the study most of the children came from middle class home backgrounds. At the time of the study twenty-one were in the second grade, twelve in grades four through six, seven were in grades seven or eight. There were nineteen boys and twenty-one girls. The study supports the findings of others that nursery school functioning is related to later school functioning. Accordingly, an attempt at early intervention appears warranted.<sup>19</sup>

The original objective of a Swedish nursery school was to work in conjunction with the home to develop the psychomotor and intellectual skills of the child and to help him develop emotionally and socially. A study of this nursery school concerning its effects on child development revealed that in the areas of general knowledge, vocabulary

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<sup>18</sup>Jack C. Westman, Dale L. Rice, and Eric Bermann, "Nursery School Behavior and Later School Adjustment," American Journal of Orthopsychiatry, XXXVII (August, 1967), 725-31.

<sup>19</sup>Robert W. Chamberlin and Philip R. Nader, "Relationship Between Nursery School Behavior Patterns and Later School Functioning," American Journal of Orthopsychiatry, XLI (July, 1971), 597-601.



development, and linguistic expression, as well as ability to manage certain daily routine without assistance, the results were favorable.<sup>20</sup>

In other research, a traditional nursery school program was compared with a structured program focusing on specific learning tasks that promote language development and cognitive skills. Sixty children were used in the experiment designed to assess the effects of two pre-school programs as they relate to long range school performance of comparable groups of children. The results of the Metropolitan Readiness Test showed superior performance by the experimental group in reading and number readiness. Pointing out that there is a lack of research on the lasting effects of nursery school experience, Karnes concludes that "we may assume that for children of middle class backgrounds the preschool is at least moderately relevant to their later and more formal education."<sup>21</sup>

Stanchfield has been experimenting for the past seven years using five hundred kindergarten children each year from the Los Angeles City Schools. Her purpose is to use a variety of materials and methods in teaching beginning reading to determine the effect upon reading

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<sup>20</sup>"Nursery School Project," Gothenburg School of Education, Sweden, (May, 1971), pp. 1-31.

<sup>21</sup>Merle B. Karnes, Audrey Hodgins, and James A. Teska, "An Evaluation of Two Preschool Programs for Disadvantaged Children: A Traditional and a Highly Structured Experimental Preschool," Exceptional Children, XXXIV (May, 1968), p.667.



achievement of first grade children. A research design for reading readiness was developed to include (1) listening for comprehension of content, (2) auditory discrimination, (3) visual discrimination, (4) oral language skills, (5) motor-perceptual skills, and (6) sound-symbol correspondence skills. She concluded that kindergarten children in the structured program achieve significantly more than children in the regular program. Girls achieved significantly higher scores than the boys in the study. Mexican American and Black groups reached higher scores than did the control group, but the "other white" group achieved significantly higher scores than the Mexican American and Black pupils.<sup>22</sup>

Evidence that cognitive development can be modified and even accelerated by manipulating in specific ways a child's environment has been introduced by Flavell, Ojemann, Pritchett, and Deutsch, among others. Resultant of this, many preschool programs are becoming more structured than in the past. Leeper, Dales, Skipper, and Witherspoon point out that early childhood education has gained major importance but there is little agreement as to the best methods and curriculum although research indicates that language and cognitive development during the early years is important. They also point out that preschools are placing

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<sup>22</sup>Jo M. Stanchfield, "Development of Pre-reading Skills in an Experimental Kindergarten Program," The Reading Teacher, XXIV (May, 1971), 699-707.



increased emphasis on learning and intellectual development as resulting in better educational experiences for youngsters.<sup>23</sup>

Piaget's theory, according to Raven, supports an activity curriculum. A nursery school experience should emphasize the interaction with materials and exploration of the environment. Reading and books should be simply a part of the general environment of a kindergarten program, and a beginning reading program should grow out of the progression through motor and perceptual functioning to symbolic activity.<sup>24</sup> Much along this line, Fowler suggests that "once the cognitive rules associated with language acquisition are established, much of the learning process in reading consists of perceptual applications of these rules to meet new units."<sup>25</sup>

Samuels concluded that in evaluating any method used in beginning reading one must consider not only the speed of initial learning, but the transfer to decoding new words as well. Samuels used several studies that suggested the following conclusions: (1) Knowing the name of a letter has no positive effect and (2) letter-sound

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<sup>23</sup>Sarah Hammond Leeper, et al., Good Schools for Young Children (New York: The Macmillan Company, 1968), p. 51.

<sup>24</sup>Ronald J. Raven and Richard T. Salzer, "Piaget and Reading Instruction," The Reading Teacher, XXIV (April, 1971), 630-39.

