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# A Study of School Achievement Among Elementary School Students with Working and Nonworking Mothers

Chi-hung Hsieh

*Eastern Illinois University*

This research is a product of the graduate program in [Educational Psychology and Guidance](#) at Eastern Illinois University. [Find out more](#) about the program.

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A STUDENT OF SCHOOL ACHIEVEMENT  
AMONG ELEMENTARY SCHOOL STUDENTS  
WITH WORKING AND NONWORKING MOTHERS

(TITLE)

BY

Chi-hung Hsieh

B.A. in Ed., National Chenghi University, 1969

M.S. in Ed., National Chenghi University, 1973

**THESIS**

**SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF**

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SCHOOL, EASTERN ILLINOIS UNIVERSITY  
CARLESTON, ILLINOIS

1980

YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING  
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DATE

ADVISER

DATE

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A STUDY OF SCHOOL ACHIEVEMENT AMONG ELEMENTARY  
SCHOOL STUDENTS WITH WORKING AND NONWORKING MOTHERS

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ABSTRACT OF THESIS

Submitted in partial fulfillment of the requirements  
for the degree of Specialist in Education at the Graduate School of  
Eastern Illinois University

Charleston, Illinois  
1980

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### Statement of Problem

Most parents face the question of whether the wife should seek employment outside the home during the years that their children are attending elementary school. Many families have no choice since the costs of daily living make it necessary to pursue a double income. A large portion of parents do, however, have a choice as to whether the mother should go to work. In many homes the second income goes toward obtaining some of the "extra-things" not normally available due to financial limitations.

Mothers who work outside of the home will have less time to stay home relatively and take care of their children. Furthermore, after she returns from her place of employment, her strength will compare unfavorably maybe even be exhausted. This may affect on her care of children. Cyrus (1952) found that the working mother's child is more irritable. Now Taiwan, Republic of China is stepping into industrialized society, and the number of working mothers is increasing; therefore, this topic needs to be studied "what is the effect of maternal employment on the scholastic performance of children?"

### Purpose of This Study

The purpose of this investigation was to determine if children with working mothers do in fact differ from children with nonworking mothers in school achievement as numerous educators and sociologists profess. More specifically, answers to the following questions were sought:

1. Is there a difference in school achievement among children from homes where the mother works full-time, part-time, or not at all?

2. Do boys and girls differ in school achievement among the maternal employment groups?

### Conclusions

1. Maternal Employment And Intelligence. There is no difference in intelligence among children from homes where the mothers works full-time, part-time, or not at all.

2. Maternal Employment And School Achievement. There is no difference in school achievement among children from homes where the mothers works full-time, part-time, or not at all i.e. hypothesis 1,2,3, and 4 were rejected. The reason why might be that early elementary children were too young to quality to have achievement effected by the maternal employment status.

3. Sex Difference Of School Achievement Were Concluded As Follows: (a) There is no significant sex difference in first semester of first year. (b) In second semester of the first year, girls' grade point was higher than boys' for Chinese Language Arts and grade point average of 3 courses, but there was no difference on Arithmetic and Social Studies. (c) In the whole first year, girls' grade point was higher than boys' on Chinese Language Arts and grade point average, but Arithmetic and Social Studies are not significant. (d) In the first semester of second year, girls' grade point was higher than boys' on Chinese Language Arts and Arithmetic, but Social Studies and grade point average were not. (e) In the second semester of second year, there were significant differences between boys and girls on all 3 courses and grade point average. Girls were higher. (f) In the whole second

year there were significant differences between boys and girls except for Social Studies, with girls being higher. (g) In the whole two years, girls were higher than boys on all 3 courses and grade point average.

There was no significant interaction among boys and girls i.e. boys and girls did not differ in school achievement among the maternal employment groups at any period or for any courses in the first two years of elementary school. Hypothesis 5,6,7, and 8 were accepted.

#### Recommendations

1. One of the findings of this investigation was that there is no difference in school achievement among maternal employment groups. The wise woman surely does not use all other ability outside of home, but she still faithfully carries out her duties in the home as well.

2. There are sex differences in school achievement of early elementary school children. The teacher should pay attention to the sex differences in his/her instruction.

3. The subjects of the present study were first two grade students of elementary school. If we want to understand the entire situation, we should continue studying what happens with the older students of elementary schools, high school students and college students.

4. This study only gives heed to the maternal employment status, and did not notice to the kind of profession, the official position, the children caring, the level of satisfaction of working mother, and the attitude of children toward maternal employment

etc. Those factors should be noticed in the further studies.

5. There were some studies found where boys were higher than girls on mathematics and social studies, but the results of this study were opposite. The reason why has not been answered by the author. Is there a racial difference or not? That needs to be studied.



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CHAPTER I  
INTRODUCTION

Background

Social concern for the children of mothers who work outside of their homes has had a long history. It began with the industrial revolution in England and Europe when the invention of machines outmoded home industries and forced not only men but their wives and children into factories and mills for their pittance living. The problems of the latter part of the eighteenth century and of the nineteenth century were the problems of the "poor working class". Mortality statistics indicated that the babies of factory women died in alarming numbers. There was evidence too of increasing juvenile crime developing in the overcrowded new industrial centers.

Mixed motives instigated the zeal of philanthropists to do something about the deplorable state of infants and children, left without care while the mother worked long hours away from home. There were those who wished to keep the working class alive because industry needed them and to decrease crime because of the social expense, but at the same time they wished not to educate the children of working people beyond their station in life. Others like Robert Owen, saw in the pressing needs of children for care outside the home an opportunity through education to develop a new social order. Less ambitious but warmhearted philanthropists aimed to provide some kind of care which would be a substitute for that which the working mother could not give

Inquiring minds bent their energies to exploring various ways in which the needs of children might be met.

In the United States the problem of the working mother and her children came later, as industrial activity slowly permeated the American culture in the second half of the nineteenth century. The first day-nursery was open in New York City in 1854; however, it was not until well into the twentieth century that nurseries developed in any great numbers. By that time the nurseries were serving mainly working mothers who were without husbands due to death, divorce, or desertion. The provisions of mothers' pensions which spread over the country after 1911 decreased gradually the demand for care of fatherless children whose mothers worked.<sup>1</sup>

The number of working mothers is growing in nearly every country. The percentage of married women among the female labor force has always been higher than fifty-five percent since 1975 in the United States.<sup>2</sup> Female employees in Japan between 1960 and 1970 totalled 4 million, of whom well over half were married. In Australia, from 1971 to 1974 employment rose from 39.4 percent to 41.4 percent of all women of working age. The participation rate of married women, however, increased by 4.2 percentage points, from 35.2 percent to 39.4 percent. The number of mothers working in West Germany almost doubled between 1950 and 1970, with the result that by 1970, 66.2 percent of all women between the ages of 15 and 65 were working, 39.1 percent of all married

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<sup>1</sup>Bear S.E. The Day Nursery. New York: Dutton, 1938.

<sup>2</sup>Cook, A.H. The Working Mother. New York State School of Industrial and Labor Relations, Cornell University, 1978.

women, 35.7 percent of all mothers with children. In Sweden between 1965 and 1975 the proportion of those working women who had young children increased markedly, from 1968, 62.1 percent to 1975, 60.5 percent. In Austria, the proportion of these with children of school age rose from about 50 percent in 1961 to 54.7 percent in 1968. In East Germany, perhaps as many as 80 percent of all women of working age, married and unmarried, are employed.<sup>3</sup>

In Taiwan, Republic of China, although there is no exact number of working mother, O'hera (1973) who is a father having taught in the Department of Sociology, National Taiwan University for many years, pointed out that the numbers and the kinds of jobs of working women are almost greater than those western countries. Development has called forth a higher percentage of the able-bodied wives and mothers from their families and put them to work in the productive economy.

#### Statement of Problem

Most parents face the question of whether the wife should seek employment outside the home during the years that their children are attending elementary school. Many families have no choice since the costs of daily living make it necessary to pursue a double income. A large portion of parents do, however, have a choice as to whether the mother should go to work. In many homes the second income goes toward obtaining some of the "extra-things" not normally available due to financial limitations.

Mothers who work outside of the home will have less time to stay home relatively and take care of their children. Furthermore, after

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<sup>3</sup>Cook, A.H., 1978.

she returns from her place of employment, her strength will compare unfavorably maybe even be exhausted. This may affect on her care of children. Cyrus (1952) found that the working mother's child is more irritable.<sup>4</sup> Now Taiwan, Republic of China is stepping into industrialized society, and the number of working mothers is increasing; therefore, this topic needs to studied "what is the effect of maternal employment on the scholastic performance of children?"

#### Purpose of This Study

The purpose of this investigation was to determine if children with working mothers do in fact differ from children with nonworking mothers in school achievement as numerous educators and sociologists profess. More specifically, answers to the following questions were sought:

1. Is there a difference in school achievement among children from homes where the mother works full-time, part-time, or not at all?
2. Do boys and girls differ in school achievement among the maternal employment groups?

#### Definition of Terms

The operational definition of some terms in the present study are defined as follows:

1. Full time working mother: Mother worked outside of home over 4 hours every working day while her child was in grades one to two.

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<sup>4</sup>Cyrus, D. Problems of the Modern Homemaker-Mother. In J.T. Landis and M.G. Landis (Eds.) Readings in Marriage and the Family. Englewood Cliffs, New Jersey: Prentice-Hall, 1952.

2. Part-time working mother: Mother worked outside of home less than 4 hours every working day or worked at her own (or her husband's) store located with her home while her child was in grades one to two.

