

Spring 1971

Relationship between School Success and Physical and Familial Factors of Kindergarteners

Linda Marie Baker
Central Washington University

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RELATIONSHIP BETWEEN SCHOOL SUCCESS
AND PHYSICAL AND FAMILIAL FACTORS
OF KINDERGARTENERS

A thesis
Presented to
the Graduate Faculty
Central Washington State College

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

by
Linda Marie Baker
March 1971

APPROVED FOR THE GRADUATE FACULTY

Daryl Basler, COMMITTEE CHAIRMAN

Dohn Miller

Sam Rust Jr.

ACKNOWLEDGEMENTS

I would like to thank my committee members and especially Dr. Basler for his interest and advice during the planning and writing of this paper.

A very special thanks to Steven, Jollee and Stace, my husband and children, for without their encouragement, determination and sacrifices none of this would have been possible.

And finally I wish to thank my parents, David and Ida Guillard, for help beyond the call of duty.

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CHAPTER I
INTRODUCTION

I. PURPOSE OF THE STUDY

Teachers in elementary schools often assert that they could teach more successfully if no child under six years of age was admitted to first grade (12:41-7). While teaching kindergarten this writer also found many parents of kindergarten age children quite concerned about the "best" age for their child to enter kindergarten. Besides age there seemed to be concern in other areas such as physical size, coordination, and emotional maturity. However, most school districts in Washington set chronological age as the major requirement for school admission.

The problem to be investigated in this study was to determine the relationship, if any, between physical and familial factors and the child's success in kindergarten. In order to accomplish this one must (1) measure success and then (2) compute the relationship of other factors to success.

On the basis of these relationships, if they exist, one can better group children, provide more comprehensive curriculum, and staff classrooms to compensate for both high and low success factors.

The purpose of this study was two-fold. The first phase was to determine success and the second to determine the relationship between success and other factors.

Educators and other researchers, as well as teachers and parents, have been concerned with the need to determine success and then compute the relationship between success and other factors. For the purpose of this study a presentation of research has been limited to success, chronological age, height, weight, sex, birth order, and parents' education as each of these areas relate to the kindergartener.

Before a statement of the general hypothesis, the following terms need defining within the scope of this study.

II. TERMS USED IN THE STUDY

Degree of Success

This term refers to the kindergartener's level of functioning in the academic, emotional, physical, and social situations.

More Successful

This term represents the top one third of each class of kindergarten children involved in this study.

Less Successful

This term represents the bottom one third of each class of kindergarten children involved in this study.

Kindergartener

This term refers to the fifty kindergarten children enrolled in two morning classes at Byron Kibler Elementary School in the Enumclaw School District No. 216, Enumclaw, Washington.

Academic Achievement

This term represents the teacher's estimation of quality and quantity of the kindergartener's work in all curriculum areas.

Physical Coordination

This term refers to the teacher's estimation of the kindergartener's physical progress including ambulation, gross and fine motor movements.

Emotional Maturity

This term refers to the teacher's estimation of the kindergartener's ease and stability in a group.

Leadership

This term, leadership, refers to the teacher's estimation of the kindergartener's popularity with his peers including the number of times large or small groups within the class participate in activities of his choice.

Parents

This term refers to the adult or adults with whom the kindergartener is living.

Years of Education

This term represents the number of years the parents have gone to school including elementary, secondary, and college.

Rank Order

This term refers to the teacher's written rating, in descending order, of each child in relation to the other kindergarteners in his class.

Physical Factors

This term refers to the chronological age, height, weight, and sex of the kindergartener.

Familial Factors

Familial factors include the order of the child's birth in the family, and his parents' education.

III. GENERAL HYPOTHESIS

The following type of hypothesis was selected for verification or rejection as a result of the findings of this study: The null hypothesis of no significant physical or familial differences between the more successful kindergarteners and the less successful kindergarteners was postulated. All results from the "t" test analysis in the study were reported at or beyond the .05 level of confidence. All results from the percentage analysis

were reported as significant where the difference was greater than twenty percent.

The following chapter contains research related to this study. Chapter III deals with the procedures and the specific hypotheses. Chapter IV states and discusses the results, and finally Chapter V presents the summary and conclusions of this study.

CHAPTER II

RELATED RESEARCH

As long ago as 1895 educators, such as Fredrich Froebel, stated the purpose of the kindergarten. The major emphasis has been, and remains, teaching not just pre-academics but also encompassing physical, emotional, and social skills, hence working with the "whole child" (4:72). "Kindergarteners like all other school children, are sent to school in order to learn, but the kindergarten teacher defines learning in the broadest possible sense, to include every aspect of development." (17:8) Thus, the perimeters of the kindergarten curriculum were set.

