A COMPARATIVE STUDY OF SELECTED BACKGROUND FACTORS RELATED TO ACHIEVEMENT OF MENTALLY ABLE FIFTH AND SIXTH GRADE CHILDREN

Thesis for the Degree of Ed. D.

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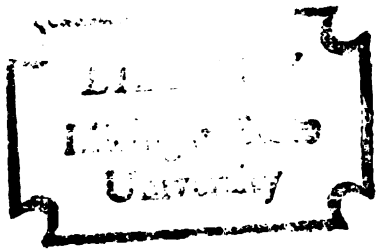

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A COMPARATIVE STUDY OF SELECTED BACKGROUND FACTORS RELATED TO ACHIEVEMENT OF MENTALLY ABLE FIFTH AND SIXTH GRADE PUPILS

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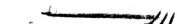

ABSTRACT

A COMPARATIVE STUDY OF SELECTED BACKGROUND FACTORS RELATED TO ACHIEVEMENT OF MENTALLY ABLE FIFTH AND SIXTH GRADE STUDENTS

by Frederic E. Keller

The purpose of this study was to discover if there were differences in selected background factors between mentally able children, in a relatively homogeneous community, who achieved above grade level expectancy and mentally able children who achieved below grade level expectancy as measured by standardized achievement and mental maturity tests. Specifically, this research investigated the following background factors: (1) economic level of the family, (2) parents' occupational and job statility, (3) parents' educational level, (4) parents' vocational aspirations for their children, (5) certain enrichment factors in the home, (6) child's home responsibilities, (7) stability of the home, and (8) an evaluation of mentally able fifth and sixth grade children who had achieved two or more years above grade level expectancy and those who had achieved two or more years below grade level expectancy that was made by themselves, their parents, and their teachers.

The cumulative records of 2,787 fifth and sixth grade children in thirteen elementary schools were examined to determine those students with intelligent quotient scores of 120 or higher. These subjects were classified and referred to as mentally able in this study. It was found that 538 pupils met this requirement.

Scores from group standardized tests were converted to achievement grade levels. These were compared with mental age grade levels of subjects who had met the criterion of mental ability. Those pupils who had achieved academically two or more years above their mental age grade level expectancy and those who had achieved two or more years below their mental age grade expectancy were selected as subjects for this study. The former group were referred to as the Plus group and consisted of forty-nine subjects, twenty-five boys and twenty-four girls. The latter group were referred to as the Minus group and totalled thirty-seven subjects, twenty-three boys and fourteen girls. In the Plus group the intelligent quotients ranged from 120 to 157 with a mean of 128.6. The intelligent quotient range in the Minus group was from 120 to 152 with a mean of 124.7.

After the final selection of subjects for inclusion in the study, further data were obtained through checklists, questionnaires, and interviews. The teachers of

the subjects were asked to rate their pupils on the Teachers' Evaluation of Pupil Checklist and they were also asked to administer the Pupils' Self-Evaluation Checklist. Parents were interviewed to obtain data for the Parent Questionnaire, and in addition, they were asked to rate their children on the Parents' Evaluation of Pupil Checklist.

The results of the checklists of the pupils and teachers, together with the information from parental interviews, questionnaires, and checklists concerning the eighty-six mentally able children, furnished the data necessary for the completion of this study.

The findings indicated that in the pupil self-evaluation, the difference between the two groups under comparison was not statistically significant, thereby not supporting the hypothesis. A statistically significant difference did exist, however, between these two groups as indicated by both the teacher evaluation and the parent evaluation, thereby giving support to this hypothesis.

Relevant to the educational level and vocational aspirations of the parents of the two groups, the results revealed a statistically significant difference existed concerning their educational level and the achievement level of their children, but not a statistically significant difference relevant to their

vocational aspirations and the achievement level of their children, thereby not supporting the null hypothesis which stated no statistical significant difference would exist concerning these two relationships.

The difference in achievement between children from one parent homes (or a one parent substitute), and those from two parent homes (or two parent substitutes), was not statistically significant thereby not supporting the hypothesis which stated that the difference would be statistically significant.