3. Nonemployed mother: Mother who had not worked outside the home at anytime while her child was in grades one to two.

4. School achievement: To arrive at a semester grade for each student, the grades for each semester in 3 courses--Chinese Language Arts', Arithmetic and Social Studies were taken from the schools. Each of these scores was given a numerical value (5 points scale) and the average grade point of each semester, year and of two years for each of the three subjects was determined. Twenty-eight school achievement scores were analyzed. (7 time-periods times four course scores)

5. Intelligence: Two intelligence tests were administered--Raven's Colored Progressive Matrices, C.P.M., and Revised Kelvin Measurement of Ability in Infant Classes, so intelligence means the abilities measured by these two intelligence tests, i.e. the ability of shape comparison, analogy, aesthetic differences, memory, discrimination, observation, counting, similarities, completion and classification.

#### Method

This study was to determine if there is significant school achievement difference or not among the elementary school students with working and nonworking mothers. It is witnessed that school achievement was affected by intelligence, so it was necessary to control for differences in intelligence among the children with working and nonworking mothers. Analysis of covariance--multiple classification was used to analyze the school achievement data.



## Instruments

Two intelligence tests were used in the present study. One is Raven's Colored Progressive Matrices (C.P.M.), the other one is Revised Kelvin Measurement of Ability in Infant Classes. These two tests were briefed as follows:

1. Raven's Colored Progressive Matrices (C.P.M.)

C.P.M., developed in Great Britain by J.C. Raven in 1967, was designed as a measure of Spearman's G factor. It consists of 36 matrices from each of which a part has been removed. The subject chooses the missing insert from six given alternatives. The items are grouped into three series, each containing 12 matrices of increasing difficulty but similar in principle. The earlier series required accuracy of discrimination; the later, more difficult series involves analogies, permutation and alternation of pattern, and other logical relations. This test is available for children between the ages of 5 and 11 years and for mentally retarded adults.

There were two studies about the reliability of this test in Taiwan, China. Cheng (1976) and his associates administered it to 73 elementary school students in grades 1 through 6, for test-retest reliability.<sup>5</sup> The coefficient of correlation to two test is .68. The interval of two tests is one year. Hsieh (1975) figured out the reliability coefficient of this test is .54.<sup>6</sup> The subjects were 33 students in a gifted experimental class. The interval of two tests is

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<sup>5</sup>Cheng, F.M. A Introduction of Raven's Colored Progressive Matrices. Testing and Guidance, 1976.

<sup>6</sup>Hsieh, C.H. A Follow-up Study of the Gifted Children's Response in C.P.M. Report of the Project of Gifted Children's Educational Experiment in Southern Taiwan, 1975.

13 months. These two correlation coefficient were very significant (at .01 level).

The validity of C.P.M. was studied by Gong and Lin.<sup>7</sup> The subjects of Gong's study were 4th grade students. He found the coefficient of correlation between C.P.M. and Citizen Intelligence Test Form B to be .74. Lin computed the correlation coefficient between C.P.M. and school achievement at the elementary school level. The result was .70. These two coefficients of correlation were very significant (.01 level).

## 2. Revised Kelvin Measurement of Ability in Infant Classes (KMAI)

KMAI was developed by an Australian psychologist, Dr. Kelvin and revised by Sun and Chen in 1972. This test was recommended for use with preschool and early elementary school children (age 4 through 8) as a measure of general intelligence.

There are 8 subtests in the test: aesthetic difference, memory, discrimination, observation, counting, similarities, completion and classification etc. This test needed more oral instruction than C.P.M., so the effect of verbal factor may be more than that of the C.P.M.

The reliability study for this test was operated by the reviser. The subjects were 51 second grade students (boys 28, girls 23). Test-retest reliability was .71 with an 11 day interval. The reviser calculated the coefficient of correlation between this test and Children Figure Intelligence Test (revised by Chong) at +1.00. The subjects were preschool and early elementary school children (age 4 through 8).

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<sup>7</sup>Cheng, F.M., 1976.

Subject

This was a two year follow-up study. The younger the children were, the less independent ability they had and the more need for nurturance. The effect of maternal employment on younger children should be more than on the older children. So the parent population for this study was 1976-1977 first-grade and 1977-1978 second-grade class from Kaohsiung City, Taiwan, China. The population of this city is about 1,200,000 people. It is the largest industrial city in Taiwan. The subjects were selected from two elementary schools-- one located in a new community (Shychuan Elementary School), the other one in the oldest community (Tatung Elementary School). The criteria for the selection of subjects was:

1. The child was living with both of his/her biological parents.
2. The child was a member of the 1976-77 first-grade class and 1977-78 second grade class. Those who dropped out or transferred were not included.
3. The cumulative record information such as intelligence scores, school achievement and family history was available on the child.
4. The child's mother qualified as being full-time employed, part-time employed or nonemployed, one who had not worked outside the home at anytime while her child was in grades one to two.

A final sample of 270 children was randomly selected from those two elementary school that conformed to the preceding criteria. Table 1 shows the number of children in each maternal employment group.

TABLE 1

Number of Children in Each Maternal Employment Group  
According to Sampling Criteria Specification

SEX	MATERNAL EMPLOYMENT GROUPS		
	Full-time Workers	Part-time Workers	Housewife Only
Boys	45	45	45
Girls	45	45	45

Collection of Data

The mothers employment data was collected by a survey blank from both the students and their mothers. Blanks were administered to the students in their classroom setting, and the mothers in the data of school and interview individually.

The two tests used in the present study were administered by the group testing method. The examiners were senior students of the Department of Education, National Kaohsiung Teachers College, Taiwan, China. All of them had taken the "Psychological Test and Educational Measurement" course and were specifically trained by the writer.

C.P.M. was administered on December 11, 1976 in Shychuan Elementary School and December 12, 1976 in Tatung Elementary School. One week later KMAI was administered.

Scoring was done by hand. Standardized scores for each raw score were computed and then the average of standard scores of the two tests were calculated to represent the intelligence of the subject.

## Statistical Analysis

In order to attain the purpose of the present study and based on the hypothesis and the nature of variables, several measures were used:

### 1. Arithmetic Mean (M)

The arithmetic mean (M) of grade points of 3 courses--Chinese Language Arts, Arithmetic and Social Studies were computed, and then the mean of two semesters (one year) and four semesters (two years) grade point. So there were 4 types of course scores and 7 kinds of time period scores i.e., twenty-eight (4x7) scores have been analyzed.

### 2. Standard Score (Z-score)

In order to add the sum of two different intelligence test, the raw scores of the two intelligence test was converted to Standard scores (z-scores). The mean of these two standard score represented the intelligence of the subject.

### 3. Analysis of Variance (ANOVA)

ANOVA was used to analyze if difference of intelligence existed among 3 maternal employment groups.

### 4. Analysis of Covariance

This is an "ex post facto" research (survey research) and is a 2x3 design. Independent variable is the mother's working situation. Dependent variable is school achievement. Intelligence is covariable. Analysis of covariance was used in the analysis of school achievement data. The reason for using analysis of covariance was that it seemed necessary to control for differences in intelligence among six groups. By controlling for differences in intelligence it was possible to test for main treatment and also for the interaction effect among boys and girls. If there was a significant difference in main treatment effect,

the posteriori comparisons will be operated to decide the difference existing in which two groups.

In all cases, the .05 level was selected to determine if differences obtained deviated significantly from the null hypothesis.

## CHAPTER II

### RELATED LITERATURE AND HYPOTHESIS

Let us take a close look at some of the previous studies and then some hypotheses will be presented.

#### Maternal Employment and Intelligence

Two studies of the lower socioeconomic class indicates that maternal employment and IQ scores are positively related. Woods (1972) in her study of fifth graders found that full-time maternal employment was associated with higher intelligence test scores as measured by the California Test of Mental Maturity.<sup>8</sup> Rieber and Womack (1968), studying preschoolers, found that more of the children of working mothers fell in the highest quartile on the Peabody Picture Vocabulary Test.<sup>9</sup> Both of these studies included blacks and single-parent families and the latter also included families of Latin America background.

The researchers who examined the relationship between maternal employment and intelligence test scores in more middle-class samples found more complex results. Hoffman (1963b) found that in a sample of white, intact families, the children of working mothers who liked

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<sup>8</sup>Woods, M.B., "The Unsupervised Child of the Working Mother," Developmental Psychology, 1972, 6, 14-15.

<sup>9</sup>Rieber, M. & Womack, M., "The Intelligence of Preschool Children as Related to Ethnic and Demographic Variables," Exceptional Children, 1968, 34, 609-614.

work had lower IQ scores than did the matched children of nonworking mothers.<sup>10</sup> The children of the working mothers who dislike work, however, were not different from the nonworking matched group.

Rees and Palmer (1970) presented a particularly interesting and complicated analysis of longitudinal data from a number of different studies.<sup>11</sup> Their samples varied, but by and large they represented a higher socioeconomic group than the above three studies. Data were analyzed separately for boys and girls, with important differences appearing. In general, maternal employment related to high IQ in girls and low in boys. Using as the independent variable the mother's employment status when the child was 15, they found that the daughters of working mothers had higher IQs at age 6 and around age 15, although there was no relationship for age 12. Was the working mother of the 15-year-old also working when the child was 6? We do not know. The relationship for the boys were the opposite. The data were interpreted by the investigator as reflecting general association between non-traditional femininity and higher IQ in girls: That is, the working mothers represented to her daughter a less traditional view of femininity. This theory suggesting a negative relationship between traditional femininity and achievement in girls has been discussed more fully by Maccoby (1966) and by Hoffman (1972); and data tying maternal

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<sup>10</sup>Hoffman, L.W. Mother's Enjoyment of Work and Effects on the Child. In F.I. Nye & L.W. Hoffman (Eds.) The Employed Mothers in America, Chicago: Rand McNally, 1963(b).

