



7-1-1974

Day Care Experienced Vs. Non-Day Care Experienced Children: A Comparison of Maturity and Achievement in Grade School

James L. Youngman

[How does access to this work benefit you? Let us know!](#)

Follow this and additional works at: <https://commons.und.edu/theses>

Recommended Citation

Youngman, James L., "Day Care Experienced Vs. Non-Day Care Experienced Children: A Comparison of Maturity and Achievement in Grade School" (1974). *Theses and Dissertations*. 3425.
<https://commons.und.edu/theses/3425>

This Thesis is brought to you for free and open access by the Theses, Dissertations, and Senior Projects at UND Scholarly Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of UND Scholarly Commons. For more information, please contact und.common@library.und.edu.

DAY CARE EXPERIENCED VS. NON-DAY CARE EXPERIENCED
CHILDREN: A COMPARISON OF MATURITY AND
ACHIEVEMENT IN GRADE SCHOOL

by
James L. Youngman

Bachelor of Arts, University of Minnesota, Duluth, 1970

A Thesis
Submitted to the Graduate Faculty
of the
University of North Dakota
in partial fulfillment of the requirements
for the degree of
Master of Arts

Grand Forks, North Dakota

July
1974

Day Care Experienced vs. Non-Day Care Experienced
Children: A Comparison of Maturity and
Achievement in Grade School

James L. Youngman, M.A.

The University of North Dakota, 1974

Faculty Advisor: Dr. Alice T. Clark

While a considerable amount of evaluative research has been performed in the area of day care, the overwhelming majority of these studies have dealt only with experimental programs aimed at lower class children. The present study was conceived as an evaluation of established day care and preschool programs available to the general community. The study was performed in an Upper Midwest community with a total population of 35,000.

Three groups of fifth-grade students were selected and matched on the bases of age, sex, and family income. Members of Group 1 had no day care experience, Group 2 had 20-120 total days of day care experience, and Group 3 had from 121-360 total days of day care experience.

The groups were compared with each other on the basis of three criteria: academic achievement, intelligence, and social maturity. Academic achievement was measured by each

T
71974
Y88

subject's final grades for reading (language arts) and mathematics as recorded for the 1st, 3rd, and 5th grades in school. Intelligence was measured by the subject's Iowa Test of Basic Skills national percentile, as achieved on an administration of that test six months prior to the present study. Social maturity was measured by the Vineland and Social Maturity Scale, which was administered by the author to each subject's parents, and by parents' and teachers' ratings of each subject's maturity on a scale from 1 through 10.

Data were treated in the following manner: reading and mathematics scores were each analyzed by means of a 3 by 3 analysis of variance. Iowa Basic Test percentiles, Vineland Age score, Parents' Ratings and Teachers' Ratings were subjected to one-way analysis of variance. Miscellaneous correlation coefficients exploring the possible influence of partially-controlled extraneous variables were also performed.

It was found that scores for most measures tended to increase in value as amount of day care increased. However, only Reading scores were found to differ significantly between groups with Group 3 being highest achievers and Group 1 being lowest. The influence of a major extraneous variable was ruled out by the lack of significant correlation between amount of days spent in day care and family income for this sample.

The significant F for Reading was regarded as the major observation of the study, since this effect was the only statistically significant difference between the day care and non-day care groups and one of the few effects known to have endured beyond the third grade in any study of this type. It was also noted that the effect of differing sets of teachers can be an important extraneous variable in studies involving school achievement score.

This Thesis submitted by James L. Youngman in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

Alice V. Clark
(Chairman)

Nancy J. Hunter

J. P. Eyer

Paul H. Wright

William Johnson
Dean of the Graduate School

Permission

Title Day Care Experienced vs. Non-Day Care Experienced
Children: A Comparison of Maturity and Achievement
in Grade School

Department Psychology

Degree Master of Arts

In presenting this thesis in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the Library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my thesis work or, in his absence, by the Chairman of the Department or the Dean of the Graduate School. It is understood that any copying or publication or other use of this thesis or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my thesis.

Signature James L. Youngman
Date July 18, 1974

ACKNOWLEDGMENTS

I would like to express my sincere thanks to Dr. Alice T. Clark, chairman of my committee, and Drs. Wright, Huntsman, and Tyler who devoted their time, ideas, and skills which were invaluable in the conception and completion of this thesis.

In addition, I would like to thank Mr. Jack Jordan who helped me by preparing the computer analysis of the data. Finally, I wish to thank my wife, Chris, for her continuing help and support throughout the preparation of this thesis.

TABLE OF CONTENTS

Acknowledgments..... iv
List of Tables..... vi
List of Figures..... vii
Abstract..... viii
Chapter I. Introduction to the Problem and Related
Studies..... 1
Chapter II. Method..... 14
Chapter III. Results and Discussion..... 19
Chapter IV. Summary and Conclusions..... 26
Appendix A. Cover Letter..... 29
Appendix B. Questionnaire..... 31
References..... 33

LIST OF TABLES

Table		Page
1.	Initial Group Composition.....	14
2.	Group Distribution According to Income.....	16
3.	Grade Point Average Means in Language Arts for all Groups.....	19
4.	Summary of Analysis of Variance of the Language Arts Means for all Groups.....	20
5.	Grade Point Average Means in Mathematics for all Groups.....	21
6.	Summary of Analysis of Variance of Mathematics Means for all Groups.....	22
7.	Summary of Miscellaneous Means for all Groups..	23
8.	Intercorrelations Among Day Care Experience, Family Income, and Birth Order.....	24

LIST OF FIGURES

Figure		Page
1.	Graphic Presentation of Language Arts Means For All Groups.....	27
2.	Graphic Presentation of Mathematics Means For All Groups.....	28

ABSTRACT

While a considerable amount of evaluative research has been performed in the area of day care, the overwhelming majority of these studies have dealt only with experimental programs aimed at lower class children. The present study was conceived as an evaluation of established day care and preschool programs available to the general community. The study was performed in an Upper Midwest community with a total population of 35,000.

Three groups of fifth-grade students were selected and matched on the bases of age, sex, and family income. Members of Group 1 had no day care experience, Group 2 had 20-120 total days of day care experience, and Group 3 had from 121-360 total days of day care experience.