<sup>25</sup>Rachel Inselberg, "Current Issues and Research Gaps in Initial Reading Instruction," Education, XCII (April, 1972), 81.



training has a facilitative effect in decoding unfamiliar words. The conclusion is that letter-sound relationships have more effect on determining future success in reading than letter-name relationships.<sup>26</sup>

Earlier than Samuels, Heilman, who researched first grade reading instruction, concluded that there was little room left to doubt that pupils who had experienced a systematic plan of instruction on letter-sound relationships scored higher on reading achievement tests at the end of first grade than did pupils who did not have systematic instruction.<sup>27</sup>

The literature of recent research indicates considerable agreement as to the importance of preschool education. Experiments by Deutsch showed that children with preschool experience score higher on tests of intelligence than those without preschool training. Keliher pointed out that Head Start programs with small adult-pupil ratios contributed to gains in IQ scoring of from eight to ten points within a six week period.<sup>28</sup> Olson pointed

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<sup>26</sup>S. J. Samuels, "Word Recognition and Beginning Reading," The Reading Teacher, XXIII (November, 1969), 159-61.

<sup>27</sup>Arthur W. Heilman, "Research Findings Concerning Phonics in Beginning Reading. A Decade of Innovative Approaches to Beginning Reading," Proceedings of the Twelfth Annual Convention of the International Reading Association XII Part 3, (Newark, Delaware: 1968), pp. 100-06.

<sup>28</sup>Alice V. Keliher, "Effective Learning and Teacher-Pupil Ratio," Childhood Education, XLIII (September, 1966), 3-7.



out the crucial aspect of providing opportunities for full development of children during the preschool years.<sup>29</sup>

A variety of institutions sponsor schools - private, state, profit or break-even, social welfare, church affiliation, or a service of industry to employees. Whatever type of preschool program it may be, these are some considerations to keep in mind. (1) Nursery schools should be the best possible place for young children. (2) The best available knowledge of child development should determine the educational practices of the nursery school. (3) The teaching staff and students should foster and maintain a genuine respect for the science of child study.<sup>30</sup>

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<sup>29</sup>Edith M. Dowley, "Early Childhood Education," Encyclopedia of Educational Research, 4th ed., ed. by Robert L. Ebel (London: The Macmillan Company, 1969), pp. 316-30.

<sup>30</sup>Ibid. p. 325.



## RESEARCH PROCEDURE

### Population

The population consisted of the 57 heterogeneously assigned students in two first grade classrooms for the year 1972-73. The school (K-6) has an enrollment of approximately 550 students pulling from urban, semi-urban, and rural areas. The school population consists of approximately 15% Spanish surname students, 1% other students, and 84% Anglo students. The school is in a unified district with a district student population of approximately 6,000. The socio-economic level ranges from high to low, with the average being more to the middle.

### Testing Instrument

The testing instrument was the Cooperative Primary Reading Test - Form 12A. The mean is 24.5, with a Standard Deviation of 9.1. The content validity, according to the Handbook, "... is best ensured by entrusting test construction to persons well qualified to judge the relationship of test content to teaching objectives... It is recommended that each test user make an individual judgment of content validity with respect to his own instructional



practices and educational aims."<sup>31</sup> In Buros, one reviewer rates the validity of the test as outstanding, and the other reviewer feels that this is a step forward by ETS as an attempt to face the problem of logical validity realistically, even though there may be problems encountered in leaving the content validity of the tests up to the local schools.<sup>32</sup> Two types of reliability estimates are presented. The Internal Consistence coefficient, computed using Kuder-Richardson Formula 20, is .87; the Alternate Form Correlation is .85.<sup>33</sup>

#### Data Gathering Procedure

Scores on the Primary Cooperative Reading Test - Form 12A for the sample group for the school year 1972-73 were utilized. Pupil cumulative folders were used to ascertain if the subjects attended a preschool. Where this information was not available, a phone call or a home visit was made to gain this information.

#### Statistical Analysis

Raw scores from the Cooperative Primary Reading Test - Form 12A were acquired and listed for the samples in

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<sup>31</sup>Educational Testing Service, Cooperative Primary Tests Handbook, (Princeton, N.J.: ETS, 1967), p. 55.

<sup>32</sup>Oscar Krisen Buros, The Seventh Mental Measurements Yearbook, Vol. 1, (Highland Park, New Jersey: The Gryphon Press, 1972), pp. 38-40.

<sup>33</sup>Educational Testing Service, pp. 55-57.



each of the following categories: Boys with preschool; Girls with preschool; Boys without preschool; Girls without preschool. The data were analyzed using the Analysis of Variance Factorial Design: Two Factors.<sup>34</sup> A table of random numbers<sup>35</sup> was used to equalize the groups. Table 1 shows the raw scores of the samples used to complete the statistical analysis.

TABLE 1  
RAW SCORES  
COOPERATIVE PRIMARY READING TEST  
FORM 12A

	Preschool		No Preschool	
	Boys	Girls	Boys	Girls
	48	43	28	46
	46	42	21	45
	42	20	19	39
	32	48	18	35
	26	45	37	46
	22	32	29	30
	18	22	27	20
	46	21	24	20
	34	45	18	18
	18	28	14	17
Total	332	346	235	316

A "p" value of .05 was used to reject the null hypotheses. The final analysis of the study is shown in Table 2.