<sup>11</sup>Rees, A.N., & Palmer, F.H., "Factors Related to Change in Mental Test Performance," Developmental Psychology Monograph, 1970, 3, (2, pt. 2).



employment to nontraditional femininity were discussed earlier in this review.<sup>12</sup>

### Maternal Employment And School Achievement

The past three decades witnessed a growing research concern with the effects of maternal employment on children. These research studies have typically focused on the family function, husband-wife relation, social practice etc. The amount of the impact of maternal employment upon the school achievement remains surprising small and the findings are often apparently contradictory.

The first literature we can find in the effect of maternal employment on the school achievement of the children is Nye's (1959) research.<sup>13</sup> The impression held by some teachers that children of working mothers do less well in school work is not supported by Nye's regarding children in grades 9 through 12. There was no significant relationship between maternal employment and educational competence as indicated by grade average. When analysis was limited to children of full-time working mothers versus nonworking mothers, the results showed a higher grade point average in children of the employed mothers through the difference was not statistically significant.

Two studies (Armstrong, 1967, George and Thomas, 1967) found

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<sup>12</sup> Maccoby, E.E. Sex Differences In Intellectual Functioning. In E.E. Maccoby (Ed.) The Development of Sex Differences. Stanford, California: Stanford University Press, 1966; and Hoffman, L.W., "Early Childhood Experience and Women's Achievement Motives," Journal of Social Issues, 1972, 28, 129-155.

<sup>13</sup> Nye, F.I., "Employment Status of Mothers and Adjustment of Adolescent Children," Marriage and Family Living, 1959, 21, 240-244.

no relationship between maternal employment and either the IQ or achievement of high school students.<sup>14</sup>

Noland and Tuttle (1959) asked teachers to rate selected children on academic achievement as evidence by the performance of these children in their classes. They found that children with working mothers had a higher mean academic rating by their teachers than a matched group of children with nonworking mothers.<sup>15</sup>

Hoffman (1963) found that children of working mothers had lower intellectual performance than a matched group of children whose mothers did not work.<sup>16</sup>

These research studies mentioned above did not control the sex variable. Hoffman (1961), in commenting on the inconsistent findings relating maternal employment and children's school achievement, suggested that reporting results separately by sex might clarify matters.<sup>17</sup>

Hitchcock (1959) also did not find statistically significant differences in IQs or achievement test scores in reading and arithmetic for sons of working and nonworking mothers (grades 3 through 6). The

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<sup>14</sup>Armstrong, B.F. Working Mothers and Tennage Children in an Iowa Community. (Doctoral Dissertation, University of Iowa) Ann Arbor, Michigan: University Microfilm, 1967. No. 67-2578; and George, E.I. and Thomas, M., "A Comparative Study of Children of Employed Mothers and Unemployed Mothers," Psychological Studies, 1967, 12, 31,38.

<sup>15</sup>Nolan, F.L. and Tuttle, D.H., "Certain Practices, Satisfactions, and Difficulties in Families With Employed Homemakers," Bulletin 655, Pennsylvania Agricultural Experiment Station, 1959.

<sup>16</sup>Hoffman, L.W. Effects of Children: Summary and Discussion. In Nye, F.I. and Hoffman L.W.(Eds.) The Employed Mother In America, Chicago: Rand McNally, 1963(a).

<sup>17</sup>Hoffman, L. W., "Effects of Maternal Employment on the Child," Child Development, 1961, 32, 1870197.

largest mean difference was in reading with the sons of working mothers scoring higher.<sup>18</sup>

Nelson (1969) found there was no difference in school achievement (G.P.A.) among the children from homes where the mothers worked full-time, part-time or not at all and no interaction effect between maternal employment group and sex. The subjects were 312 ninth-grade students.<sup>19</sup>

Keidel (1970) found that grades were unrelated to type of maternal occupation (professional versus nonprofessional) for each sex taken individually (when the sexes were combined, professional mother's children had higher grades.) The time of day when mothers worked (before or after school versus during school hours) also had no effect on grades for either sex.<sup>20</sup>

Qvery and Kuruvilla (1978) pointed out that there was no statistically significant difference in the performance of ninth grade students as measured by the Iowa tests and those of children whose mothers were not employed outside the home, although the children especially girls of employed mothers, did perform better. Neither did children whose mothers worked before or after school or whose mother worked

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<sup>18</sup>Hitchcock, A.E. Relation of Maternal Employment to School Behavior and Achievement of Intermediate Boys. Unpublished Manuscript, 1959. See Stolz, IM., "Effects of Maternal Employment on Children: Evidence From Research," Child Development, 1960, 31, 749-782.

<sup>19</sup>Nelson, D.D., "A Study of School Achievement Among Adolescent Children With Working and Nonworking Mothers," Journal of Educational Research, 1969, 10, 456-458.

<sup>20</sup>Keidel, K.C., "Maternal Employment and Ninth Grade Achievement In Bismark, North Dakota," Family Coordination, 1970, 19, 95-97.

sporadically differ markedly from other ninth grade adolescents.<sup>21</sup>

Schreiner's (1963) longitudinal study of 6 to 10 year-old German children showed no difference in grades for sons of working and nonworking mothers.<sup>22</sup> Among girls, daughters of working mothers received higher grades in arithmetic in the first grade but no other differences were found.

Other studies have found an association between maternal employment and children's achievement. Jones, Lundsteen, and Michael (1967) found that sixth grade children of professional employed mothers made higher reading achievement score than children whose mothers were not employed.<sup>23</sup> The children came from an upper middle-class area and were matched for sex, age, and scores on the School and College Ability Test. However, since maternal employment was confounded with educational attainment (the professional mothers having completed more schooling), the reading differences may not be a result of maternal employment per se.

Farley (1968) reported that maternal employment was positively related to college grade point average for boys, but was essentially unrelated for girls.<sup>24</sup> Banducci (1967) obtained both positive and

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<sup>21</sup>Query, J.M.N. and Kuruvilla, "Male and Female Adolescent Achievement and Maternal Employment," Adolescence, 1978, 10, 353-355.

<sup>22</sup>Schreiner, M., "Auswirkungen Mutterlichen Erwerbstitigkeit auf die Entwicklung von Grundschulkindern," Archiv fur die Gesamte Psychologie, 1963, 115, 334-382. See Etaugh Claire "Effects of Maternal Employment on Children: A Review of Recent Research," Merill-Palmer Quarterly: Behavior and Development, 1974, 20, 71-98.

<sup>23</sup>Jones, J.B.; Lundsteen, S.W., and Michael, W.B., "The Relationship of the Professional Employment Status of Mothers to Reading Achievement of Sixth-grade Children," California Journal of Educational Research, 1967, 43, 102-108.

negative effects in his study of 3014 high school seniors. His sample was stratified by sex of student, socioeconomic level based on father's occupation (laborer, skilled worker, professional) and mother's work status (working 40 hours or more a week versus homemaker). Maternal employment was related to higher grade point average for skilled worker's sons, and to higher scores on the Iowa Test of Educational Development for laborer's sons. Among sons of professionals, however, mother's working was associated with lower grades. No differences were found for girls.

Some other investigations obtained a negative relationship between maternal employment and school achievement in boys. Burchinal and Rossman (1961) discovered that eleventh-grade sons of working mothers had significantly lower school grades than sons of nonworking mothers.<sup>24</sup> In three other studies, sons of working and nonworking mothers were matched for IQ. Dits and Cambier (1966) in their study of working class Belgium boys (6 to 8 years old) found low school grades for sons of working mothers.<sup>25</sup> Similarly, Brown (1972) indicated that maternal employment was associated with proven performance on the California Achievement Tests for middle-class eighth and ninth grade boys.<sup>26</sup>

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<sup>24</sup>Burchinal, L.G. and Rossman, J., "Personality Characteristics of Children," The Journal of Marriage and Family Living, 1961, 23, 334-340.

<sup>25</sup>Dits, A. and Cambier, A., "L'absence de la m'ere tors du retour de l'enfant de l'ecole," Efance, 1966, Vol. 1, 99-111. See Etaugh Claire, "Effects of Maternal Employment on Children: A Review of Recent Research," Merrill-Palmer Quarterly: Behavior and Development, 1974, 20, 71-89.

<sup>26</sup>Brown, S.W. A Comparative Study of Maternal Employment And Nonemployment (Doctoral Dissertation, Mississippi State University) Ann Arbor, Michigan: University Microfilm, 1972, No. 70-8610.

Frankel (1964) compared high and low achieving high school boys of high intellectual ability and found that the incidence of maternal employment (defined as working 30 hours a week for at least two years was greater among the low achievers.<sup>27</sup> Employed mothers of high achievers held higher status (often professional jobs, had completed more education, and had been working longer than employed mothers of lower achievers. (Higher achievement by children of professional mothers was also suggested by the results of Jones et al, 1967; and Keidel, 1970, discussed previously).<sup>28</sup>

Gold and Andres (1978) investigated 223 10-year-old girls and boys with either full-time employed or nonemployed mothers from working-class or middle-class families.<sup>29</sup> The children's scores on the Canadian Tests of Basic Skills were converted to standard scores. Significant differences among groups were found on the language and mathematics tests. The main effect of sex was significant for language scores with girls scoring higher than boys. The interaction among maternal employment status, social class of family, and sex of child was also significant for language scores. The main

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<sup>27</sup> Frankel, E., "Characteristics of Working and Nonworking Mothers Among Intellectually Gifted High and Low Achievers," Personnel and Guidance Journal, 1964, 42, 776-780.

<sup>28</sup> Jones, 1967; and Keidel, 1970.