The groups were compared with each other on the basis of three criteria: academic achievement, intelligence, and social maturity. Academic achievement was measured by each subject's final grades for reading (language arts) and mathematics as recorded for the 1st, 3rd, and 5th grades in school. Intelligence was measured by the subject's Iowa Test of Basic Skills national percentile, as achieved on an administration of that test six months prior to the

present study. Social maturity was measured by the Vineland Social Maturity Scale, which was administered by the author to each subject's parents, and by parents' and teachers' ratings of each subject's maturity on a scale from 1 through 10.

Data were treated in the following manner: reading and mathematics scores were each analyzed by means of a 3 by 3 analysis of variance. Iowa Basic Test percentiles, Vineland Age score, Parents' Ratings and Teachers' Ratings were subjected to one-way analysis of variance. Miscellaneous correlation coefficients exploring the possible influence of partially-controlled extraneous variables were also performed.

It was found that scores for most measures tended to increase in value as amount of day care increased. However, only Reading scores were found to differ significantly between groups with Group 3 being highest achievers and Group 1 being lowest. The influence of a major extraneous variable was ruled out by the lack of significant correlation between amount of days spent in day care and family income for this sample.

The significant F for Reading was regarded as the major observation of the study, since this effect was the only statistically significant difference between the day care and non-day care groups and one of the few effects known to have endured beyond the third grade in any study of

this type. It was also noted that the effect of differing sets of teachers can be an important extraneous variable in studies involving school achievement score.

CHAPTER I

INTRODUCTION TO THE PROBLEM AND RELATED STUDIES

"The primary purpose of day care is to meet the needs of children for experiences that will foster their development as human beings."

This quotation from the United States Office of Child Development's fundamental Statement of Principles on day care (1971) is a declaration that sets forth general, if somewhat obscure, goals for day care programs. It invites the researcher to define his own criteria for evaluative studies determining whether these goals are, in fact, being met by existing programs.

Current Situation and Background

A number of related studies relevant to the area of day care program evaluation will now be reviewed, with the purpose and design of the present study being discussed afterwards. The following study will not concern itself with the general history of day care, that subject already having been accurately covered by a number of writers. The interested reader is referred to Connolly's pamphlet, The Development of Day Care Within the United States (1971),

printed by the Social Service Board of North Dakota, as well as the more extensive work by the Massachusetts Early Education Project entitled The Care and Education of Young Children (Day Care and Child Development Council of America, 1401 K. St. N.W., Washington, D.C., 1972). A good picture of the current situation in United States day care, including national needs for service, federal provision for financial aid for programs, and samplings from the types of programs now in operation is provided in Mary Dublin Keyserling's Windows on Day Care (1972, National Council of Jewish Women, New York).

It is sufficient for the purposes of the present study to state the following current statistical information, in order that the reader may appreciate the growing importance of the availability of day care. Keyserling (1972) states that six million U.S. children under the age of six have working mothers. This appears to conform roughly with the 1960 Census premise that 18.7% of the women in the U.S. labor force had children under the age of six. The same author cites the fact that in 1970, the total capacity of licensed day care centers in the U.S. was 625,000. Another study (Child Welfare League of America, 1969) gives the 1967 day care center capacity as 393,300, evidence of the rapid expansion in day care service over a recent three-year period.

Keyserling states the somewhat obvious fact that the majority of children who require care due to the absence of parents during the day are cared for in unlicensed facilities, and goes on to relate the belief that the majority of these are cared for by members of the child's own family or by a close neighbor. In almost all of these cases, Keyserling believes, the type of care given is of a custodial, that is, physically maintaining, nature. Perhaps it would be less than fair at this point to avoid mention of Handler's controversial study (1972) in which subjects who had attended preschool programs with primarily custodial goals were found to maintain higher levels of achievement in grade school than subjects who had attended preschool programs with primarily educational goals. This result was attributed to substantial extraneous differences between the two sets of programs, particularly their duration. The study has subsequently been attacked for other inequities, including biased sampling technique. Still, such interesting results keep investigators curious about the real effects of all preschool day care programs, whatever their orientation, on later academic achievement.

Review of Related Studies

In studying the available literature on preschool and day care programs (the terms will be used interchangeably in this thesis), it is estimated that well over 80 percent of

the evaluative studies were performed with the major purpose being the evaluation of the effects of experimental programs on disadvantaged, lower class children. Into this category by its very nature falls most of the Head Start literature, as well as most of the compensatory education studies carried out through the departments of education in major cities. Such projects are discussed here because their goals and methods relate quite closely to those of licensed community day care centers with which this study is primarily concerned.

The body of literature resulting from such programs as Head Start and the cities' projects is strikingly homogeneous both in design and in effects achieved. With some variations, these follow a design whereby two groups, each consisting of more than 50 disadvantaged children, matched either on a set of economic and social factors or sometimes simply by eligibility for a program such as Head Start, are separated into an experimental and a control group. The experimental group actually participates in the program in question for an average of 1 year while the controls do not. Subsequent evaluation, on the basis of academic performance, intelligence, and sometimes social maturity based on locally-developed scales, is performed at intervals throughout kindergarten and the first three grades. The overwhelming majority of these studies (an estimated 87

per cent) found that the statistically significant gains, in evidence when subjects were tested shortly after the end of their programs, did not endure through the third grade. One team of investigators (Prentice and Bieri, 1970) found that a significant drop in the Stanford-Binet I.Q.s of their experimental group occurred within nine months of the close of the program. Datta (1969) found that children who have not attended any preschool program tend to catch up with attenders early in primary school, admitting the reason for this is not presently known. This rapid catching-up of non-participants is further supported by studies of a Bloomington, Indiana project (Office of Child Development, 1971).

The Perry Preschool Project in Ypsilanti, Michigan, begun in 1962 with participating disadvantaged children being evaluated annually, was studied after five years (Weikart, 1967). Here, again, it was concluded that no measured differences in intellectual growth had endured beyond the third grade, although Weikart did find that the experimental group manifested somewhat superior academic performance and social behavior. Archambo (1970), in an extensive four-year follow-up evaluation of Kentucky's Rural Child Care Project, found a definite declining trend in Stanford-Binet intelligence scores among experimental group (project) children and no difference between scores achieved by former project children and matched non-project children when tested on the California Achievement Test (CAT) in the second and third grades.