If the above is true, a child's success in kindergarten could have been measured by his level of achievement in one or more curriculum area(s). Hopefully, one could have determined a success score by weighting each curriculum area and assigning the child a score in each area, and then combining all the scores to obtain a success score.

Research has indicated that academic achievement, physical coordination, emotional maturity, and social relationships or leadership all contribute to the child's

success in school (9). However, this writer failed to find research demonstrating the importance of any of these areas, in relation to the other areas, in determining a child's school success.

A review of the literature revealed that studies have been done on chronological age and school entrance. A study by King (1955) compared children who entered first grade between the ages of five years, eight months and five years, eleven months with children who entered first grade between the ages of six years, five months and six years, eight months. At the end of the sixth grade the older group was judged to be ahead in all the areas tested. They had fewer retentions and fewer days absent. Teachers' opinions favored them in over all adjustment and their grade equivalent scores were significantly higher. King concluded that "having attained a few additional months of chronological age at the beginning of grade one is an important factor in a child's ability to meet imposed restrictions and tensions that the school necessarily presents. Younger entrants will have difficulty attaining up to grade level in academic skills, and a large portion of them may fall far below grade level standards" (13:41).

On the other hand, Green (1962) maintained that the method of computing the results have been slanted in favor of the older groups. He stated, "Thus, if all younger

pupils were required to wait a year before beginning school the average age and the average achievement test scores in any grade would climb, then the average grade level and the average achievement-test scores at any given age would drop. In terms of achievement for years of schooling there would have been some advantage in waiting; in terms of achievement for years of life there would have been some disadvantages" (13:45).

These studies would indicate that there is no conclusive proof one way or the other for determining the ideal age a child should enter school.

In the area of sex and success Carter (5:91-103) found that younger boys have more difficulty in school than do younger girls. These results were reinforced by the findings of Keister (15:587-96) and Knight and Manuel (16:24-26). Pauley stated that "Boys usually develop in nearly all respects more slowly than girls. Much of the research in sex differences indicates that girls should be admitted at least three or more months younger than boys; or better, that the entering age for boys should be raised three or more months" (19:1).

Research has indicated that good physical health contributes to one's success at tasks he performs. A child's nutrition, as partially evidenced by body build, affects his physical health. Children who are extremely thin or overweight have tended to be in a poorer state

of health than children of average weight (11). Research has dispelled the saying, "Strong mind, weak back", and vice versa. However, research has failed to indicate the optimal physical build, in terms of height and weight, for success in school.

Research in the area of birth order indicated that the first born child is superior in scholastic achievement (1:44-49, 6). However research by Schoonover (1959) indicated that "No significant differences were found between older and younger siblings in intelligence or achievement as measured by deviation from the norms for chronological age. Thus, priority of birth in a family gave no advantage in intelligence or achievement" (20:254). Other data indicated that birth order may be most significant for siblings a year to a year and a half apart in age (6:1223-8). Other findings indicated first borns show greater conscience development (21). "In conjunction with present research, this may suggest that the observed differences in achievement stem to a great extent from differences in personality characteristics" (6:1228). This writer failed to locate research comparing first born children of one family with younger siblings from another family.

Bayley and Jones (1958) studied the relationship between a child's mental test scores and environmental variables including his parents' education. They found

that, "the single factor showing the highest correlation with mental test scores is mother's education, reaching a peak of .5 at two years of age. Father's education reaches a correlation of .5 at five years of age" (2:165).

Thus, if mental ability contributed to a child's school success, one might suggest that his parents' education would serve as an index to his success in school.

In summary then, studies have been done to determine the areas comprising success. Research has indicated that academic achievement, emotional maturity, physical coordination, and leadership are all important to school success. Research in the area of chronological age has indicated that children who start school before they are six years old, especially boys, have more difficulty in school than do older children. Researchers have developed height and weight tables for children of all ages, but have not related these to school success. First born children, according to most researchers, do better in school than younger children. However, studies have failed to compare first born children of one family with other than first born children of another family. Finally, research concerning parents' education has been inconclusive.

CHAPTER III

METHOD

I. SUBJECTS

To determine the relationship between physical and familial factors and the child's success in kindergarten, the writer selected two kindergarten classes in Enumclaw. Correct protocol was followed by first obtaining permission from the superintendent, principal, and teachers of the school district. At a meeting with the principal it was decided that an alphabetical code would be used by the teachers to keep the kindergarteners' identity confidential.