<sup>29</sup> Gold, D. and Andres, D., "Developmental Comparisons Between Ten-Year-Old Children With Employed and Nonemployed Mothers," Child Development, 1978, 69, 75-84.

effect of sex was not significant for mathematics, but the interaction between the social class of family and the sex of the child was significant. The interaction among the three variable of maternal employment status, social class of family, and sex of child approached significance ( $F = 3.49$ ,  $df = 1/141$ ,  $p < .06$ ).

From the discussion noted above we could find the result is a hodgepodge of findings. Most of the studies lack a guiding theory: the investigation rarely tried to explain why his data were consistent or inconsistent with other studies. Only a few studies investigated the interaction between the maternal employment groups and sex, and different courses. The more recent studies have analyzed the data separately for sex and social class and the level of satisfaction of working mother. This has resulted in a complex pattern, but there is no apparent order in this pattern.

#### Hypothesis

For accomplishing the purpose of this study, and basing on the previous literature, the following hypotheses were set.

1. There is a difference in achievement of Chinese Language Arts among children from homes where the mother works full-time, part-time, or not at all.

2. There is a difference in achievement of Arithmetic among children from homes where the mothers works full-time, part-time, or not at all.

3. There is a difference in achievement of Social Studies among children from homes where the mother works full-time,

part-time, or not at all.

4. There is a difference in Grade Point Average among children from homes where the mother works full-time, part-time, or not at all.

5. Boys and girls do not differ in Chinese Language Arts achievement among the maternal employment groups.

6. Boys and girls do not differ in Arithmetic achievement among the maternal employment groups.

7. Boys and girls do not differ in Social Studies achievement among the maternal employment groups.

8. Boys and girls do not differ in Grade Point Average among the maternal employment groups.



CHAPTER III  
FINDINGS AND DISCUSSIONS

Based on the method stated previously, findings will be explained and discussed.

Findings

1. The Relationship Between Maternal Employment Status And Intelligence

This topic was not contained by the purpose of this study, however, some data available, developing these data can show the following facts:

In order to control intelligence, the Raven's Colored Progressive Matrices and Revised Kelvin Measurement of Ability in Infant Classes were administered. The average of the standard score of these two tests represented the subject's intelligence. Table 2 shows the arithmetic mean (M) and standard deviation (SD) of the intelligence scores in each maternal employment group.

Table 2

The Arithmetic Mean And Standard Deviation  
Of Intelligence Score Of Subject

Sex	Maternal Employment Groups					
	Full-Time Workers		Part-Time Workers		Housewife Only	
	M	SD	M	SD	M	SD
Boys	50.21	8.95	49.55	9.76	50.56	9.96
Girls	50.34	8.30	50.07	6.68	48.35	7.31

For the purpose of understanding if differences existed among intelligence scores in each maternal employment group analysis of variance was used. The results of analysis of variance are shown as Table 3. The F value for both main effects and the interaction between sex and group were not significant.

Table 3

Summary Table Of Analysis Of Variance Of Intelligence Score

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	30.96	2	15.48	0.21	.05
Sex (B)	18.67	1	18.67	0.25	.05
Interaction (A x B)	100.10	2	50.05	0.68	.05
Within	19547.04	264	74.02		
F.95 (1,264) = 3.87		F.95 (2,264) = 3.03			

2. The Relationship Between Maternal Employment Status And School Achievement

There are four types of course scores compared with seven period of time in the present study i.e. 28 (4x7) kinds of scores were analyzed. Table 4 presents the arithmetic mean (M) and standard deviation of these 28 kinds of school achievement scores.

The results of the analysis of 28 kinds of school achievement scores are shown as follow:

(1) The Relationship Between Maternal Employment And The Grade Point Of Chinese Language Arts

Table 4

Arithmetic Mean And Standard Deviation Of School Achievement Of Subject

Sex	Courses	Time Period	Maternal Employment Groups						
			Full-Time Workers		Part-Time Workers		Housewife Only		
			M	SD	M	SD	M	SD	
	First-year	First Semester	3.91	1.20	3.80	1.19	4.24	0.93	
		Second Semester	3.84	1.18	3.62	1.21	4.11	0.98	
		CHINESE Whole Year	3.87	1.12	3.71	1.16	4.17	0.89	
	Second-year	First Semester	3.71	1.29	3.80	1.19	4.08	1.06	
		Second Semester	3.71	1.25	3.62	1.21	4.04	1.02	
		Whole Year	3.71	1.23	3.71	1.16	4.06	0.99	
	Whole Two Years		3.79	1.15	3.71	1.18	4.12	0.90	
	BOYS	First-year	First Semester	4.06	1.13	3.93	1.03	4.20	0.96
			Second Semester	3.95	1.14	3.75	1.15	4.20	0.94
			ARITHMETIC Whole Year	4.01	1.08	3.84	1.03	4.20	0.91
Second-year		First Semester	3.80	1.12	3.90	1.03	4.04	0.95	
		Second Semester	3.71	1.14	3.75	1.15	4.08	1.06	
		Whole Year	3.76	1.08	3.84	1.03	4.06	0.93	
Whole Two Years			3.88	1.05	3.84	1.00	4.13	0.89	

Table 4 (Continued)

Sex	Courses	Time Period	Maternal Employment Groups					
			Full-Time Workers		Part-Time Workers		Housewife Only	
			M	SD	M	SD	M	SD
SOCIAL STUDY	First-year	First Semester	3.84	1.14	3.88	0.98	4.15	0.82
		Second Semester	3.84	1.04	3.80	0.89	3.84	0.92
	Second-year	Whole Year	3.84	1.01	3.84	0.83	4.00	0.81
		First Semester	3.93	1.11	3.88	0.98	4.13	0.99
		Second Semester	3.88	1.09	3.80	0.89	4.22	0.84
	Whole Two Years	Whole Year	3.91	1.05	3.84	0.83	4.17	0.84
		Whole Two Years	3.87	0.98	3.84	0.84	4.08	0.77
Average	First-year	First Semester	3.94	1.10	3.87	0.97	4.20	0.81
		Second Semester	3.88	1.01	3.72	1.00	4.05	0.85
	Second-year	Whole Year	3.91	1.01	3.80	0.95	4.12	0.81
		First Semester	3.81	1.08	3.87	0.97	4.08	0.93
		Second Semester	3.77	1.07	3.72	1.00	4.11	0.90
	Whole Two Years	Whole Year	3.79	1.06	3.80	0.95	4.10	0.88
		Whole Two Years	3.85	1.02	3.80	0.97	4.11	0.84
CHINESE	First-year	First Semester	4.20	0.99	4.08	0.94	4.02	0.96
		Second Semester	4.37	0.77	4.20	0.94	4.00	1.04
	Second-year	Whole Year	4.28	0.82	4.14	0.90	4.02	0.96
		First Semester	4.33	0.82	4.06	1.00	4.11	0.88
		Second Semester	4.40	0.83	4.15	0.85	4.22	0.90
	Whole Two Years	Whole Year	4.36	0.81	4.11	0.87	4.16	0.84
		Whole Two Year	4.32	0.79	4.13	0.86	4.07	0.86
GIRLS	First-year	First Semester	4.13	0.94	4.22	0.97	4.06	1.03
		Second Semester	4.15	1.08	4.15	1.02	3.95	1.02
	Second-year	Whole Year	4.14	0.95	4.18	0.93	4.00	1.00
		First Semester	4.17	0.83	4.28	0.75	3.88	0.91
		Second Semester	4.08	1.16	4.22	0.87	4.00	1.04
	Whole Two Years	Whole Year	4.12	0.88	4.25	0.73	3.94	0.92
		Whole Two Years	4.13	0.88	4.22	0.79	3.98	0.89
SOCIAL STUDY	First-year	First Semester	4.08	0.92	4.08	0.94	3.97	0.86
		Second Semester	4.11	0.83	3.95	0.87	3.80	0.91
	Second-year	Whole Year	4.10	0.80	4.02	0.81	3.88	0.83
		First Semester	4.13	0.84	4.08	0.78	3.84	0.87
		Second Semester	4.22	0.87	4.15	0.82	4.06	0.86
	Whole Two Years	Whole Year	4.17	0.79	4.12	0.72	3.95	0.81
		Whole Two Years	4.13	0.77	4.07	0.72	3.91	0.78

Table 4 (Continued)

Sex	Courses	Time Period	Maternal Employment Groups					
			Full-Time Workers		Part-Time Workers		Housewife Only	
			M	SD	M	SD	M	SD
Average	First-year	First Semester	4.14	0.90	4.13	0.86	4.02	0.85
		Second Semester	4.21	0.80	4.08	0.82	3.91	0.89
	Whole Year	4.17	0.82	4.11	0.83	3.97	0.86	
	Second-year	First Semester	4.21	0.74	4.14	0.76	3.94	0.78
		Second Semester	4.23	0.88	4.17	0.76	4.09	0.80
	Whole Year	4.22	0.82	4.16	0.73	4.02	0.77	
	Whole Two Years	4.20	0.78	4.14	0.66	4.00	0.80	

To understand the relationship between maternal employment and the grade point of Chinese Language Arts, seven periods of time were analyzed i.e. the first semester of first year, the second semester of first year, whole first year, the first semester of second year, the second semester of second year, whole second year and whole two years.