Evaluation of the Pittsburgh Public Schools Preprimary Program (1968) conceded that the program appeared to contribute to the socioemotional maturation of participants; but did not affect their reading readiness or first grade reading test scores.

Plant (1970) investigated a preschool stimulation program for economically deprived Mexican-American children consisting of two successive ten week summer sessions prior to entering kindergarten. Evaluation was made through kindergarten, first and second grades. Plant concluded that there were short term gains in in-school performance, but later few differences were evident between project and control groups.

After a rigorous evaluation of his own program for disadvantaged preschool children, Bereiter (1970) concluded that no preschool program, by itself, appears able to effect permanent differences in disadvantaged childrens' success in school.

The Westinghouse Learning Corporation and Ohio University, in a joint study of the impact of Head Start (1969), found short duration and summer programs to be "totally ineffective" in producing lasting gains in the areas of intellectual and social-personal development. Using data collected from 104 Head Start centers across the country, these investigators also concluded that even full-year programs were ineffective in producing measurable, lasting gains in the area of

social-personal development, and only "marginally effective" in producing lasting intellectual gains in the participating group of lower class children.

Aside from those already cited, other, closely related studies of Head Start groups, notably Hulan (1972), Cawley (1968), and U.S. Office of Economic Opportunity (Impact of the Head Start Program, 1970) concur that few, if any, lasting academic or social-emotional gains can be credited to participation in preschool programs or centers.

A minority of researchers, however, do report what they feel are significant academic and maturational gains evidenced by participants in a variety of preschool programs. These appear, at best, to be very modest or perhaps prematurely reported. A report on the New York City Early Childhood Project (1969), for example, pretested groups of participants and non-participants with the Columbia Mental Maturity Scale and the Stanford-Binet. No significant differences were found at that time. Post-tests were administered at the close of the project and one year later, at the end of kindergarten. Significantly higher scores were achieved by the project subjects on the Columbia on the first post-test, but not on the second. Stanford-Binet results showed significant gains by project subjects on both post tests. The reader is reminded, however, of the relatively short lapse of time between the end of the project and the post-tests.

A 1969 evaluation of the Perry preschool Project mentioned above (U.S. Office of Child Development) found significant intellectual gains for the experimental group when they were compared on the California Achievement Test with a group of non-participants after two years. The importance of these results, of course, must be viewed with suspicion in the light of the majority of literature, and particularly the later, five-year followup study by Weikart (1967) mentioned earlier.

Other studies reporting significant gains on scholastic performance and I.Q. scores on the basis of post testing are Larson (1969), Office of Child Development (Champaign, Illinois, 1971), and North et al. (1969). Each of these investigators compared results on pretests with scores achieved on post tests given immediately after the end of the program.

It appears to be an obvious conclusion on the basis of the foregoing collection of studies that the lower class child makes few if any lasting gains in the areas of scholastic performance and maturation through participation in most preschool programs available today. An incidental observation, supported by Turner and Deford (1970) seems to be that the longer subjects participate in a program, the better their subsequent academic performance. This still does not appear to guarantee that their performance will be significantly better than that of a matched control group, however.

Design and Purpose of the Present Study

The present research was conceived as an evaluative study assessing whether existing, generally available day care programs have positive effects on the future performance of their participants.

In choosing criteria for this evaluation, the author was impressed by the regularity with which four factors were chosen in related studies as possible indicators of program effects. These were language skills, mathematics skills, a measure of intelligence, and social-emotional maturity. It was determined on the basis of the literature review to use these same areas as criteria for the present study.

The measure of language skills and mathematics skills was each child's school record of grades achieved in each area of study. School grades achieved have traditionally been utilized as at least a relative measure of general competence in a prescribed area. Many of the studies cited earlier relied on grades as an integral part of the evaluation.

The measure of intelligence was likewise to be taken from the school records, the Iowa Test of Basic Skills having been given to all subjects about five months prior to the beginning of the present study. The Iowa Test of Basic Skills was chosen as the measure of intelligence as it is a widely used standardized test yielding a national percentile rank for each area of skill tested, as well as an overall percentile rank.

For a determination of emotional maturity, it was decided that two measures would be used: (1) The Vineland Social Maturity Scale, administered to the parents; and (2) a rating on each child's maturity by his parents and by his 5th grade teacher. The Vineland Social Maturity Scale is also a well-known and widely used standardized instrument; the additional ratings by parents and teachers were included to supplement the Vineland, since the area of maturity is by far the least well-defined criterion involved in this study.

The present study is a matched design between three groups of subjects, each group having had a different amount of exposure to day care programs. In many of the studies cited, particularly the Head Start studies, matching of experimental and control groups was done, as previously mentioned, simply on the basis of eligibility for the program. The smaller samples of available subjects that were used in this study required, however, a design involving carefully matched groups in order to produce the most legitimate, meaningful results.

Three matching factors were chosen: 1) Age. This was to enable the study to compare subjects in the same grade level in school. 2) Sex. This has also been found (Alberti, 1971) to be a significant factor influencing self-perception and performance in school. 3) Socio-economic status. This was judged solely on total family gross income. This criterion for this very important matching factor was chosen because

a majority of other investigators, while admitting that it has faults as a measure of socio-economic status, favor it. Family income is simple to use and to communicate, and correlates highly with most other factors that make up socio-economic status, such as esteem, power in the community, occupation, etc. (Lindgren, 1969). The great importance of socio-economic status as an influence on school achievement has been well documented by such investigators as Handler (1970), MacMillan (1968), Golden (1969), and McGlathery (1968). In all cases, subjects from lower socio-economic backgrounds tended to 1) underachieve in school and 2) derive more benefit from participation in preschool programs than subjects from more affluent backgrounds.

Two other major considerations were ruled out as matching factors, due to unanimous sample conformity. These were race and attendance of kindergarten. It was found that there were no subjects outside the Caucasian race involved in the study, and also that all subjects had attended kindergarten.

Several additional factors were recorded for each group and subsequently dismissed when it was apparent, by inspection, that the incidence or value of each was approximately the same for each group. These were: unusual physical or health condition, early childhood trauma, broken home in the family history, subject's birth order, and extreme disparity between teachers' and parents' rankings of the child's maturity.