The children of this study were fifty kindergarteners enrolled in the morning classes at Byron Kibler Elementary School. In one class there were fifteen boys and ten girls. In the other class there were eleven boys and fourteen girls, making a total of twenty-six boys and twenty-four girls involved in the study.

II. PROCEDURES USED IN THE STUDY

The two teachers ranked their classes in the following areas: (1) Academic Achievement (2) Physical

Coordination (3) Emotional Maturity and (4) Leadership. Directions were given them (Appendix A) along with special forms (Appendix B). Academic achievement represented the teacher's estimation of quality and quantity of the kindergartener's work in all curriculum areas. Physical coordination referred to the teacher's estimation of the kindergartener's physical skills including ambulation, gross and fine motor movements. Emotional maturity referred to the teacher's estimation of the kindergartener's ease and stability in a group. Leadership was the teacher's estimation of the kindergartener's popularity with his peers including the number of times large or small groups within the class participated in activities of his choice.

Each teacher was asked to rank her class from most successful to least successful in each of the four areas that would determine success for this study. The most proficient child received a score of one and the least proficient a score of twenty-five on the rank order sheets. The four scores for each child were then combined for a total score to be called the success score. The eight children in each class with the smallest success score were judged more successful. The eight children in each class with the largest success score were judged less successful. Within the combined top or more successful group there were six boys and ten girls; there were nine boys and seven girls in the combined lower or less successful

group.

The teachers used an alphabetical code to keep the names of the children confidential. This code consisted of assigning each child a separate letter of the alphabet. This same letter was then used on each of the four different categories. After the teachers completed the rank order sheets, the writer recorded the following physical characteristics from each child's school file: age, height, weight, and sex.

Age referred to the child's chronological age in months. Height was recorded in inches; and weight was recorded in pounds.

The writer then gathered information on familial factors which included the child's birth order and his parents' education. Each kindergartener's birth order was recorded by listing his order of birth in the family and the total number of children in the family. Both his father's and mother's education, including elementary, secondary, and college were recorded.

III. HYPOTHESES

In order to determine the relationship between physical and familial factors and a kindergartener's success in school, the writer selected the following general hypothesis: The null hypothesis of no significant physical or familial differences between the more successful

kindergarteners and the less successful kindergarteners was postulated.

The writer then selected the following specific hypotheses for verification or rejection as a result of the findings of this study:

1. The null hypothesis of no significant difference in the age of the more successful kindergarteners and the age of the less successful kindergarteners was postulated.
2. The null hypothesis of no significant difference in the age of the boys of the more successful kindergarteners and the age of the boys of the less successful kindergarteners was postulated.
3. The null hypothesis of no significant difference in the age of the girls of the more successful kindergarteners and the age of the girls of the less successful kindergarteners was postulated.
4. The null hypothesis of no significant difference in the height of the more successful kindergarteners and the height of the less successful kindergarteners was postulated.
5. The null hypothesis of no significant difference in the height of the boys of the more successful kindergarteners and the height of the boys of the less successful kindergarteners was postulated.
6. The null hypothesis of no significant difference in

the height of the girls of the more successful kindergarteners and the height of the girls of the less successful kindergarteners was postulated.

7. The null hypothesis of no significant difference in the weight of the more successful kindergarteners and the weight of the less successful kindergarteners was postulated.
8. The null hypothesis of no significant difference in the weight of the boys of the more successful kindergarteners and the weight of the boys of the less successful kindergarteners was postulated.
9. The null hypothesis of no significant difference in the weight of the girls of the more successful kindergarteners and the weight of the girls of the less successful kindergarteners was postulated.
10. The null hypothesis of no significant difference in the birth order of the more successful kindergarteners and the birth order of the less successful kindergarteners was postulated.
11. The null hypothesis of no significant difference in the birth order of the boys of the more successful kindergarteners and the birth order of the boys of the less successful kindergarteners was postulated.
12. The null hypothesis of no significant difference in the birth order of the girls of the more successful kindergarteners and the birth order of the girls of

- the less successful kindergarteners was postulated.
13. The null hypothesis of no significant difference in the years of education of the parents of the more successful kindergarteners and the years of education of the parents of the less successful kindergarteners was postulated.
 14. The null hypothesis of no significant difference in the years of education of the fathers of the boys of the more successful kindergarteners and the years of education of the fathers of the boys of the less successful kindergarteners was postulated.
 15. The null hypothesis of no significant difference in the years of education of the mothers of the boys of the more successful kindergarteners and the years of education of the mothers of the boys of the less successful kindergarteners was postulated.
 16. The null hypothesis of no significant difference in the years of education of the fathers of the girls of the more successful kindergarteners and the years of education of the fathers of the girls of the less successful kindergarteners was postulated.
 17. The null hypothesis of no significant difference in the years of education of the mothers of the girls of the more successful kindergarteners and the years of education of the mothers of the girls of the less successful kindergarteners was postulated.