A. The First Semester Of First Year

The Table 5 shows the analysis of covariance of the grade point of Chinese Language Arts of the children with working and nonworking mothers holding intelligence score constant. The F value for main treatment effects, maternal employment groups ( $F = 1.42, df = 2/263, P > .05$ ); sex ( $F = 2.19, df = 1/261, P > .05$ ), were not significant at the .05 level. The F value for interaction was likewise not significant at the same level of significance ( $F = 1.14, df = 2/263, P > .05$ ). From the analysis of data it is apparent that although there were differences in Chinese Language Arts among the members of maternal employment groups and between

Table 5

Summary Table Of Analysis Of Covariance Of  
Chinese Language Arts Of The First Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	2.11	2	1.05	1.42	>.05
Sex (B)	1.62	1	1.62	2.19	>.05
Interaction (AxB)	1.68	2	0.84	1.14	>.05
Within	195.76	263	0.74		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

employment groups and between boys and girls, these differences were not statistically significant, also boys and girls did not differ in Chinese Language Arts among the three maternal employment groups.

B. The Second Semester Of First Year

Table 5 presents the analysis of covariance of the achievement of Chinese Language Arts of the children with maternal employment groups. One significant effect was obtained: sex ( $F = 12.36$ ,  $df = 1/263$ ,  $P < .01$ ). The group effect ( $F = 1.16$ ,  $df = 2.263$ ,  $P > .05$ ) and interaction effect ( $F = 2.45$ ,  $df = 2.263$ ,  $P > .05$ ) were not significant. From the analysis of data it is apparent that although there were differences in Chinese Language Arts among the persons of maternal employment groups, these differences were not statistically significant. There is significant difference between boys and girls. And boys and girls did not differ in Chinese Language Arts among the three maternal employment groups.

Table 6

Summary Table Of Analysis Of Covariance Of  
Chinese Language Arts Of The Second Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.71	2	0.86	1.16	>.05
Sex (B)	9.15	1	9.15	12.36	<.01
Interaction (AxB)	3.67	2	1.84	2.49	>.05
Within	193.91	263	0.74		
F.95 (1,263) = 6.72		F.95 (2,263) = 3.03			

C. The Whole First Year

Table 7 informs the analysis of covariance of the score of Chinese Language Arts of the students with maternal employment groups. The sex effects ( $F = 7.88$ ,  $df = 1.263$ ,  $P < .01$ ) was significant. The group effect ( $F = 1.39$ ,  $df = 2.263$ ,  $P > .05$ ) and interaction effect ( $F = 1.91$ ,  $df = 2.263$ ,  $P > .05$ ) were not significant. From the analysis of data it is clear that there were not significant differences in Chinese Language Arts among the children of maternal employment groups. There is significant difference between boys and girls in Chinese Language Arts. Boys and girls did not differ in Chinese Language Arts among the three maternal employment groups.

Table 7

Summary Table Of Analysis Of Covariance Of  
Chinese Language Arts Of The Whole First Year

Sources	SS	df	MS	F	P
Maternal Employment Group (S)	1.77	2	0.89	1.39	>.05
Sex (B)	5.04	1	5.04	7.88	<.01
Interaction (AxB)	2.44	2	1.22	1.91	>.05
Within	167.33	263	0.64		
F.99 (1,263) = 6.72		F.95 (2,263) = 3.03			

D. The First Semester Of Second Year

Table 8 indicates the analysis of covariance of the grade point of Chinese Language Arts of the children with work and non-working mothers. The sex effect ( $F = 6.24$ ,  $df = 1.263$ ,  $P < .05$ ) was significant. The group effect ( $F = 0.63$ ,  $df = 2.263$ ,  $P > .05$ ) and interaction effect ( $F = 1.65$ ,  $df = 2.263$ ,  $P > .05$ ) were not significant. From the analysis of data it is observable that there were not significant differences in Chinese Language Arts among the pupils of the maternal employment groups. There is significant difference between boys and girls in Chinese Language Arts. And boys and girls did not differ in Chinese Language Arts among the three maternal employment groups.



Table 8

Summary Table Of Analysis Of Covariance Of  
Chinese Language Arts Of The First Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.26	2	0.63	0.81	> .05
Sex (B)	4.87	1	4.87	6.24	< .05
Interaction (AxB)	2.58	2	1.29	1.65	> .05
Within	204.94	263	0.78		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

E. The Second Semester Of Second Year

Table 9 confirms the analysis of covariance of the grade point of Chinese Language Arts of the members with maternal employment groups. The sex effect ( $F = 15.76$ ,  $df = 1/263$ ,  $p < .01$ ) was significant. The group effect ( $F = 1.63$ ,  $df = 2/263$ ,  $P > .05$ ) and interaction effect ( $F = 8.94$ ,  $df = 2/263$ ,  $P > .05$ ) were not different. Those mean that there were not significant differences in Chinese Language Arts among the students with working and nonworking mothers. There was a significant difference between boys and girls in Chinese Language Arts. And there was not a significant difference in Chinese Language Arts among the three maternal employment groups.

Table 9

Summary Table of Analysis Of Covariance Of  
Chinese Language Arts Of The Second Semester Of Second Year

Sources	SS	df	MS	F	P
Maternal Employment Group (A)	2.65	2	1.32	1.63	>.05
Sex (B)	12.77	1	12.77	15.76	<.01
Interaction (AxB)	1.53	2	0.76	0.94	>.05
Within	214.40	263	0.81		
F.99 (1,263) = 6.72		F.95 (2,263) = 3.03			

F. The Whole Second Year

Table 10 tells the analysis of covariance of the scores of Chinese Language Arts of the children with maternal employment status. The sex effect ( $F = 16.88$ ,  $df = 1/263$ ,  $P < .01$ ) was significant. The group effect ( $F = 1.68$ ,  $df = 2/263$ ,  $P > .05$ ) and interaction effect ( $F = 1.37$ ,  $df = 2/263$ ,  $P > .05$ ) were not significant. There were no significant differences in Chinese Language Arts among the children with work and nonworking mothers. There is significant difference between boys and girls in Chinese Language Arts. And there was not a different in Chinese Language Arts among the three maternal employment groups.

Table 10

Summary Table Of Analysis Of Covariance Of  
Chinese Language Arts Of The Whole Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	2.36	2	1.18	1.68	>.05
Sex (B)	11.82	1	11.81	16.88	<.01
Interaction (AxR)	1.93	2	0.96	1.37	>.05
Within	184.39	263	0.70		
F.99 (1,263) = 6.72		F.95 (1,263) = 3.87		F.95 (2,263) = 3.03	

G. The Whole Two Years

Table 11 shows the analysis of covariance of the scores of Chinese Language Arts of the members of maternal employment groups. The sex effect ( $F = 15.48$ ,  $df = 1/263$ ,  $P < .01$ ) was significant. The group effect ( $F = 1.92$ ,  $df = 2/263$ ,  $P > .05$ ) and interaction effect ( $F = 2.19$ ,  $df = 2/263$ ,  $P > .05$ ) were not significant difference. From the analysis of data it is recognizable that although there were differences in Chinese Language Arts among the children with work and nonworking mothers, these differences were not statistically significant. There is significant difference between boys and girls in Chinese Language Arts, although boys and girls did not differ in Chinese Language Arts among the three maternal employment groups.

Table 11

Summary Table Of Analysis Of Covariance Of  
Chinese Language Arts Of The Whole Two Years

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	3.38	2	1.19	1.92	>.05
Sex (B)	9.60	1	9.60	15.48	<.01
Interaction (AxB)	2.72	2	1.36	2.19	>.05
Within	164.27	263	0.62		
F.99 (1,263) = 6.72		F.95 (1,263) = 3.87		F.95 (2,263) = 3.03	

(2) The Relationship Between Maternal Employment And The Grade  
Point Of Arithmetic

A. The First Semester Of First Year

Table 12 presents the analysis of covariance of the achievement of Arithmetic of the children of maternal employment groups. Three effects were not significant: Groups ( $F = 0.29$ ,  $df = 2/263$ ,  $P > .05$ ), Sex ( $F = 1.08$ ,  $df = 1/263$ ,  $P > .05$ ), and Interaction ( $F = 0.53$ ,  $df = 2/263$ ,  $P > .05$ ). From the analysis of data it is evident that there were no significant differences in Arithmetic among the children of maternal employment groups and between the boys and girls. Also boys and girls did not differ in Arithmetic among the three maternal employment groups.

Table 12

Summary Table of Analysis Of Covariance Of  
Arithmetics Of The First Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.41	2	0.21	0.29	>.05
Sex (B)	0.78	1	0.78	1.08	>.05
Interaction (AxB)	0.76	2	0.38	0.53	>.05
Within	190.48	263	0.72		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

P. The Second Semester Of First Year

The Table 13 shows the analysis of covariance of the score of Arithmetic of the children in the three groups. The F-value for groups (F = 2.05, df = 2/263, P >.05), for sex (F = 0.63, df = 1/263, P >.05) and for interaction (F = 3.01, df = 2/263, P >.05) were not significant. From the analysis of data it is perceivable that there were no significant differences in Arithmetics among the children of maternal employment groups and between the boys and girls. And boys and girls did not differ in Arithmetic among the three maternal employment groups.

Table 13

Summary Table of Analysis Of Covariance Of  
Arithmetic Of The Second Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.97	2	0.49	2.05	>.05
Sex (B)	1.60	1	1.60	0.63	>.05
Interaction (AxB)	4.70	2	2.35	3.01	>.05
Within	203.95	263	0.78		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

C. The Whole First Year

Table 14 shows the analysis of covariance of the scores of Arithmetic of the children in the three groups. The F-values for groups (F = 0.44, df = 2/263, P >.05), for sex (F = 1.73, df = 1/263, P. >.05), for interaction (F = 2.05, df = 2/263, P >.05) were not significant. From the analysis of data it is clear that there were no significant differences in Arithmetic among the children of maternal employment groups and between the boys and girls, also boys and girls did not differ in Arithmetic among the three maternal employment groups.