The present study was conceived as being different from the general body of evaluative literature related to it, primarily due to the following factors: 1) it is based on children from a cross-section of socio-economic groups, rather than concentrating on lower class subjects only; 2) differences are evaluated long after the subjects' separation from the preschool program, up to and including the fifth grade, and 3) it involves existing community day care centers offering programs available to all local children in a typical midwestern city, rather than a large Eastern city.

It was found that the overwhelming majority of subjects who had day care experience had received this experience at a single, large day care center which had been in operation for more than seven years in the city where the study took place. The author and present center personnel estimated that this study involved 28/300 or about 10 percent of the center's alumni now in the 5th grade. The policies of this particular center greatly aided the purposes of this study, since it accepted all children between the ages of three and five regardless of sex or race, because it made possible the attendance of children from lower socio-economic classes through a system of scholarship grants, and because it is a licensed center, thus meeting minimum state and federal day care standards. Licensing as such appears to be a reasonable way of operationally defining a "day care center" for the

purposes of studies of this type.

Other subjects who had day care experience had attended a number of other centers, mostly in other localities. The present author made an effort to eliminate, on the basis of parents' description of these centers, any subjects whose experience had been in experimental programs such as Head Start which were not designed for general community use.

The purpose of this study, briefly, is to determine the precise effect of exposure to a preschool day care experience on the later school performance, intelligence, and social maturity of the child attending the facility. It is hypothesized that there will be no significant differences on any variable between 5th grade children involved in this study as a result of participation in a preschool day care program.

CHAPTER II

METHOD

Explanatory cover letters and accompanying questionnaires (Appendices A and B) were sent to the parents of all fifth grade students at one city grade school, and later to the parents of every odd-numbered (according to class rosters) fifth grader at another school. A total of 118 questionnaires were thus sent out. The return rate was 51 per cent, yielding 60 completed questionnaires.

From information given on these questionnaires, the author was able to form three groups according to amount of preschool day care experience measured in total days of day care experience (one month = 20 days). Initial group composition is presented in Table 1.

TABLE 1
INITIAL GROUP COMPOSITION

Group Number	Number of Days of Day Care	Membership
1	NONE - 19	26
2	20 - 120	19
3	121 - 360	<u>15</u>
Total		60

All questionnaire information was recorded on a separate sheet for each group. The questionnaires furnished Sex and Age information for matching purposes, as well as the following miscellaneous data: physical condition, birth order, and parent's rating of his child on a ten-point scale of maturity, 1 being lowest and ten being highest (see Appendix B).

These 60 parents were then contacted by telephone. At this time, the Vineland Social Maturity Scale was administered and the following information obtained: (1) an estimate of the family's gross annual income, (2) whether the subject had attended kindergarten, and (3) if the child had experienced any early trauma such as a broken home, etc. The telephone interview yielded all final information needed for group matching and all supplementary miscellaneous data on each subject, with the exception of race. The fact that all subjects were Caucasian was confirmed in conversation with the schools during the same two weeks that all telephone interviews took place.

Matching across groups was done in a straightforward manner on the factor of sex, matching individuals rather than total males or females per group. Age matching was less stringent. Since all subjects were either 10 or 11 years of age, enrollment in the fifth grade was considered sufficient for this factor. Total gross family income was

matched by placing each subject's family in an income category. These categories were arranged in increments of \$5000. Table 2 shows the distribution of subjects according to this system.

TABLE 2
GROUP DISTRIBUTION ACCORDING TO INCOME

Income Category	Membership		
	Group 1	Group 2	Group 3
Below \$5000	0	0	0
\$5,000 - 9,999	3	3	3
\$10,000 - 14,999	6	6	6
\$15,000 - 19,999	4	4	4
\$20,000 - 24,999	1	1	1

Final matching according to sex, age, and income left a total membership of 14 subjects per group. Final data was recorded on a separate summary sheet for each group. Miscellaneous data was then examined, but no further eliminations were made on that basis. Maturity ratings, it should be noted, were reclassified from miscellaneous data to scores.

Having formed and matched the three groups whose major difference was amount of exposure to day care programs, the author proceeded to record the following scores for each subject:

a) Vineland Age (V), which had already been determined when the Vineland Social Maturity Scale was administered to the parents during the telephone contact, b) Parent's Rating of Maturity (PR) which was taken directly from the questionnaire response, c) Teacher's Rating of Maturity (TR) which was solicited from each fifth grade teacher whose pupils were involved in the study; in doing this, the author was careful to use the same words and explanation that had been used on the parents' questionnaire, d) The Iowa Test of Basic Skills overall percentile ranking (IOWA) which was taken from each subject's school records, and e) Grade point averages for Language Arts, (reading) for grades 1, 3, and 5 (R1, R3, R5), which were also taken from school records. Grade point averages for mathematics for the same grades (M1, M3, M5) were recorded from the same source.

Math and reading scores were recorded according to the grade-point system wherein grades of F = 0, D = 1, C = 2, B = 3, and A = 4. It should be noted that all scores for the first grade had been recorded according to a method in which scores of 1, 2, and 3 were used to indicate membership in the best third, middle third, or lowest third of the class, respectively. To aid computation, it was decided to convert these scores to the four point system. This was done as follows: 1 = 3.5; 2 = 2.5; and 3 = 1.5.

Statistical Analysis

In analyzing the data, a separate 3x3 analysis of variance for all language arts (reading) scores and all mathematics scores was used. The remaining four scores: Vineland Age, Parent's Rating, Teacher's Rating, and Iowa Percentile, were analyzed separately by means of a simple analysis of variance design.

In addition, correlation coefficients were computed between matching data, miscellaneous data, and scores.

CHAPTER III

RESULTS AND DISCUSSION

Two-Way Analysis of Variance for Scores in Language Arts and Mathematics

Language Arts means for all three groups are shown in Table 3. The consistent improvement in scores as amount of day care experience increases is immediately apparent. The analysis of variance showed four of the six F ratios to be significant at the .05 level. A summary of analysis of variance is presented in Table 4.

TABLE 3

GRADE POINT AVERAGE MEANS IN LANGUAGE ARTS FOR ALL GROUPS

Group	Grade 1	Grade 3	Grade 5
1	2.64	2.50	2.93
2	2.71	3.00	2.93
3	2.93	3.29	3.50

The significant F for groups indicates that achievement in language arts is related to the amount of day care experience a child has received. Since other pertinent variables have been ruled out it would appear that the longer the day

care experience, the higher the child's achievement in language arts.