<sup>34</sup>James L. Bruning and B.L. Kintz, Computational Handbook of Statistics (Glenview, Illinois: Scott, Foresman and Company, 1968), pp. 25-30.

<sup>35</sup>William H. Beyer, ed., Handbook of Tables for Probability and Statistics (Cleveland, Ohio: The Chemical Rubber Company, 1966), p. 197.



TABLE 2

FINAL ANALYSIS OF  
SEX AND PRESCHOOL ATTENDANCE ON  
READING ACHIEVEMENT IN FIRST GRADE

Source	SS	df	ms	F	p
Total	4888	39			
Sex	226	1	226	1.96	n.s.
Preschool	403	1	403	3.50	n.s.
Sex X Preschool	112	1	112	.97	n.s.
Error	4147	36	115.19		



## FINDINGS

Null Hypothesis Number One: Preschool attendance has no effect on a child's reading achievement at the first grade level.

To assess this null hypothesis the Cooperative Primary Reading Test - Form 12A was used. In the sample used boys who had attended preschool had raw scores ranging from 18 to 48. Non preschool boys scored from 14 to 28. Sum of raw scores for preschool boys was 332 and the sum for non preschool boys was 235. Preschool girls had raw scores ranging from 28 to 43 for a total of 346, overall, slightly higher than preschool boys. Non preschool girls scored from 17 to 46 with a total of 316, somewhat higher than non preschool boys. It is interesting to note that the raw scores of non preschool girls at the end of first grade more nearly resemble the raw scores of first grade boys having had preschool experiences: Girls 17-46, Boys 18-48, which tends to support the work of Rosalyn Rubin<sup>36</sup> mentioned earlier.

The F ratio was 3.50. This information, presented in Table 2, tends to support null hypothesis number one. It can be concluded that in this study preschool had no

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<sup>36</sup>Rubin, "Sex Differences," pp. 265-274.



effect on a child's reading achievement at the end of first grade. The F ratio of 3.50 gives a "p" value which is not significant; nevertheless, it does fall between .10 to .05 which indicates a tendency toward being significant. It is possible that a larger sample would yield a "p" value to be significant, and, thus, not support the null hypothesis.

Null Hypothesis Number Two: Sex is not a factor in the effects of preschool attendance on a child's reading achievement at the first-grade level.

Using the Cooperative Primary Reading Test - Form 12A, girls who had preschool experience accumulated raw scores ranging from 28 to 43 for a total of 346. Boys who had similar preschool experience had raw scores ranging from 18 to 48 for a total of 332. Non preschool boys had raw scores from 14 to 28 for a total of 235 while raw scores for non preschool girls ranged from 17 to 46 for a total of 316. The F ratio was 1.96 which yields a "p" value that is not significant. Therefore, information in this sample supports null hypothesis number two. Although, as Rosalyn Rubin<sup>37</sup> pointed out that girls may be more advanced, this sample supports the concept that sex is not a factor in relation to preschool attendance in its effect on reading achievement of the first grade child.

Null Hypothesis Number Three: There is no interaction between sex and preschool attendance that affects reading achievement at the first-grade level.

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<sup>37</sup>Rubin, "Sex Differences," pp. 265-274.



Boys who had had preschool experiences scored slightly higher than girls who had not attended preschool (332 and 316). Girls who had attended preschool scored higher than the other three groups. Although scores for both sexes attending preschool are higher than the boys and girls who had not attended preschool, the F ratio of .97 yields a "p" value that is not significant. We can conclude for this sample that the interaction of preschool by sex had no significant affect on reading achievement at the end of first grade. The information in this sample supports the null hypothesis.



## SUMMARY

One can only agree with the cautions of Walter MacGinitie<sup>38</sup> that interpreting the findings of a small sample with unspecified materials and methods is hazardous.

The information in this sample, however, tends to support all three null hypotheses. Perhaps we should explore the different kinds of readiness relative to reading achievement and provide those kinds of readiness activities in our preschools; as Olson pointed out, providing opportunities for full development of children.<sup>39</sup>

One should be aware that only two regular classes, forty children, were used in the sample. The maturation level and outside learning experiences should be considered. The effects of the teachers on the students was not considered in this sample. Nor was there any possibility of controlling the types of experiences provided in preschool. Several different preschools were attended by the population sample. Further, no analysis of the socio-economic level, racial-ethnic, or intelligence was possible.

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<sup>38</sup>MacGinitie, "Evaluating Readiness," pp. 508-16.

<sup>39</sup>Dowley, "Early Childhood Education," p. 325.



Certainly a review of the literature would indicate the possibilities of preschool being valuable preparation for success in the reading achievement of first grade children.



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