Table 14

Summary Table Of Analysis Of Covariance Of  
Arithmetic Of The Whole First Year

Sources	ss	df	MS	F	P
Maternal Employment Groups (A)	0.56	2	0.28	0.44	>.05
Sex (B)	1.11	1	1.11	1.73	>.05
Interaction (AxB)	2.61	2	1.31	2.05	>.05
Within	168.33	263	0.64		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

D. The First Semester Of Second Year

Table 15 indicates the analysis of covariance of the score of Arithmetic of the students in the three groups. The groups effect (F = 0.92, df = 2/263, P > .05) and interaction effect (F = 1.65, df = 2/263, P > .05) were not significant. But the sex effect (F = 5.35, df = 1/263, P < .05) was significant at the .05 level. From the analysis of data it is manifest that there were no significant differences in Arithmetic among the children of maternal employment groups. There is significant difference in Arithmetic between boys and girls. Also, boys and girls did not differ in Arithmetic among the three maternal employment groups.

Table 15

Summary Table Of Analysis Of Covariance Of  
Arithmetic Of The First Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.15	2	0.58	0.92	>.05
Sex (B)	3.39	1	3.37	5.35	<.05
Interaction (AxB)	2.08	2	1.04	1.65	>.05
Within	166.12	263	0.63		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

E. The Second Semester Of Second Year

Table 16 notes the analysis of covariance of the score of Arithmetic of the pupils in the three groups. The F-values for groups (F = 1.26, df = 2/263, P >.05), for interaction (F = 1.05, df = 2/263, P >.05) were not significant. The F-value for sex (F = 7.49, df = 1/263, P <.01) was, however, significant. From the analysis of data it is obvious that there were no significant differences in Arithmetic among the child of maternal employment groups. There is significant difference between boys and girls in Arithmetic, and boys and girls did not differ in Arithmetic among the three maternal employment groups.



Table 16

Summary Table Of Analysis Of Covariance Of  
Arithmetic Of The Second Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.92	2	0.96	1.26	> .05
Sex (B)	5.69	1	5.69	7.69	< .01
Interaction (AxB)	1.60	2	0.80	1.05	> .05
Within	199.10	263	0.76		
<hr/>					
F.99 (1,263) = 6.72	F.95 (1,263) = 3.87		F.95 (2,263) = 3.03		

F. The Whole Second Year

Table 17 points the analysis of covariance of the score of Arithmetic of the children in the three groups. The F-values for groups ( $F = 0.79$ ,  $df = 2/263$ ,  $P > .05$ ) and for interaction ( $F = 1.60$ ,  $df = 2/263$ ,  $P > .05$ ) were not significant. The F-value for sex ( $F = 10.87$ ,  $df = 1/263$ ,  $P < .01$ ) was, however, significant. From the analysis of data it is apparent that there were no significant differences in Arithmetic among the children of maternal employment groups. There is significant difference between boys and girls in Arithmetic. Also, boys and girls did not differ in Arithmetic among the three groups.

Table 17

Summary Table Of Analysis Of Covariance Of  
Arithmetic Of The Whole Second Year

Sources	SS	df	MS	F	P
Maternal Employment Group (A)	0.84	2	0.42	0.79	> .05
Sex (B)	5.76	1	5.76	10.87	< .01
Interaction (AxB)	1.67	2	0.74	1.40	> .05
Within	139.55	263	0.53		
<hr/> F.99 (1,263) = 6.72      F.95 (1,263) = 3.87      F.95 (2,263) = 3.03					

G. The Whole Two Years

Table 18 indicates the analysis of covariance of the scores of Arithmetic of the students in the three groups. One significant effect was obtained. That is sex effect ( $F = 6.77$ ,  $df = 1/263$ ,  $P < .01$ ). The other two effects, groups effect ( $F = 0.42$ ,  $df = 2/263$ ,  $P > .05$ ) and interaction effect ( $F = 1.81$ ,  $df = 2/263$ ,  $P > .05$ ), were not significant. From the analysis of data it is visible that there were no significant differences in Arithmetic among the children of maternal employment. There is significant difference between boys and girls in Arithmetic. Boys and girls did not differ in Arithmetic among the three maternal employment groups.

Table 18

Summary Table Of Analysis Of Covariance Of  
Arithmetics Of The Whole Two Years

Sources	SS	df	MS	F	P
Maternal Employment Group (A)	0.39	2	0.20	0.42	>.05
Sex (B)	3.25	1	3.25	6.77	<.01
Interaction (AxB)	1.74	2	0.87	1.81	>.05
Within	125.07	263			

(3) The Relationship Between Maternal Employment And The Grade  
Point Of Social Studies

A. The First Semester Of First Year

Table 19 shows the analysis of covariance of the achievement of Social Studies of the children of maternal employment groups. Three F-values were not significant: Groups ( $F = 1.42$ ,  $df = 2/263$ ,  $P > .05$ ), Sex ( $F = 2.19$ ,  $df = 1/263$ ,  $P > .05$ ) and Interaction ( $F = 1.14$ ,  $df = 2/263$ ,  $P > .05$ ). From the analysis of data it is clear that there were no significant differences in Social Studies among the children of maternal employment groups and between the boys and girls. Boys and girls did not differ in Social Studies among the three maternal employment groups.

Table 19

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The First Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	2.11	2	1.06	1.42	>.05
Sex (B)	1.62	1	1.62	2.19	>.05
Interaction (AxB)	1.68	2	0.84	1.14	>.05
Within	195.76	263	0.74		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

B. The Second Semester Of First Year

Table 20 explicates the analysis of covariance of the achievement of Social Studies of the members of maternal employment groups. Three effects were not significant. Groups ( $F = 0.46$ ,  $df = 2/263$ ,  $P >.05$ ), Sex ( $F = 2.86$ ,  $df = 1/263$ ,  $P >.05$ ) and Interaction ( $F = 0.33$ ,  $df = 2/263$ ,  $P >.05$ ). From the analysis of data it is obvious that there were no significant differences in Social Studies among the children of maternal employment groups and between the boys and girls. Boys and girls did not differ in Social Studies among the three maternal employment groups.

Table 20

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The Second Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.54	2	0.27	0.46	>.05
Sex (B)	1.66	1	1.66	2.86	>.05
Interaction (AxB)	0.37	2	0.19	0.33	>.05
Within	152.95	263	0.58		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

C. The Whole First Year

Table 21 presents the analysis of covariance of the achievement of Social Studies of the children of maternal employment groups. The F-values for groups ( $F = 0.06$ ,  $df = 2/263$ ,  $P > .05$ ), for sex ( $F = 2.74$ ,  $df = 1/263$ ,  $P > .05$ ) and for interaction ( $F = 0.62$ ,  $df = 2/263$ ,  $P > .05$ ) were not significant. From the analysis of data it is apparent that there were no significant differences in Social Studies among the children of maternal employment groups. There is no significant difference between boys and girls in Social Studies. Boys and girls did not differ in Social Studies among the three groups.

Table 21

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The Whole First Year

Sources	SS	df	MS	F	P
Maternal Employment Group (A)	0.05	2	0.03	0.06	>.05
Sex (B)	1.29	1	1.29	2.74	>.05
Interaction (AxB)	0.58	2	0.29	0.62	>.05
Within	123.27	263	0.47		

D. The First Semester Of Second Year

Table 22 exhibits the analysis of covariance of the score of Social Studies of the children in the three groups. Three effects were not significant: Groups ( $F = 0.52$ ,  $df$ ,  $2/263$ ,  $P >.05$ ), Sex ( $F = 0.02$ ,  $df = 1/263$ ,  $P >.05$ ) and Interaction ( $F = 1.37$ ,  $df = 2/263$ ,  $P >.05$ ). From the analysis of data it is observable that there were no significant differences in Social Studies among the members in the three groups and between the boys and girls. Boys and girls did not differ in Social Studies among the three maternal employment groups.

Table 22

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The First Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.02	2	0.01	0.52	>.05
Sex (B)	0.32	1	0.32	0.02	>.05
Interaction (AxB)	1.70	2	0.85	1.37	>.05
Within	163.87	263	0.62		

E. The Second Semester Of Second Year

Table 23 presents the analysis of covariance of the score of Social Studies of the children in the three groups. The F-values for groups ( $F = 1.42$ ,  $df = 2/263$ ,  $P >.05$ ) and for interaction ( $F = 1.63$ ,  $df = 2/263$ ,  $P >.05$ ) were not significant. But the F-value for sex ( $F = 4.88$ ,  $df = 1/263$ ,  $P <.05$ ) was, however, significant. From the analysis of data it is apparent that there were no significant differences in Social Studies among the children of maternal employment groups. There is significant difference between boys and girls in Social Studies. Boys and girls did not differ in Social Studies among the three groups.

Table 23

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The Second Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.67	2	0.84	1.42	>.05
Sex (B)	2.88	1	2.88	4.88	<.05
Interaction (AxB)	1.91	2	0.96	1.63	>.05
Within	154.55	263	0.59		
F.95 (1,263) = 3.87		F.95 (2,263) = 3.03			

F. The Whole Second Year

Table 24 shows the analysis of covariance of the score of Social Studies of the students in the three groups. Three F-values: Groups (F = 0.52, df = 2/263, P >.05), Sex (F = 2.67, df = 1/263, P >.05) and Interactions (F = 1.56, df = 2/263, P <.05) were not significant. From the analysis of data it is clear that there were no significant differences in Social Studies among the children of maternal employment groups. There is significant difference between boys and girls in Social Studies. Boys and girls did not differ in Social Studies among the three groups.