TABLE 4
SUMMARY OF ANALYSIS OF VARIANCE OF THE
LANGUAGE ARTS MEANS FOR ALL GROUPS

Source	SS	df	MS	F
G (Group)	2.6825	2	1.3413	6.18*
C (Column)	14.5476	13	1.1191	5.15*
T (Grade)	6.4921	2	3.2460	14.95*
GC	8.0952	26	0.3114	1.45
GT	1.6032	4	0.4008	1.84
CT	33.2857	26	1.2802	5.90*
Within	11.2857	52	0.2170	
Total	77.9920	125		

*Indicates F significant at .05 level.

The significant F for Columns in the same table would seem to show a definite heterogeneity within each grade for every group. This effect is to be expected, as the individual subjects comprising each group exhibited a great deal of variation among themselves in the scores achieved. This particular F is of little relevance to the main concerns of the present study, however.

Likewise, the significant Fs obtained for grade to grade variation (T) and Column-Grade Interaction (CT) are of little interest here and need not be explored.

It appears, then, that the most important effect of the analysis of Language Arts data is the significant F for Groups (G), indicating real differences between the groups' reading ability as a function of the number of days of day care. It would seem that as amount of day care increases, ability in this area also tends to increase. Figure 1 (page 27) gives the group means in graphic form.

Means for mathematics scores were less consistent in showing a pattern of improvement in performance as days of day care increased. Table 5 gives these means for all groups. Although the general trend is for scores to increase in value as amount of day care increases, the F ratio for G, which is the value of major interest, is not significant (See Table 6). A subsequent trend analysis showed no significant linear trend for Mathematics scores.

TABLE 5
GRADE POINT AVERAGE IN MATHEMATICS FOR ALL GROUPS

Group	Grade 1	Grade 3	Grade 5
1	2.64	2.57	2.64
2	2.79	3.21	2.86
3	2.93	3.14	3.36

The fact that this important F was not significant would tend to indicate that differences between groups on Mathematics scores were most likely due to chance. A possible alternative to this conclusion is discussed in Chapter 4.

Just as for the Language Arts analysis, the Fs for Column (C), Grade (T), and Column-Grade interaction (CT) were significant, though of negligible relevance to the concerns of the present study. Mathematics means are shown graphically in Figure 2.

TABLE 6
SUMMARY OF ANALYSIS OF VARIANCE OF MATHEMATICS
MEANS FOR ALL GROUPS

Source	SS	df	MS	F
G (Group)	.9048	2	0.4524	1.84
C (Column)	11.6905	13	0.8993	3.66*
T (Grade)	5.9048	2	2.9524	12.03*
GC	9.7619	26	0.3755	1.53
GT	1.9048	4	0.4762	1.94
CT	35.4286	26	1.3626	5.55*
Within	12.7619	52	0.2454	
Total	78.3571	125		

*Indicates F significant at .05 level.

Analysis of Variance for V,
IOWA, PR, and TR Scores

Means for Vineland Age, Iowa Basic Test, Parents' Rating of Maturity are presented in Table 7. A one-way analysis of variance was performed on each of these measures. In all cases, F was not significant at the .05 level.

TABLE 7

SUMMARY OF MISCELLANEOUS MEANS FOR ALL GROUPS

Group		V	IOWA	PR	TR
	n	14	14	14	14
1	\bar{X}	12.09	65.93	7.64	5.96
	SD	2.92	25.45	1.94	1.43
2	\bar{X}	12.96	66.29	7.57	6.09
	SD	2.48	32.00	1.38	1.46
3	\bar{X}	13.26	71.64	8.36	7.04
	SD	1.94	22.19	1.49	1.73
F		0.883	0.198	1.01	2.02

In the case of the Vineland Ages, the insignificant F could be the result of the gains from group to group being too small. The Iowa Scores were extremely inconsistent; the first two means, for Groups 1 and 2, differ minimally, while the last, for Group 3, differs considerably from Groups 1 and 2. The value for Parents' Ratings for Group 1 was higher than that for Group 2; Group 3 was the highest of all.

Teachers' Ratings exhibited the same configuration as the Iowa percentiles in that the first two groups were very close together, the third considerably higher. Unlike the Iowa configuration, however, the differences were minimal.

Miscellaneous Correlation Coefficients

Two general sets of correlation coefficients were computed. The first was a set of coefficients between all scores, gross income, and birth order performed separately on each group. These did not prove to be of significance and are not presented. The second set obtained coefficients for the total sample on the correlation of total days of day care, family income, and birth order for each subject. Table 8 presents this data. These total sample correlations were important in assessing whether certain extraneous variables had been effectively ruled out by the matching design.

TABLE 8

INTERCORRELATIONS AMONG DAY CARE EXPERIENCE,
FAMILY INCOME, AND BIRTH ORDER

	Family Income	Birth Order
Days of Day Care	.123	.222
Family Income		.089

Of particular importance was the coefficient computed between Days of Day Care and Family Income. Since both of these

variables had been subdivided into categories to simplify the matching of subjects, there existed the possibility that the groups, though "matched", were not, in fact, comparable with each other due to significant differences within the categorical ranges for these two variables. For example, although all groups had the same number of individuals with Family Income falling within the category \$10,000 - \$14,999, it was conceivable that, for the subjects whose families had not sent them to day care, many of the incomes grouped at the lower part of the category while the income for the day care receiving subjects grouped at the upper ranges of the same category.

The correlation was performed, therefore, between the exact number of day care days and the exact family income figure for each subject in the study. Correlation, as recorded in Table 8, was 0.123 indicating a negligible relationship between the two factors and making it appear as though the design was effective in eliminating Family Income as an extraneous variable influencing amount of day care.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Except for the significant F for Language Arts, the results of this study concur with the majority of the literature, which indicates that few if any differences between day care experienced and non-day care experienced children endure beyond the third grade.

That Language Arts should be the measure that diverges should not be particularly surprising to persons familiar with community day care programs. In this study, the Language Arts grades reflected both reading and writing skills. More than any other measure used in this study, aptitude in this area can be said to derive in large part from an intellectual curiosity on the part of the child. Stimulating a child's curiosity about himself and his environment is, of course, one of the major aims of nearly every day care program (Keyserling, 1972). This usually takes precedence over intellectual development, maturity, and other facets or by-products of the program. Therefore, though children are not usually taught communications skills in the day care setting, they acquire something perhaps just as valuable: a curiosity about their world that can only be sated through the development of such skills.