In the investigation of certain enrichment factors in the homes of the Plus and Minus group subjects the results showed that the difference was statistically significant thereby supporting the hypothesis.

In this study, statistical measurements were made by the application of chi-square tests and tables at the 1 per cent level of confidence.

Certain conclusions seemed warranted based on the findings which were as follows: (1) mentally able children who had a higher conception of themselves were more likely to achieve above expectancy than below expectancy although it was undetermined whether the higher self-concept resulted in higher achievement or whether the better achievement was a factor in a better self-concept, (2) although the Plus group subjects as compared with the Minus group subjects revealed a difference in self-concept that was

not statistically significant, both their teachers and parents, in their respective evaluations, did indicate a difference that was significant. It was recognized under Limitations of the Study that a child's self-evaluation may vary from the evaluations made of him by the parents and teachers because of differential interpretations of the Evaluation Checklist questions, (3) the educational level of parents of mentally able children is far more likely to be a determinant of the achievement level of their children than the factor of vocational aspirations of the parents at this social class level, (4) the difference in achievement of mentally able fifth and sixth grade children in a relatively homogeneous socio-economic environment is about the same with respect to whether they are products of one or two parent homes, and (5) certain enrichment factors in the homes of mentally able children, such as encyclopedias, number of books present, magazines to which subscribed, hobbies, collections, private lessons taken, and membership in formally organized children's activities, contributed to differences in the achievement level of such children.

A COMPARATIVE STUDY OF SELECTED BACKGROUND FACTORS RELATED TO ACHIEVEMENT OF MENTALLY ABLE FIFTH AND SIXTH GRADE CHILDREN

By

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CHAPTER I

INTRODUCTION

During the past several decades educators and behavioral scientists have investigated variations in learning of the individual in his home and school milieu with primary emphasis on psychological and physiological concepts. Brookover found that

> . . . this research has focused on such areas as intelligence, aspiration level, aptitudes, sensory impairment, and similar variables. Of growing importance in recent years is the attention being given to the processes of interaction between the learner and his social environment. This sociology of learning approach reflects an emerging concern for collecting of information on the social context within which the student learns rather than on the characteristics or traits of the student himself as has been the case in educational psychology.[1]

Educational researchers, particularly those in comparative education, have recognized the influence of gross cultural differences in learning for many years. For instance, children in India and those in the United States learn to behave differently because of the differences in

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[1]Wilbur B. Brookover, Edsel L. Erickson and Lee M. Joiner, Self Concept of Ability and School Achievement, (a three-part series under Projects 845, 1636, and 2831, respectively), (East Lansing, Michigan: Human Learning Research Institute, Michigan State University, February, 1967), p. 1.

social-cultural environment. In recent years the influence of subcultural differences, such as social class and minority groups, on the behavior learned in a given society, has also been recognized.

The research in this context has focused primarily on identifying differences among children of different social strata or ethnic groups. Although gross differences in the achievement of children of different social strata have been well established, comparatively little attention has been directed toward the variations in achievement in the social-cultural context of children in relatively homogeneous social strata.

The early existence of underachieving behavior would seem to imply that underachievement is a problem which is not unique to the school situation but which stems from and exists in other areas in the underachiever's life. A number of studies into the home backgrounds and parental attitudes and child-rearing practices of the fathers and mothers of underachievers have revealed the existence of some significant differences between families of achievers and underachievers.

Granzow,[2] as well as Kurtz and Swenson,[3] found that underachievers tend to come from homes where the parents

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[2]K. R. Granzow, "A Comparative Study of Underachievers and Normal Achievers and Overachievers in Reading," Dissertation Abstracts, XIV (1954), 631-632.

[3]J. J. Kurtz and E. J. Swenson, "Factors Related to Overachievement and Underachievement in School," School Review, LIX (1951), 472-480.

have less education than do parents of achievers. They also concluded that not only do they have less education but their values tend to be either neutral or negative with respect to education, while the parents of achievers tend to value education positively.