Table 24

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The Two Semesters Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.50	2	0.25	0.52	>.05
Sex (B)	1.28	1	1.28	2.67	>.05
Interaction (AxB)	1.50	2	0.75	1.56	>.05
Within	125.38	263	0.68		

G. The Whole Two Years

Table 25 informs us of the analysis of covariance of the score of Social Studies of the children in the three groups. The F-values for groups ( $F = 0.34$ ,  $df = 2/263$ ,  $P >.05$ ), for sex ( $F = 3.49$ ,  $df = 1/263$ ,  $P >.05$ ) and for interaction ( $F = 1.46$ ,  $df = 2/263$ ,  $P >.05$ ) were not significant. From the analysis of data it is recognizable that there were no significant differences in Social Studies among the children of maternal employment groups. There is no significant difference between boys and girls in Social Studies. Boys and girls did not differ in Social Studies among the three groups.

Table 25

Summary Table Of Analysis Of Covariance Of  
Social Studies Of The Four Semesters Of Two Years

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.28	2	0.14	0.34	>.05
Sex (B)	1.43	1	1.43	3.49	>.05
Interaction (AxB)	1.19	2	0.60	1.46	>.05
Within	108.86	263	0.41		

(4) The Relationship Between Maternal Employment And The Grade  
Point Average

For understanding the relationship between maternal employment and the grade point average of 3 courses - Chinese Language Arts, Arithmetic and Social Studies, 7 periods of time were analyzed as noted for the three course previously.

A. The First Semester Of First Year

Table 26 presents the analysis of covariance of the Grade Point Average of the children of maternal employment groups. Three F-values were not significant: Group ( $F = 0.94$ ,  $df = 2/263$ ,  $P > .05$ ), Sex ( $F = 2.05$ ,  $df = 1/263$ ,  $P > .05$ ) and Interaction ( $F = 0.78$ ,  $df = 2/263$ ,  $P > .05$ ). From the analysis of data it is perceivable that there were no significant differences in grade point averages among the children of maternal employment groups and between the boys and girls. Boys and girls did not differ in Grade Point Average among the three maternal employment groups.

Table 26

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The First Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.03	2	0.52	0.94	>.05
Sex (B)	1.13	1	1.13	2.05	>.05
Interaction (AxB)	0.86	2	0.63	0.78	>.05
Within	144.57	263			
$F_{.95}(1,263) = 3.87$ $F_{.95}(2,263) = 3.03$ $F_{.99}(1,263) = 6.72$					

B. The Second Semester Of First Year

Table 27 shows the analysis of covariance of the achievement of Grade Point Average of the members of maternal employment groups. The F-value for groups ( $F = 0.71$ ,  $df = 2/263$ ,  $P >.05$ ) and interactions ( $F = 1.45$ ,  $df = 2/263$ ,  $P >.05$ ) were not significant. But the F-value for sex ( $F = 6.37$ ,  $df = 1/263$ ,  $P >.05$ ) was significant. That means there were no significant differences in Grade Point Average among the children of maternal employment groups. There is significant difference between boys and girls in Grade Point Average. Boys and Girls did not differ in Grade Point Average among the three groups.

Table 27

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The Second Semester Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.72	2	0.36	0.71	>.05
Sex (B)	3.25	1	3.25	6.37	<.05
Interaction (AxB)	1.67	2	1.67	1.45	>.05
Within	133.79	263	0.51		

C. The Whole First Year

Table 28 notes the analysis of covariance of the achievement of Grade Point Average of the children of maternal employment groups. The F-value for groups ( $F = 0.52$ ,  $df = 2/263$ ,  $P >.05$ ) and interaction ( $F = 1.29$ ,  $df = 2/263$ ,  $P >.05$ ) were not significant. But the F-value for sex ( $F = 5.40$ ,  $df = 1/263$ ,  $P <.05$ ) was significant. From the analysis of data it is apparent that there were no significant differences in Grade Point Average among the children of maternal employment groups. There is a significant difference between boys and girls in Grade Point Average. Boys and girls did not differ in Grade Point Average among the three groups.

Table 28

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The Two Semesters Of First Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.50	2	0.25	0.52	>.05
Sex (B)	2.59	1	2.59	5.40	<.05
Interaction (AxB)	1.25	2	0.62	1.29	>.05
Within	127.23	263	0.48		

D. The First Semester Of Second Year

Table 29 indicates the analysis of covariance of the scores of Grade Point Average of children in the three groups. The F-values for groups ( $F = 0.12$ ,  $df = 2/263$ ,  $P > .05$ ), for sex ( $F = 2.82$ ,  $df = 1/263$ ,  $P > .05$ ) were not significant. From the analysis of data it is apparent that there were no significant differences in Grade Point Averages among the children of maternal employment groups. There is significant differences between boys and girls in Grade Point Average. Boys and girls did not differ in Grade Point Average among the three groups.

Table 29

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The First Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.13	2	0.06	0.12	>.05
Sex (B)	1.41	1	1.41	2.82	>.05
Interaction (AxB)	1.73	2	0.86	1.72	>.05
Within	130.44	263	0.50		
F.99 (1,263) = 6.72			F.95 (1,263) = 3.87		F.95 (2,263) = 3.03

E. The Second Semester Of Second Year

Table 30 shows the analysis of covariance of the Grade Point Average of the children in the three groups. The F-value for groups (F = 1.57, df = 2/263, P >.05) and for interaction (F = 1.42, df = 2/263, P >.05) were not significant. The F-value for sex (F = 13.59, df = 1/263, P >.05) was, however, significant. From the analysis of data it is clear that there were no significant differences in Grade Point Average among the children of maternal employment groups. There is significant difference between boys and girls in Grade Point Average. Boys and girls did not differ in Grade Point Average among the three groups.

Table 30

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The Second Semester Of Second Year

Sources	ss	df	MS	F	P
Maternal Employment Group (A)	1.70	2	0.85	1.57	>.05
Sex (B)	7.34	1	7.34	13.59	<.01
Interaction (AxB)	1.54	2	0.77	1.42	>.05
Within	141.34	263			

F. The Whole Second Year

Table 32 shows the analysis of covariance of the scores of Grade Point Average of the members in the maternal employment groups. The F-values for groups ( $F = 0.74$ ,  $df = 2/263$ ,  $P >.05$ ) and for interaction ( $F = 1.76$ ,  $df = 2/263$ ,  $P >.05$ ) were not significant, but the F-value for sex ( $F = 10.76$ ,  $df = 1/263$ ,  $P <.01$ ) was, however significant. From the analysis of data it is apparent that there were no significant differences in Grade Point Average among the children of maternal employment groups. There is significant different between boys and girls in Grade Point Average. Boys and girls did not differ in Grade Point Average among the three groups.

Table 31

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The Two Semesters Of Second Year

sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.68	2	0.34	0.74	>.05
Sex (B)	4.95	1	4.95	10.76	<.01
Interaction (AxB)	1.63	2	0.82	1.76	>.05
Within	122.31	263	0.46		

G. The Whole Two Years

Table 32 presents the analysis of covariance of the scores of Grade Point Average of the children in the maternal employment groups. The F-values for groups ( $F = 0.80$ ,  $df = 2/263$ ,  $P >.05$ ) and for interactions ( $F = 2.00$ ,  $df = 2/263$ ,  $P >.05$ ) were not significant, but the F-value for sex ( $F = 8.76$ ,  $df = 1/263$ ,  $P <.01$ ) was, however, significant. From the analysis of data it is clear that there were no significant differences in Grade Point Average among the children of maternal employment groups. There is significant difference between boys and girls in Grade Point Average. Boys and girls did not differ in Grade Point among the three groups.



Table 32

Summary Table Of Analysis Of Covariance Of  
Grade Point Average Of The Two Semester Of Two Years

sources	ss	df	MS	F	P
Maternal Employment Group (A)	0.72	2	0.36	0.80	>.05
Sex (B)	3.94	1	3.94	8.76	<.01
Interaction (AxB)	1.79	2	0.90	2.00	>.05
Within	118.32	263	0.45		
F.99 (1,263) = 6.72		F.95 (1,263) = 3.87		F.95 (2,263) = 3.03	

Discussion

From the previous statements we found that there was no significant difference in any course, total Grade Point Average and any time period among children from homes where the mother works full-time, part-time or not at all. Although the results are different from Jones et al (1967), Farley (1968), Panducci (1967), Rurchinal and Rossman (1961), Brown (1970) and Gold and Adres (1978), but like, however, Hitchcock (1959, Nelson (1969), Keidel (1970) and Schreiner's (1963) etc. Hypothesis 1, 2, 3 and 4 were rejected.

It becomes apparent from this study, Query and Kuruvilla and Gold and Adres that where as the educational and occupational level of the mother may have some positive bearing upon her children's school achievement.

Boys and girls did not differ in any course, total Grade Point Average and any time period among the maternal employment

groups. It is similar to Nelson. Hypothesis 5, 6, 7, and 8 were accepted.

In Gold and Andres, one more variable (social class of family) was added and the interaction among maternal employment status, social class of family and sex of child was significant. So when we study the relationship between maternal employment and school achievement, the educational and occupational level of mothers (related to social class) should be thought about. Some other factors might also be considered, for example as the level of satisfaction of working mother about her job, mother's attitude toward her work or nonwork, the children caring, and the attitude of children toward maternal employment etc.

The study of sex difference was not contained in the purpose of the present study, but some sex differences were found. The sex difference of Chinese Language Arts was found from the second semester of first grade and keeping on, girls were higher than boys, as Gold and Andres found, the Arithmetic was different from the first semester of second grade, and keeping on, with the girls higher, different from Gold and Andres; the Social Studies was different from the second semester of second grade, with the girls higher; the grade point average difference was found the second semester of first grade and continued on, except for the first semester of second grade.