A final comment concerning the present research is important. Referring to Figures 1 and 2, a sharp peaking effect can be noted in the third grade scores for Group 2.

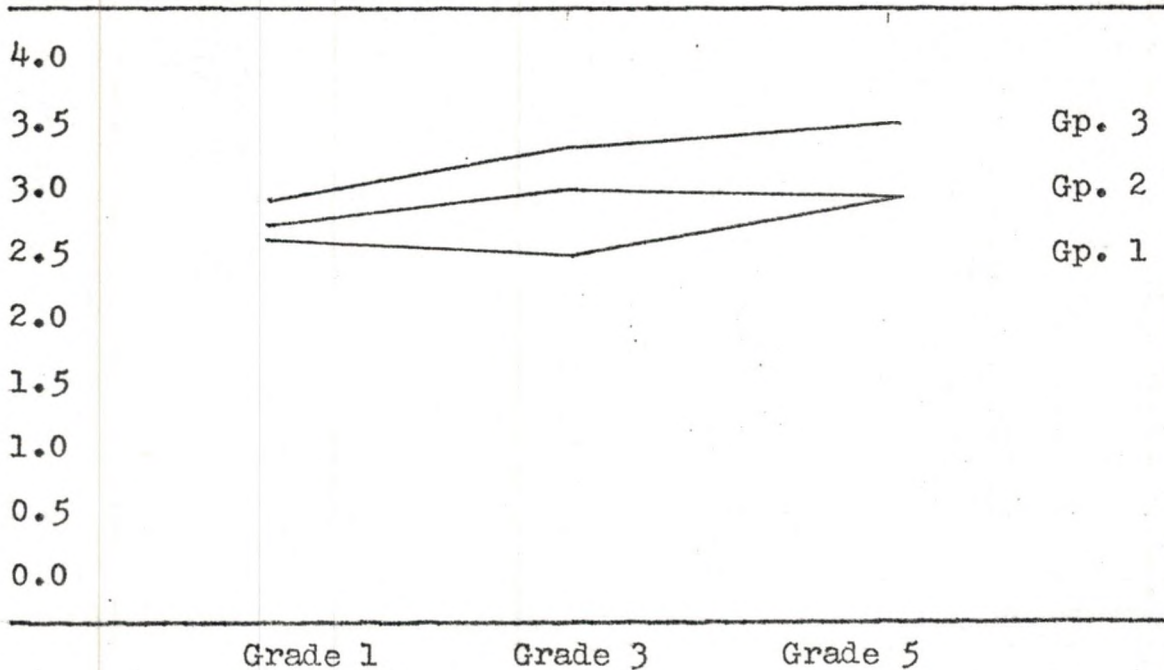


Fig. 1.--Graphic Presentation of Language Arts Means for All Groups.

This effect appears almost certainly due to the influence of one teacher, or more likely, a set of teachers who tended to grade higher, on the average, than their colleagues. Apparently, more subjects from Group 2 were exposed to these teachers than subjects from the other two groups. It may have been this disruptive influence that prevented F for Mathematics from being significant; it can be seen that the effect is more severe for Mathematics scores than

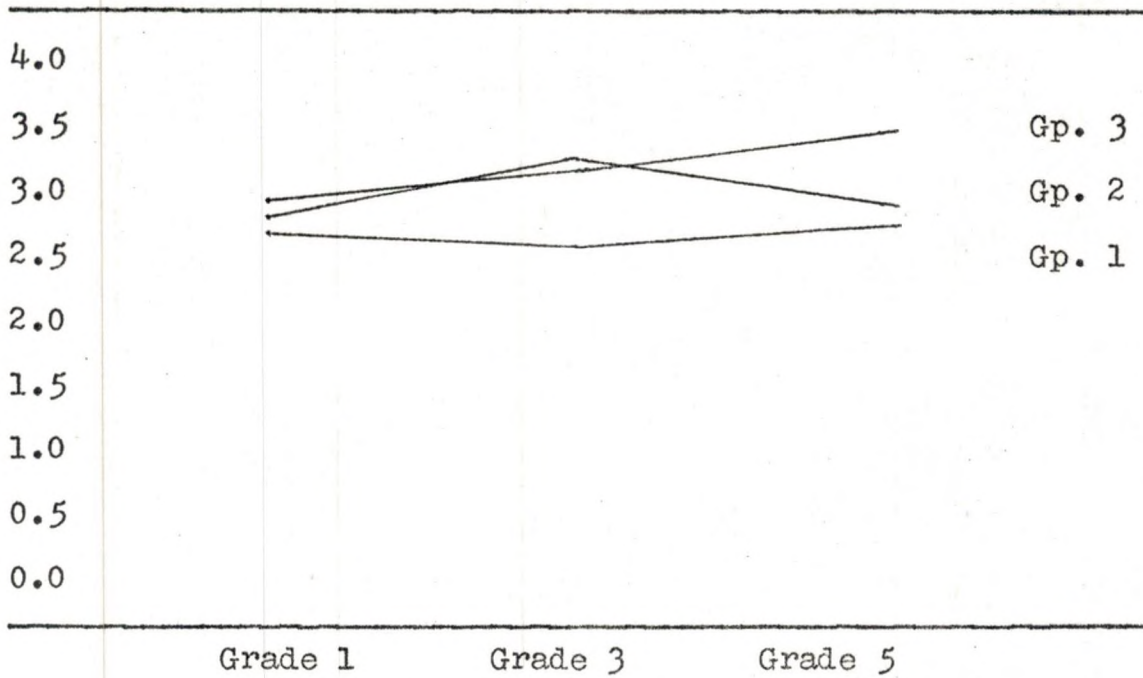


Fig. 2.--Graphic Presentation of Mathematics Means for All Groups.

for Language Arts scores. In light of this observation, it would be well to keep in mind that, in an evaluative study where scores achieved in school are to be used as measures, the influence of differing sets of teachers on the groups must be taken into account and controlled.

APPENDIX A

APPENDIX A

James L. Youngman
Box 524
Grand Forks, N.D.
March 17, 1974

Dear Parent:

Would you be willing to participate in an important fact-finding study regarding your child's educational experience?