Bishton[4] and Hobbs[5] both concluded that the relationship which exists between the underachiever and his parents tends to be a more distant one, psychologically speaking, than which exists between the achiever and his parents. As Brookover states,

> . . . seldom has attention been given to the development of propositions about how these varying social background factors become translated into differential behavior and achievement patterns in the classroom.[6]

Drews[7] and Winterbottom[8] revealed that the parents of achievers show a greater inclination to push their

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[4]R. C. Bishton, "A Study of Some Factors Related to the Achievement of Intellectually Superior Eighth Grade Children" (unpublished Ph.D. dissertation, Ohio State University, 1955).

[5]N. Hobbs, "Motivation to High Achievement," Nashville, Tennesee, George Peabody College for Teachers, 1958. (Mimeographed.)

[6]Brookover, op. cit., p. 18.

[7]Elizabeth M. Drews, "What About the Gifted Child," College of Education Quarterly, Michigan State University, III (1957), 3-6.

[8]M. R. Winterbottom, "The Relation of Need for Achievement to Learning Experiences in Independence Mastery" unpublished Ph.D. dissertation, University of Michigan, 1953.

children toward achievement, not only in school, but in other areas as well. The parents of underachievers not only appear to demand less in the way of specific performance from their children, but tend also to make demands at a later date than the parents of achievers usually do.

Roe[9] and Ryan[10] found that broken homes, working mothers, and other family disruptions are present in much higher proportions among the parents of underachievers.

Although individual differences in achievement among students unquestionably result from a variety of psychological factors, this research is concerned with selected background factors relative to achievement of mentally able students in their interaction with others in a social-cultural environment that is relatively homogeneous.

Statement of the Problem

The purpose of this study is to discover if there are differences in selected background factors between mentally able children in a relatively homogeneous

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[9]Anne Roe, "A Psychological Study of Eminent Psychologists and Anthropologists and a Comparison with Biological and Physical Scientists," Psychological Monographs, LX (1953).

[10]F. J. Ryan, "Personality Differences Between Under- and Over-achievers in College," Dissertation Abstracts, XI, No. 2857 (1951), 967-968.

socio-economic community who achieved above expectancy and mentally able children who achieved below expectancy as measured by standardized achievement and mental tests.

Importance of the Study

The problem of the mentally able child who achieved below mental age expectancy has been the subject of research and educational literature for several decades. This research has been primarily focused on the secondary level. As early as 1924 Richards-Nash stated:

> Achievement is not a satisfactory measure of ability because it is an end result depending not on ability alone but also on chance, opportunity, and interaction of intra-individual factors such as permit the realization of superior traits.[11]

In 1945 Thom,[12] a medical doctor, reported on the achievement of superior students who came to his clinic over a period of ten years. He concluded that emotional instability, conflicting and unrealistic standards of parents, poor methods of training, and individual misfortunes as well as adverse circumstances, prevented the optimum development in children even though psychological tests showed persistence of their superior ability. In

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[11]Albertine A. Richards-Nash, "The Psychology of Superior Children," The Pedagogical Seminary, XXXI (September, 1924), 217.

[12]Douglas A. Thom and Nancy Newell, "Hazards of the High I. Q.," Mental Hygiene, XXIX (January, 1945), 76.

1952 Wedemeyer[13] found that 29.0 per cent of individuals in the top decile of intelligence who go to college failed to attain significant achievement in scholarship because of emotional, educational, personal, financial, and other problems. The years between 1957 and 1961 brought forth a number of studies by educators such as Gowan,[14] Dye,[15] Ford,[16] and Liddle.[17] These studies dealt with peer-acceptance and attitudes, as well as with social and emotional adjustments. However, these studies were conducted on the high school and college levels. Three studies in particular evidenced the need for research on the elementary level. Goldberg stated:

> Ideally, potential underachievers should be identified in early grades and be helped to redirect their attitudes. Thus far, such identification

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[13]Charles A. Wedemeyer, "Gifted Achievers and Non-Achievers," Journal of Higher Education, XXIV (January, 1952), 29.

[14]John E. Gowan, "Dynamics of Underachievement of Gifted Students," Exceptional Children, XXIV (November, 1957), 98-101.