Results from the "t" test analysis, using the "t" formula for independent samples (3:348), were reported as significant if they reached the .05 level of confidence. Results from the percentage analysis were reported as significant where differences between groups were greater than twenty percent.

CHAPTER IV

RESULTS

Appendix C is a list of the scores of the fifty kindergarteners for academic achievement, physical coordination, emotional maturity, leadership, and success. Also included are sex, age, height, weight, birth order, and parents' education for each kindergartener.

Table 1 gives the results of the "t" test statistic computed on age. The null hypothesis of no significant difference in the age of the more successful kindergarteners and the age of the less successful kindergarteners was retained as was the hypothesis comparing girls of each group. The null hypothesis of no significant difference in the age of the boys of the more successful kindergarteners and the age of the boys of the less successful kindergarteners was rejected. The "t" test statistic of 2.35 was significant at the .05 level of confidence, showing the boys of the more successful group were significantly older than the boys of the less successful group. The mean age of the more successful boys was 76.2 months as compared to 71.4 months for the less successful boys. These results support the findings of King (1955).

TABLE 1

"t" TEST STATISTICAL COMPARISONS BETWEEN THE MORE
SUCCESSFUL KINDERGARTENERS AND THE LESS
SUCCESSFUL KINDERGARTENERS
ON AGE IN MONTHS

		Boys	Girls	Total
MS	N	6	10	16
LS	N	9	7	16
MS	ΣX	457	734	1191
LS	ΣX	643	500	1143
MS	\bar{X}	76.2	73.4	74.4
LS	\bar{X}	71.4	71.4	71.4
	"t"	*2.35	1.27	.64

Key: MS = More Successful
 LS = Less Successful
 * = MS significantly older at the .05
 level of confidence

The mean age for the more successful girls was 73.4 months, indicating the boys in the more successful group were approximately three months older than the girls in the same group. These results strongly support the conclusions of Pauley that ". . . the school entering age for boys should be raised three or more months." (19:1) Furthermore, the ages of three of the six boys in the more successful group were 73, 73, and 72 months, while the other three were 79, 80 and 80 months. The ages of the girls in this group were much closer to the mean. This may indicate that the boys should be five or six months older than girls when they enter school.

The mean age for the girls on the less successful group was 71.4 months, the same as the mean for boys of the same group. These results do not support the conclusion of Carter (5:91-103), Keister (15:587-96), and Knight and Manuel (16:24-6) that younger boys have more difficulty in school than do younger girls. However, the results of this study do not indicate that younger boys have less difficulty either.

The null hypothesis of no significant differences in the height of the more successful kindergarteners and the height of the less successful kindergarteners was retained as was the hypothesis comparing the boys and the girls of each group. Table 2 gives the results of the "t" test statistic computed on height. In both the more and

TABLE 2

"t" TEST STATISTICAL COMPARISONS BETWEEN THE MORE
SUCCESSFUL KINDERGARTENERS AND THE LESS
SUCCESSFUL KINDERGARTENERS
ON HEIGHT IN INCHES

		Boys	Girls	Total
MS	N	6	10	16
LS	N	9	7	16
MS	ΣX	278	462.0	740.0
LS	ΣX	421	319.5	740.5
MS	\bar{X}	46.3	46.2	46.3
LS	\bar{X}	46.8	45.6	46.3
	"t"	-.45	.32	.04

less successful groups the mean height was 46.3 inches.

The mean height for the more successful boys was 46.3 inches; for the less successful boys it was 46.8. Comparisons between the girls revealed the mean height for the more successful was 46.2; the less successful was 45.6 inches.

Table 3 gives the results of the "t" test statistic computed on weight. The null hypothesis of no significant difference in the weight of the more successful kindergarteners and the weight of the less successful kindergarteners was retained as were the hypotheses comparing the boys and the girls of each group.

The mean for the more successful group was 48.7 pounds, and the mean for the less successful group was 49.3. There was an 18 pound difference from the lightest, (40.5), to the heaviest, (58.5), kindergartener in the more successful group. The less successful group had a 36.5 pound difference. The range being from 39.0 pounds to 75.5 pounds.