I am a graduate student at the University of North Dakota and have the consent and cooperation of the Grand Forks Public Schools for this study. I am looking at the performance of school children as it might relate to earlier experiences in their lives.

Your cooperation, as a parent, would be of the greatest importance. Your fifth-grade child has been selected to be a member of the control group. He will not be tested or interviewed; instead, all data would be obtained from an interview with you and, with your permission, his school records. His name will not be used, as I am interested in the performance of whole groups, not individuals.

If you are willing to participate, please fill out the attached questionnaire as accurately as possible. Your cooperation will be greatly appreciated. Return the questionnaire to me in the enclosed envelope. I will contact you to arrange for a brief, 15 minute interview within two weeks after receiving your questionnaire.

Your cooperation will contribute significantly to this study. If you are interested in the results, I will be happy to make a short summary available to you.

Please complete the questionnaire today and send it to me by return mail. Should you have questions, my home telephone number is 696-2493.

Sincerely yours,

James L. Youngman

APPENDIX B

APPENDIX B

GENERAL DATA QUESTIONNAIRE
(Please answer all items)

Child's Name _____ Birthdate _____

Address _____ Sex _____

Has child ever been enrolled in: (Check appropriate items)

 Nursery School (Name _____) Day Care Center (Name _____) Other Preschool Program, Head Start, etc. (Describe _____)

If so, for how long? (Total months) _____

When? (Dates) From _____ To _____

Where? (City and State) _____

If your child did attend nursery school, day care center, or other preschool program, do you feel (s)he received any benefits from this experience?

Please check any physical problems your child has:

<input type="checkbox"/> Hearing Loss	<input type="checkbox"/> Permanent Injury	<input type="checkbox"/> Diabetes
<input type="checkbox"/> Visual Loss	<input type="checkbox"/> Epilepsy	<input type="checkbox"/> Cerebral
<input type="checkbox"/> Speech Problem	<input type="checkbox"/> Heart Condition	<input type="checkbox"/> Palsy
<input type="checkbox"/> Other (Specify) _____		

List your child's living brothers and sisters:

First NameAgeOn a scale from one to ten rate your child's present emotional maturity when compared to other children at this age:
(Please circle some point on the scale)1-----2-----3-----4-----5-----6-----7-----8-----9-----10
Immaturity Maturity

A brief interview with at least one parent is necessary in order to gather final information on each child. This can be done either in person or by telephone. May I contact you for this interview? _____

May I review your child's school records in order to get some idea of his academic achievement and test performance?

Would you like me to send you a summary of the results of this study?

Date _____ Signed _____

Child's Parent or Guardian

REFERENCES

REFERENCES

- Academic Preschool, Champaign, Illinois; One of a Series of Successful Compensatory Education Programs. Washington, D.C.: U.S. Government Printing Office, 1969.
- Alberti, J. M. Correlates of Self-Perception in School. Paper presented at the annual meeting of the American Educational Research Association, New York, February, 1971.
- Archambo, J. P. Rural Child Care Project, 1968-69; Research Evaluation. Bethesda, Md.: EDRS, 1970.
- Bereiter, C. An Academic Preschool for Disadvantaged Children: Review of Findings. Bethesda, Md.: EDRS, 1970.
- Butler, A. L. Recent Research in Early Childhood Education. Urbana, Ill.: College of Education Curriculum Library, 1971.
- Cawley, J. F. An Appraisal of Head Start Participants and Nonparticipants. Bethesda, Md.: EDRS, 1968.
- Connolly, B. The Development of Day Care Within the United States. Bismarck, N.D.: Social Service Board of North Dakota, 1971.
- Child Welfare League of America. Standards for Day Care Service. New York: Child Welfare League of America, 1969.
- Child Welfare Statistics. Washington, D.C.: Children's Bureau, 1968.
- Datta, L. E. Report on Evaluation Studies of Head Start. Bethesda, Md.: EDRS, 1969.

- Diagnostically Based Curriculum: Bloomington, Ind. Washington, D.C.: U.S. Government Printing Office, 1969.
- Early Childhood Project, New York City. Washington, D.C.: U.S. Government Printing Office, 1969.
- Gerard, H. B. Factors Contributing to Adjustment and Achievement. Bethesda, Md.: EDRS, 1969.
- Golden, M. Social Class Differentiation in Cognitive Development: A Longitudinal Study. Bethesda, Md.: EDRS, 1969.
- Handler, E. O. Preschools and Their Graduates. Bethesda, Md.: EDRS, 1970.
- _____. "Organizational Factors and Educational Outcome; A Comparison of Two Types of Preschool Programs." Education and Urban Society, 1972, 4, 441-458.
- Hulan, J. R. "Head Start Program and Early School Achievement." Elementary School Journal, 1972, 2, 91-4.
- Impact of Head Start: An Evaluation of the Effects of Head Start on Children's Cognitive and Affective Development. Springfield, Va.: Clearinghouse for Federal Scientific and Technical Information, June, 1969.
- Impact of Head Start Program (Phase One of Projected Longitudinal Study to the U.S. Office of Economic Opportunity, Final Report. Bethesda, Md.: EDRS, May, 1970.
- Keyserling, M. D. Windows on Day Care. New York: National Council of Jewish Women, 1972.
- Larson, D. E. The Effect of a Preschool Experience upon Intellectual Functioning among Four-Year-Old White Children in Rural Minnesota. Bethesda, Md.: EDRS, 1969.
- Lindgren, H. C. Introduction to Social Psychology. New York: John Wiley and Sons, 1969, 147-51.
- Macmillan, R. W. A Study of the Effect of Socioeconomic Factors on the School Achievement of Spanish-Speaking School Beginners. Paper presented at the International Reading Association Conference, Boston, Mass., April, 1968.