[15]Myrtle G. Dye, "Attitudes of Gifted Children Toward School," Educational Administration and Supervision, XLII (May, 1956), 301-308.

[16]Thomas R. Ford, "Social Factors Affecting Academic Performance: Further Evidence," School Review, LXV (Winter, 1957), 415-422.

[17]Gordon Liddle, "Overlap Among Desirable and Undesirable Characteristics in Gifted Children," Journal of Educational Psychology, XLIX (August, 1958), 219-223.

> has not been made until the child actually falls down in his work, which for gifted children usually does not occur until the latter part of junior high school.[18]

Shaw and Grubbs[19] hypothesized that the problem of underachievement in the bright student did not have its origin in the high school. Their study indicated that the student brought the problem with him from the junior high school level. Shaw and McCuen[20] conducted a study in which they hoped to determine the onset of underachievement. They concluded that boys often entered the first grade as underachievers, while girls achieved high grades in elementary school and became low achievers in junior and senior high school.

The results of these studies indicate that the problem of achievement below mental age expectancy began at the elementary school level. Therefore, a study of this problem was needed on that level.

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[18]Miriam L. Goldberg, "A Three Year Experimental Program at DeWitt Clinton High School to Help Bright Underachievers," High Point, XLI (January, 1959), 6.

[19]Merriville L. Shaw and S. Grubbs, "Hostility and Able High School Underachievers," Journal of Counseling Psychology, V (Winter, 1958), 266.

[20]Merriville L. Shaw and John T. McCuen, "The Onset of Academic Underachievement in Bright Children," Journal of Educational Psychology, (June, 1960).

Hypotheses

On the basis of information gathered from home and school interviews as well as data that were compiled from parent, pupil, and teacher checklists, the following hypotheses were formulated:

1. Mentally able children, who have a higher self-concept in the following five key areas, are more likely to achieve above than below grade level expectancy when compared with mentally able children who have a lower self-concept in these same areas. These five key areas are as follows: Area I, skills in learning and competency in subject matter; Area II, use of mental abilities; Area III, intellectual motivation; Area IV, attitudes and relationships with peers and teachers; Area V, self-understanding.
2. Mentally able children, whose parents indicate a higher concept of them in the above mentioned five areas, are more likely to achieve above than below grade level expectancy when compared with mentally able children whose parents indicate a lower concept of their children.
3. Mentally able children, whose teachers indicate a higher concept of them in the above mentioned areas, are more likely to achieve above than below grade level expectancy when compared

with mentally able children whose teachers indicate a lower concept of their pupils.

4. There is no difference in the relationship existing between the educational level of parents and the achievement level of their children from the relationship existing between the vocational aspirations of parents and the achievement level of their children.
5. Mentally able children from two parent homes (mother and father), or two parent substitutes (two adults in loco parentis), are more likely to achieve above grade level expectancy than children from one parent homes (father or mother only), or one parent substitutes (only one adult in loco parentis).
6. Mentally able children from homes where there is a higher degree of enrichment are more likely to achieve above grade level expectancy than mentally able children from homes where there is a lower degree of enrichment.

Limitations of the Study

This investigation will be necessarily limited in accordance with the following considerations:

1. The subjects to be selected will include only fifth and sixth grade pupils in thirteen elementary schools in the city of Hialeah,

Dade County, Florida. This study will not include Cuban families.

2. Two identifying factors will be used: (1) the California Short Form Test of Mental Maturity, Form S, and, (2) the Stanford Achievement Test, Intermediate Partial Battery, Forms J and K. The former test is administered in the fifth grade and the latter one is administered throughout the second to sixth grades.
3. The subjects were further limited by the criterion of achievement of two or more years above expectancy or two or more years below expectancy as measured by the Stanford Achievement Test, Intermediate Partial Battery, Forms J and K.
4. No attempt will be made to evaluate the quality of the instruction or the curriculum provided for the subjects in the study.
5. Only those students whose test data and about whom information is complete will be included in this study.
6. It is recognized that a child's self-evaluation may vary from the evaluations made of him by the two adult groups because of differential interpretations of the Evaluation Checklist questions.