The mean weight for the boys of the more successful group was 47.8 pounds; the less successful group's mean weight was 52.9 pounds. The range in the more successful group was 19 pounds, going from 37.5 to 56.5 pounds. In the less successful group the range was 30 pounds, the lightest being 45 pounds and the heaviest 75.5 pounds.

The girls' weight figures showed the mean was 49.2

TABLE 3

"t" TEST STATISTICAL COMPARISONS BETWEEN THE MORE
SUCCESSFUL KINDERGARTENERS AND THE LESS
SUCCESSFUL KINDERGARTENERS
ON WEIGHT IN POUNDS

		Boys	Girls	Total
MS	N	6	10	16
LS	N	9	7	16
MS	ΣX	287.0	491.5	778.5
LS	ΣX	476.5	311.5	788.0
MS	\bar{X}	47.8	49.2	48.7
LS	\bar{X}	52.9	44.5	49.3
	"t"	-1.12	1.01	-.23

pounds for the more successful girls and 44.5 pounds for the less successful girls. The range in the more successful group was from 40.5 to 58.5 pounds, an eighteen pound difference. In the less successful group the range was from 39.5 to 50 pounds, almost an eleven pound difference.

The average height and weight for six year old girls as reported by Foster and Headley (11) were 45.9 inches and 46.7 pounds. In this study, the averages were 46 inches and 47 pounds. The mean height and weight for the boys of this study were 47 inches and 50 pounds as compared with 45.8 inches and 47.6 pounds for the six year olds in the normative sample. (See Table 4).

These figures indicate that the average height and weight of the kindergarteners of this study corresponded to the height and weight tables of the average six year old in the normative sample.

Table 5 gives the results of the percentage statistics computed on birth order. The null hypotheses of no significant differences in the birth order of the more successful kindergarteners and the birth order of the less successful kindergarteners were retained as were those hypotheses comparing the boys of both groups, and those comparing the girls of both groups. The percentage comparisons showed differences of less than twenty percent. Eighteen and eight tenths percent of the more successful group were born first in their families. Of these, one

TABLE 4
 THE AVERAGE HEIGHT AND WEIGHT FOR AGE OF CHILDREN
 OF THIS STUDY AND FOR CHILDREN
 OF THE NORMATIVE SAMPLE

The Children of This Study						
	Age in Months		Height in Inches		Weight in Pounds	
Girls	72		46		47	
Boys	74		47		50	

The Children of Foster and Headley's Study (11:4)						
	Retarded or Slow Growing Group		Average Growing Group		Accelerated Growing Group	
	Height	Pounds	Height	Pounds	Height	Pounds
Girls						
4 years	39.4	33.7	40.6	37.5	41.3	42.1
5 years	41.7	37.9	43.1	41.2	44.1	48.1
6 years	44.5	43.0	45.9	46.7	46.9	53.2
Boys						
4 years	39.6	35.7	40.8	39.0	41.5	41.4
5 years	42.3	40.3	43.7	42.8	44.5	45.9
6 years	44.9	44.1	45.8	47.6	47.2	51.8

TABLE 5
 PERCENTAGE COMPARISONS BETWEEN THE MORE SUCCESSFUL
 KINDERGARTENERS AND THE LESS SUCCESSFUL
 KINDERGARTENERS ON BIRTH ORDER
 IN THE FAMILY

		Boys	Girls	Total
<u>First Born</u>				
MS	N	1	2	3
LS	N	3	2	5
%MS		6.3	12.5	18.8
%LS		18.8	12.5	31.2
<u>Last Born</u>				
MS	N	3	5	8
LS	N	3	3	6
%MS		18.8	31.2	50.0
%LS		18.8	18.8	37.5
<u>Middle Born</u>				
MS	N	3	2	5
LS	N	3	2	5
%MS		18.8	12.5	31.2
%LS		18.8	12.5	31.2

was a boy and two were girls. In the less successful group 31.2% were first born. Three were boys and two were girls.

Fifty percent of the last born kindergarteners were in the more successful group. Of these three were boys and five were girls. In the less successful group 37.5% were last born; three were boys and three were girls.

Of the middle born kindergarteners 31.2% were more successful and 31.2% were less successful. There were three boys in both the more successful and less successful groups. There were two girls in both the more and less successful groups.

The majority of kindergarteners in both groups were last born. In the more successful group eight, or 50%, were last born, and six, or 37.5%, of the less successful were last born.

This contrasts with the research by Altus and Clausen which indicated that the first born show superiority in scholastic achievement. However, this study supports the findings of Schoonover, which indicated no significant differences.