- Massachusetts Early Education Project. The Care and Education of Young Children. Washington, D.C.: Day Care & Child Development Council of America, 1972.
- McGlathery, G. E. An Assessment of Science Achievement of Five and Six Year Old Students of Contrasting Socio-economic Backgrounds. Ann Arbor, Michigan: University Microfilms, 1968.
- North, R. D. Pre-Kindergarten Program, 1968-69; Evaluation Report for the Project. Bethesda, Md.: EDRS, 1969.
- Office of Child Development. Day Care; A Statement of Principles. Washington, D.C.: Office of Child Development, 1971.
- Perry Preschool Project, Ypsilanti, Michigan, One of a Series of Successful Compensatory Education Programs. Washington, D.C.: U.S. Government Printing Office, 1969.
- Plant, W. T. & Southern, M. L. Effects of Preschool Stimulation upon Subsequent School Performance Among the Culturally Disadvantaged. Bethesda, Md.: EDRS, 1970.
- Prentice, N. M. & Bieri, J. "Intellectual Development of Culturally Deprived Children in a Day Care Program; A Followup Study." American Journal of Orthopsychiatry, March, 1970, 310-11.
- Preprimary Program, 1968 Report. Bethesda, Md.: EDRS, 1968.
- Public Welfare Board of North Dakota. Introduction to Day Care. Bismarck, N. D.: Public Welfare Board of North Dakota, 1971.
- Turner, R. V. & Deford, E. F. Followup Study of Pupils with Differing Preschool Experiences. Paper presented at the annual meeting of the American Educational Research Association, Minneapolis, Minn., March, 1970.
- Weikart, D. P. Preliminary Results from a Longitudinal Study of Disadvantaged Preschool Children. Paper presented at the 1967 Convention of the Council for Exceptional Children, St. Louis, Missouri, 1967.

Day Care Experienced vs. Non-Day Care Experienced
Children: A Comparison of Maturity and
Achievement in Grade School

James L. Youngman, M.A.

The University of North Dakota, 1974

Faculty Advisor: Dr. Alice T. Clark

While a considerable amount of evaluative research has been performed in the area of day care, the overwhelming majority of these studies have dealt only with experimental programs aimed at lower class children. The present study was conceived as an evaluation of established day care and preschool programs available to the general community. The study was performed in an Upper Midwest community with a total population of 35,000.

Three groups of fifth-grade students were selected and matched on the bases of age, sex, and family income. Members of Group 1 had no day care experience, Group 2 had 20-120 total days of day care experience, and Group 3 had from 121-360 total days of day care experience.

The groups were compared with each other on the basis of three criteria: academic achievement, intelligence, and social maturity. Academic achievement was measured by each

subject's final grades for reading (language arts) and mathematics as recorded for the 1st, 3rd, and 5th grades in school. Intelligence was measured by the subject's Iowa Test of Basic Skills national percentile, as achieved on an administration of that test six months prior to the present study. Social maturity was measured by the Vineland and Social Maturity Scale, which was administered by the author to each subject's parents, and by parents' and teachers' ratings of each subject's maturity on a scale from 1 through 10.

Data were treated in the following manner: reading and mathematics scores were each analyzed by means of a 3 by 3 analysis of variance. Iowa Basic Test percentiles, Vineland Age score, Parents' Ratings and Teachers' Ratings were subjected to one-way analysis of variance. Miscellaneous correlation coefficients exploring the possible influence of partially-controlled extraneous variables were also performed.

It was found that scores for most measures tended to increase in value as amount of day care increased. However, only Reading scores were found to differ significantly between groups with Group 3 being highest achievers and Group 1 being lowest. The influence of a major extraneous variable was ruled out by the lack of significant correlation between amount of days spent in day care and family income for this sample.

The significant F for Reading was regarded as the major observation of the study, since this effect was the only statistically significant difference between the day care and non-day care groups and one of the few effects known to have endured beyond the third grade in any study of this type. It was also noted that the effect of differing sets of teachers can be an important extraneous variable in studies involving school achievement score.

DAY CARE EXPERIENCED VS. NON-DAY CARE EXPERIENCED
CHILDREN: A COMPARISON OF MATURITY AND
ACHIEVEMENT IN GRADE SCHOOL

by
James L. Youngman

Bachelor of Arts, University of Minnesota, Duluth, 1970

A Thesis
Submitted to the Graduate Faculty
of the
University of North Dakota
in partial fulfillment of the requirements
for the degree of
Master of Arts

Grand Forks, North Dakota

July
1974

This Thesis submitted by James L. Youngman in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

Alice T. Clark
(Chairman)

Nancy J. Huston

J. P. Pyles

Paul H. Wright

A. William Johnson
Dean of the Graduate School

Permission

Title Day Care Experienced vs. Non-Day Care Experienced
Children: A Comparison of Maturity and Achievement
in Grade School

Department Psychology

Degree Master of Arts

In presenting this thesis in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the Library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my thesis work or, in his absence, by the Chairman of the Department or the Dean of the Graduate School. It is understood that any copying or publication or other use of this thesis or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my thesis.

Signature James L. Youngman

Date July 18, 1974

ACKNOWLEDGMENTS

I would like to express my sincere thanks to Dr. Alice T. Clark, chairman of my committee, and Drs. Wright, Huntsman, and Tyler who devoted their time, ideas, and skills which were invaluable in the conception and completion of this thesis.

In addition, I would like to thank Mr. Jack Jordan who helped me by preparing the computer analysis of the data. Finally, I wish to thank my wife, Chris, for her continuing help and support throughout the preparation of this thesis.

TABLE OF CONTENTS

Acknowledgments.....	iv
List of Tables.....	vi
List of Figures.....	vii
Abstract.....	viii
Chapter I. Introduction to the Problem and Related Studies.....	1
Chapter II. Method.....	14
Chapter III. Results and Discussion.....	19
Chapter IV. Summary and Conclusions.....	26
Appendix A. Cover Letter.....	29
Appendix B. Questionnaire.....	31
References.....	33

LIST OF TABLES

Table		Page
1.	Initial Group Composition.....	14
2.	Group Distribution According to Income.....	16
3.	Grade Point Average Means in Language Arts for all Groups.....	19
4.	Summary of Analysis of Variance of the Language Arts Means for all Groups.....	20
5.	Grade Point Average Means in Mathematics for all Groups.....	21
6.	Summary of Analysis of Variance of Mathematics Means for all Groups.....	22
7.	Summary of Miscellaneous Means for all Groups..	23
8.	Intercorrelations Among Day Care Experience, Family Income, and Birth Order.....	24

LIST OF FIGURES

Figure		Page
1.	Graphic Presentation of Language Arts Means For All Groups.....	27
2.	Graphic Presentation of Mathematics Means For All Groups.....	28