## CHAPTER IV

### CONCLUSIONS AND RECOMMENDATIONS

The main purpose of this study was to determine if children with working mothers do in fact differ from children with non working mothers in school achievement. Through reviewing related literature, data collecting, mother employment status survey, testing and statistical analysis steps, some conclusions were deduced as reference for the educator, psychologist, sociologist, teacher of elementary school and parents on parts. This chapter will synthesize the analysis discussed above, and then will suggest some recommendations.

#### Conclusions

1. Maternal Employment And Intelligence. There is no difference in intelligence among children from homes where the mothers works full-time, part-time or not at all.
2. Maternal Employment And School Achievement. There is no difference in school achievement among children from homes where the mothers works full-time, part-time, or not at all i.e. hypothesis 1,2,3, and 4 were rejected. The reason why might be that early elementary children were too young to qualify to have achievement effected by the maternal employment status.
3. Sex Differences Of School Achievement Were Concluded As Follows: (a) There is no significant sex difference in first

semester of first year. (b) In second semester of the first year, girls' grade point was higher than boys' for Chinese Language Arts and grade point average of 3 courses, but there was no difference on Arithmetic and Social Studies. (c) In the whole first year, girls' grade point was higher than boys' on Chinese Language Arts and grade point average, but Arithmetic and Social Studies are not significant. (d) In the first semester of second year, girls' grade point was higher than boys' on Chinese Language Arts and Arithmetic, but Social Studies and grade point average were not. (e) In the second semester of second year, there were significant differences between boys and girls on all 3 courses and grade point average. Girls were higher. (f) In the whole second year there were significant differences between boys and girls except for Social Studies, with girls being higher. (g) In the whole two years, girls were higher than boys on all 3 courses and grade point average.

There was no significant interaction among boys and girls i.e. boys and girls did not differ in school achievement among the maternal employment groups at any period or for any courses in the first two years of elementary school. Hypothesis 5,6,7, and 8 were accepted.

#### Recommendations

1. One of findings of this investigation was that there is no difference in school achievement among maternal employment groups. The wise woman surely does not use all other ability outside of home, but she still faithfully carries out her duties in the home as well.

2. There are sex differences in school achievement of early elementary school children. The teacher should pay attention to the sex differences in his/her instruction.

3. The subjects of the present study were first two grade students of elementary school. If we want to understand the entire situation, we should continue studying what happens with the older students of elementary schools, high school students and college students.

4. This study only gives heed to the maternal employment status, and did not notice to the kind of profession, the official position, the children caring, the level of satisfaction of working mother, and the attitude of children toward maternal employment etc. Those factors should be noticed in the further studies.

5. There were some studies found where boys were higher than girls on mathematics and social studies, but the results of this study were opposite. The reason why has not been answered by the author. Is there a racial difference or not? That needs to be studied.

## BIBLIOGRAPHY

- Anastasi, A. Psychological Testing, 4th Ed. New York: Macmillan, 1976.
- Armstrong, R.F. Working Mothers and Teenage Children in an Iowa Community (Doctoral Dissertation, University of Iowa) Ann Arbor, Michigan: University Microfilm, 1967. No. 67-2578).
- Banducci, R., "The Effects of Mother's Employments on the Achievement Aspirations and Expectation of the Child," Personnal and Guidance Journal, 1967, 46, 263-267.
- Bear, S.E. The Day Nursery. New York: Dutton, 1938.
- Brown, S.W. A Comparative Study of Maternal Employment And Non-Employment (Doctoral Dissertation, Mississippi State University) Ann Arbor, Michigan: University Microfilm, 1972, No. 70-8610).
- Burchinal, I.G. and Rossman, J., "Personality Characteristics of Children," The Journal of Marriage and Family Living, 1961, 23, 334-340.
- Bureau of Labor Statistics, U.S. Department of Labor, Monthly Labor Review, 1977, Vol. 100, 1979, Vol. 102.
- Cheng, F.M. A Introduction of Raven's Colored Progressive Matrices Testing and Guidance, 1976.
- Cook, A.H. The Working Mother. New York State School of Industrial and Labor Relations, Cornell University, 1978.
- Curtis, J. Working Mothers. New York: Doubleday and Company, 1976.
- Cyrus, D. "Problems of the Modern Homemaker-Mother," In J. T. Landis and M. G. Landis (Eds.) Readings in Marriage and the Family. Englewood Cliffs, New Jersey: Prentice-Hall, 1952.
- Dits, A. and Cambier, A. L'absence de la m'ere tors du retour de l'enfant de l'ecole., 1966, 99-111. See Etaugh Claire, "Effects of Maternal Employment on Children: A Review of Recent Research," Merrill-Palmer Quarterly: Behavior and Development, 1974, 20, 71-79.

- Etaugh, C., "Effects of Maternal Employment on Children: A Review of Recent Research," Merrill-Palmer Quarterly: Behavior and Development, 1974, 20, 71-89.
- Farley, J., "Maternal Employment and Child Behavior," Cornell Journal of Social Relations, 1968, 3, 58-71.
- Frankel, E., "Characteristics of Working and Nonworking Mothers Among Intellectually Gifted High and Low Achievers," Personnel and Guidance Journal, 1964, 42, 776-780.
- George, E. I. and Thomas, M., "A Comparative Study of Children of Employed Mothers and Unemployed Mothers," Psychological Studies, 1967, 12, 31-38.
- Gold, D. and Andres, D., "Developmental Comparisons Between Ten-Year-Old Children With Employed and Nonemployed Mothers," Child Development, 1978, 69, 75-84.
- Hitchcock, A. E. Relation of Maternal Employment to School Behavior and Achievement of Intermediate Boys. Unpublished Manuscript, 1959. See Stolz, L. M., "Effects of Maternal Employment on Children: Evidence From Research," Child Development, 1960, 31, 749-782.
- Hoffman, L.W., "Effects of Maternal Employment on the Child," Child Development, 1961, 32, 187-197.
- Hoffman, L. W., "Effects on Children: Summary and Discussion," In Nye, F. I. and Hoffman, L. W. (Eds.) The Employed Mothers in America. Chicago: Rand McNally, 1963(a).
- Hoffman, L. W., "Mother's Enjoyment of Work and Effects of the Child," In F. I. Nye and L. W. Hoffman (Eds.) The Employed Mother in America. Chicago: Rand McNally, 1963(b).
- Hoffman, L. W., "Early Childhood Experience and Women's Achievement Motives," Journal of Social Issues, 1972, 28, 129-155.
- Hoffman, L. W., "Effect of Maternal Employment on the Child: A Review of the Research," Development Psychology, 1974, 8, 204-228.
- Hoffman, L. W. and Nye, F. I. Working Mothers: An Evaluative Review of the Consequences for Wife, Husband, and Child. San Francisco: Jossey-Bass, 1974.
- Hsieh, C. H. A Follow-up Study of the Gifted Children's Response in C.P.M. Report of the Project of Gifted Children's Educational Experiment in Southern Taiwan, 1975.

- Jones, J. B.; Lundsteen, S. W.; and Michael, W. E., "The Relationship of the Professional Employment Status of Mothers to Reading Achievement of Sixth-grade Children, California Journal of Educational Research, 1967, 43, 102-108.
- Keidel, K. C., "Maternal Employment and Ninth Grade Achievement in Bismark, North Dakota," Family Coordination, 1970, 19, 95-97.
- Kerlinger, F. N. Foundations of Behavior Research, 2nd ed. New York: Holt, Rinehart, and Winston, 1973.
- Kirk, R. E. Experimental Design: Procedures for the Behavioral Sciences. Belmont, California: Brook/Cole, 1968.
- Maccoby, E. E., "Sex Differences in Intellectual Functioning," In E. E. Maccoby (Ed.) The Development of Sex Differences. Stanford, California: Stanford University Press, 1966.
- Nelson, D. D., "A Study of School Achievement Among Adolescent Children With Working and Nonworking Mothers," Journal of Educational Research, 1969, 10, 456-458.
- Nolan, F. L. and Tuttle, D. H., "Certain Practices, Satisfactions, and Difficulties in Families With Employed Homemakers," Bulletin 655, Pennsylvania Agricultural Experiment Station 1959.
- Nye, F. I., "Employment Status of Mothers and Adjustment of Adolescent Children," Marriage and Family Living, 1959, 21, 240-244.
- O'hera, "The Status of Recent Chinese Women," Periodical of Department of Social Education, June 1973, 11-14.
- Query, J. M. N. and Kuruvilla, "Male and Female Adolescent Achievement and Maternal Employment, Adolescence, 1978, 10, 353-355.
- Rees, A.N. and Palmer, F. H., "Factors Related to Change in Mental Test Performance," Developmental Psychology Monograph, 1970, 3 (2, Pt. 2).
- Rieber, M. and Womack M., "The Intelligence of Preschool Children as Related to Ethnic and Demographic Variables," Exceptional Children, 1968, 34, 609-614.
- Schreiner, M., "Auswirkungen Mutterlicher Erwerbstätigkeit auf die Entwicklung von Grundschulkindern," Archiv für die Gesamte Psychologie, 1963, 115, 334-382. See Etaugh, Claire, "Effects of Maternal Employment on Children: A Review of Recent Research," Merrill-Palmer Quarterly: Behavior and Development, 1974, 20, 71-98.
- Stolze, L. M., "Effects of Maternal Employment on Children: Evidence From Research," Child Development, 1960, 31, 749-782.



Sun, P. D. and Chen, C. C. Testing Report of Revised Kelvin Measurement of Ability in Infant Classes. Taipei Girl's Junior Teachers College, 1972.

Williamson, S. Z., "The Effects of Maternal Employment on the Scholastic Performance of Children," Journal of Home Economics, 1970, 62, 609-612.

Woods, M. B., "The Unsupervised Child of the Working Mother," Development Psychology, 1972, 6, 14-25.