Finally, Table 6 gives the results of the "t" test statistic computed on parents' education. The null hypothesis of no significant difference in the parents' education of the more successful kindergarteners and the parents' education of the less successful kindergarteners was re-

TABLE 6

"t" TEST STATISTICAL COMPARISONS BETWEEN THE MORE
SUCCESSFUL KINDERGARTENERS AND THE LESS
SUCCESSFUL KINDERGARTENERS ON
PARENTS' EDUCATION IN YEARS

		Boys	Girls	Total
<u>Both Parents</u>				
MS	N	*	*	16
LS	N	*	*	16
MS	ΣX	*	*	415
LS	ΣX	*	*	384
MS	\bar{X}	*	*	25.9
LS	\bar{X}	*	*	24.0
	"t"	*	*	1.87
<u>Father's Education</u>				
MS	N	6	10	16
LS	N	9	7	16
MS	ΣX	79	133	212
LS	ΣX	114	80	194
MS	\bar{X}	13.2	13.3	13.3
LS	\bar{X}	12.7	11.4	12.1
	"t"	.51	1.69	1.55
<u>Mother's Education</u>				
MS	N	6	10	16
LS	N	9	7	16
MS	ΣX	81	122	203
LS	ΣX	108	82	190
MS	\bar{X}	13.5	12.2	12.7
LS	\bar{X}	12.0	11.7	11.9
	"t"	**2.32	.53	1.43

* Comparisons were not made between the MS Boys and LS Boys or between the two groups of girls

** MS significantly more educated at the .05 level of confidence

tained as were the hypotheses comparing fathers' education for the boys and girls of both groups, and the hypothesis comparing the mothers' education for the girls of each group.

The null hypothesis of no significant difference in the years of education of the mothers of the boys of the more successful kindergarteners and the years of education of the mothers of the boys of the less successful kindergarteners was rejected.

The mean score of combined years of education for both parents of the kindergarteners in the more successful group was 25.9 years. For the less successful group the mean was 24.0 years. In the more successful group three of the parents did not complete high school whereas twelve parents had more than a high school education. In the less successful group five parents did not graduate from high school and five parents went beyond high school.

The fathers of the more successful group had a mean education of 13.3 years. The mean of the less successful group was 12.1 years. The mean mothers' education of the more successful group was 12.7 years as compared to 11.9 years for the less successful kindergarteners.

The fathers of the more successful boys had a mean score of 13.2 years of education whereas the fathers of the less successful boys had a score of 12.7 years. This was not a significant difference. However, the mothers'

mean education of the more successful boys (13.5 years) was significantly higher at the .05 level, than the less successful boys (12.0 years).

The fathers' mean education of the girls of the more successful group was 13.3 years. In the less successful group the mean education was 11.4 years. The range of the more successful group was eleven years to seventeen years, the less successful group was six years to fourteen years. This was not significant, nor was the mothers' education for the two groups of girls. The mothers of the more successful girls had a mean education of 12.2 years. The mothers of the less successful girls had a mean education of 11.7 years. The range of the more successful group was eight years to sixteen years, and the less successful was ten years to thirteen years of education.

The results of this phase of the study were inconclusive as were the results of the study by Bayley and Jones (2:153-66).

The related research indicated that academic achievement, physical coordination, emotional maturity, and leadership all contribute to one's success in school. The more successful children scored low in each of the four areas, and the less successful kindergarteners tended to score high in all four areas.

However, one boy in the less successful group, (X_1),

was given a rank score of six on popularity. This boy was younger, shorter, and lighter in weight than the mean average for boys in each of these areas. Two boys, (Z_1 and AB_1), of the less successful group were ranked within the top eight on physical coordination. Both were younger and lighter in weight than the average, but were slightly taller than the average height for boys.

These results point to the question of weighting the various areas of success. In this study, each of the four areas was weighted or given equal importance as to its effect on the kindergartener's success. A different weighting factor for each of the four areas may have produced different results. The fact that none of the more successful were ranked within the lower eight and vice versa, on academic achievement and emotional maturity, indicated that high rankings in these areas may be requisite to one's success in school.

The following indicate that the teachers were consistent in the scores they assigned to the children in the areas of Academic Achievement, Emotional Maturity, Physical Coordination and Leadership in their classes. The mean success score for the more successful group was 27.0 and the average deviation from the mean was 7.1. The mean success scores for the two classes making up the more successful group were 27.8 and 26.4. Their average deviations from the mean were 5.8 and 8.9.

The mean success score for the less successful group was 78.6 with the average deviation being 6.9. The mean success score of each class making up the less successful group were 80.3 and 76.4. The average deviations were 4.9 and 7.1.

CHAPTER V
SUMMARY AND CONCLUSIONS

The problem investigated in this study was the relationship, if any, between a child's success in kindergarten and his physical and familial factors. Success was measured on the basis of his present level of functioning in academic, emotional, physical and social situations. The physical factors included chronological age, height, weight, and sex; familial factors were the kindergarten's order of birth, and the years of education his parents had.

Null hypotheses of no significant physical or familial differences between the more successful kindergarteners and the less successful kindergarteners were postulated.

Two morning kindergarten teachers ranked their classes in the four areas that determined success in this study. The most proficient child received a score of one, the least proficient a score of twenty-five. The scores were combined for a total score called the success score. Of the fifty kindergarteners in this study the eight in each class with the lowest success score were

judged more successful and the eight of each class with the highest success score were judged less successful. The information for the physical and familial factors was obtained from the permanent school records.

Seventeen specific hypotheses were selected for verification or rejection as a result of the findings of this study. This study made age, height, weight, birth order, and parents' education comparisons between the more successful kindergarteners and the less successful kindergarteners. Further comparisons were made between the boys of each group and between the girls of each group.

The null hypothesis of no significant difference in the age of the boys of the more successful kindergarteners and the age of the boys of the less successful kindergarteners was rejected. Results showed the boys of the more successful group to be significantly older than the boys of the less successful group.

The null hypothesis of no significant difference in the years of education of the mothers of the boys of the more successful kindergarteners and the years of education of the mothers of the boys of the less successful kindergarteners was rejected. Results indicated the mothers of the boys of the more successful group to have more years of education than the mothers of the boys of the less successful group.

One might conclude that boys should be older, by

at least three months, than girls when entering school if they are to have equal success.

Further research needs to be conducted in the area of parents' education before one relates it to success in school.

I. RESEARCH IMPLICATIONS

Future researchers studying the area of success and its relationship to familial and physical factors need to consider many questions.

First, "What is success?" One would need to determine the different areas that make up success. Academic achievement, for example, may include the following specific areas: reading, writing, spelling, social studies, and arithmetic. One would need to do the same for the emotional, physical, social, and other mental aspects of a child's make-up.

The second question to answer is specifically, "What is included in each of the areas that make up success?" Researchers need to objectively define emotional maturity, leadership, academic achievement, and all other areas included in success.

Next, one would need to determine the correct importance of each area. "Is academic achievement more important than emotional maturity and, if so, how much more important?"

After one has answered all of the above questions he should then determine the relationship between success and various familial and physical factors.

Finally, future researchers need to obtain a much larger sample to include youngsters from rural, urban and suburban areas.

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APPENDIX A

APPENDIX A
DIRECTIONS GIVEN TO THE TEACHERS ON HOW TO SCORE
THEIR STUDENTS IN THE AREA OF SUCCESS

Directions

Please rank your class in each of the following areas: 1) academic achievement, 2) physical coordination or ability, 3) emotional maturity, and 4) leadership. Write the names of those with the most capability in each area at the top of the list, average capability towards the middle of the list, and the least capability at the bottom of the list. If you think two children are equal, then give them both the same number (ex. both no. 14 and skip no. 15).

If you have any questions please feel free to contact me.

Linda Baker

Please note: Personally Identifiable Information was redacted due to privacy concerns.

APPENDIX B

APPENDIX B
RANK ORDER SHEET

Area of Success: _____ Teacher: _____

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. _____
- 21. _____
- 22. _____

APPENDIX B (Continued)

23. _____
24. _____
25. _____
26. _____

APPENDIX C

APPENDIX C

RAW DATA SCORES OF THE FIFTY KINDERGARTENERS INVOLVED IN THIS STUDY

Code	AA	PC	EM	L	SS	Sex	Age	Ht.	Wt.	BO	P.Ed.
A ₂	1	3.5	2	1	7.5	F	73	46	50.5	1/2	15/12
B ₂	2	5	1	10.5	18	F	73	49	55	2/2	16/12
H ₂	8.5	3.5	1	7	20	F	72	45	46.5	3/4	11/12
J ₁	10	8	2	1	21	F	72	48	51	3/3	12/10
B ₂	2	9	7	3.5	21.5	M	80	47	48	4/4	12/13
A ₁	1	1	14	6	22	F	75	43	40.5	3/3	12/12
E ₂	5	3.5	5	9.5	23	F	79	45.5	41.5	2/3	12/13
M ₂	11.5	9	4	2	26.5	F	72	48	51	3/3	17/16
E ₁	5	13.5	6	2.5	27	F	73	44.5	49.5	4/4	12/12
G ₁	7	4	12	6	29	F	72	49	58.5	1/2	12/12
D ₁	4	13.5	7	6	30.5	M	73	44.5	41.5	2/3	12/12
C ₂	3.5	13.5	3	11.5	31.5	M	73	48	56.5	4/4	13/12
H ₁	8	13.5	9	2.5	33	M	72	43	37.5	2/2	14/14
G ₂	6.5	21	8	3.5	39	M	79	47.5	53.5	3/4	12/16

APPENDIX C (Continued)

Code	AA	PC	EM	L	SS	Sex	Age	Ht.	Wt.	BO	P.Ed.
F ₁	6	13.5	6	16	41.5	F	73	45	47.5	2/3	14/8
D ₂	3.5	15	6	17.5	42	M	80	48	50	2/2	16/14
K ₂	11.5	1	25	5	42.5	F	75	45.5	47.5	2/4	12/13
L ₁	12	13.5	15	6	46.5	M	73	46.5	47	2/2	14/12
M ₁	13	13.5	13	10.5	50	M	75	48.5	59	6/6	16/12
P ₁	16	6	5	23	50	M	76	49	58	5/6	12/12
J ₂	11.5	9	16	14	50.5	F	78	48	50.5	1/3	12/12
K ₁	11	13.5	11	16	51.5	M	78	45	49	2/2	10/11
I ₂	8.5	17	19	7	51.5	M	76	48	54	1	14/12
S ₂	19	3.5	14	17.5	54	F	75	48	52	1/2	16/12
I ₁	9	13.5	10	23	55.5	F	68	48	49.5	5/6	12/11
N ₁	14	3	24	16	57	M	76	45	49	5/5	12/8
R ₂	19	11.5	9	17.5	57	F	71	44.5	40	1/3	12/12
C ₁	3	19	25	10.5	57.5	M	70	47	52.5	3/3	18/16
L ₂	11.5	20	12	14	57.5	M	75	44.5	46	1/3	16/14

APPENDIX C (Continued)

Code	AA	PC	EM	L	SS	Sex	Age	Ht.	Wt.	BO	P.Ed.
Q ₁	17	13.5	19.5	10.5	60.5	M	72	44.5	39.5	3/3	13/12
S ₁	19	13.5	6	23	61.5	F	66	43.5	42	4/4	12/12
P ₂	16	6	22	17.5	61.5	F	75	46.5	41.5	4/4	14/12
T ₂	19	7	13	23	62	M	74	46.5	49	4/4	10/10
O ₁	15	21	3	27	66	F	76	49.5	57.5	2/3	14/12
N ₂	14	19	23	11.5	67.5	M	73	44	49.5	1	10/12
Z ₁	26	7	19.5	16	68.5	M	67	47.5	47.5	6/7	12/12
U ₂	21	18	21	9.5	69.5	F	70	43	40	2/4	14/12
Q ₂	17	13.5	18	23	71.5	M	74	48.5	57	3/4	16/12
V ₂	22	16	11	23	72	F	68	44	39	2/3	12/10
Y ₂	25	23	10	14	72	F	72	47	50	2/2	12/13
X ₁	24	24	19.5	6	73.5	M	68	45.5	45	4/4	12/12
O ₂	15	24	15	23	77	M	72	50	75.5	4/4	12/12
AB ₁	27	2	27	23	79	M	70	46.5	49	1	12/12
Y ₁	25	20	19.5	16	80.5	F	79	52	48	2/5	6/11

APPENDIX C (Continued)

Code	AA	PC	EM	L	SS	Sex	Age	Ht.	Wt.	BO	P.Ed.
R ₁	18	22	19.5	23	82.5	M	66	46.5	48.5	2/4	12/14
W ₁	23	26	19.5	16	84.5	M	78	45.5	57	1/3	12/10
T ₁	20	23	19.5	23	85.5	F	66	43	39.5	1	12/12
U ₁	21	25	26	16	88	M	74	47	47.5	3/3	16/12
Z ₂	26	22	17	23	88	F	74	45.5	48.5	1	12/12
X ₂	24	26	20	23	93	F	71	45	46.5	3/3	12/12

Key: AA Academic Achievement
 PC Physical Coordination
 EM Emotional Maturity
 L Leadership
 SS Success Score
 Age Chronological age in months
 Ht. Height in Inches
 Wt. Weight in Pounds
 BO Birth Order
 Order of child's birth in family/number of children in family
 P.Ed. Parents' Education in Years
 Father's education/Mother's education