Definition of Terms

The definitions of the terms used in this study are as follows:

1. Mentally able children.--those children, who while in the fifth and sixth grades, attained an Intelligence Quotient (I. Q. score), of 120 or above in the California Short Form Test of Mental Maturity, Form S.
2. Expectancy.--the level at which a child is expected to perform based on his mental age scores.
3. Above expectancy.--achievement of two or more years scholastically higher (as measured by the Stanford Achievement Test, Intermediate Partial Battery, Forms J and K) than the mental age grade level as indicated by the California Short Form Test of Mental Maturity, Form S.
4. Below expectancy.--achievement of two or more years scholastically lower (as measured by the Stanford Achievement Test, Intermediate Partial Battery, Forms J and K) than the mental age grade level as indicated by the California Short Form Test of Mental Maturity, Form S.
5. Plus group.--the group of subjects who achieved above expectancy.
6. Minus group.--the group of subjects who achieved below expectancy.

The original distribution of I. Q. was developed by Terman in 1937 and has provided a

> . . . common frame of reference for results of testing various other population samples since its publication. It provides, too, a basis for statistical classification of Intelligence Quotients. Common meanings have come to be attached to categories defined by certain I. Q. limits. For example, I. Q.'s from 120 to 139 have been classified as 'superior.'[21]

The term gifted was not used in this classification and, therefore, in this study the term "superior" has been equated with the designation, mentally able, namely, those subjects whose I. Q. was 120 or higher.

In the Dade County school system concern has been expressed from time to time, through certain directives, concerning elementary children who are found to be two or more years below grade level expectancy as measured by standardized group achievement tests. These children have been designated as underachievers. In order to equate the number of years that children are performing above grade level expectancy for comparative purposes, two years, therefore, above grade level expectancy was similarly used in this study.

Organization of the Remainder of the Study

Chapter II will deal with a review of related literature with emphasis on the causes of underachievement

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[21]Lewis M. Terman and Maud A. Merrill, Stanford-Binet Intelligence Scale, Manual for the Third Revision, Form L-M (Boston: Houghton Mifflin Company, 1960).

and particularly those relevant to home conditions. Following this will be a summary of research findings concerning underachievement and the gifted child.

In Chapter III will be a description of the subjects, the community under study, and a description of the procedures that will be used in this research. In addition, there will be a discussion of the instruments of investigation, namely, the Parent Questionnaire, the Pupil Self-Evaluation, the Parent Evaluation, and the Teacher Evaluation Checklists.

The results of the investigation will comprise Chapter IV which will begin with the results of the three evaluations, that is, those made by the pupils, the parents, and the teachers. Following this, respectively, will be the results of the investigation of the parents' educational level and their vocational aspirations, a classification of the Plus and Minus group children according to whether they came from two parent homes (or two parent substitutes), or from one parent homes (or a one parent substitute), and the results of the degree of enrichment factors found in the homes of these two groups of children under comparison.

Chapter V will include a summarization of the pertinent factors as they relate to the purpose of the study and to the hypotheses that were set forth in Chapter I. Following this will be the conclusions that seem warranted on the basis of the findings of this

research. The latter part of this chapter will include recommendations and implications for further research based on the results.

Appendices "A" and "B" will include examples of the various instruments of investigation, and Appendix "C" will show tables indicating chi-square statistical analyses of the evaluation checklists.

CHAPTER II

REVIEW OF RELATED LITERATURE

Identification of Mentally Gifted Children

Since the 1920's great strides have been made in the identification and education of mentally gifted children. Studies such as those by Terman[1] and Hollingsworth[2] have given insight into the characteristics and needs of gifted children. These and other studies have pointed to the need for early identification of the mentally able child.

Such early identification was given additional stimulus as a result of the armed forces' testing program administered during World War II.[3] These tests revealed that many mentally gifted men had not been previously

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[1]Lewis M. Terman and Others, Mental and Physical Traits of a Thousand Gifted Children, Volume I of Genetic Studies of Genius (Stanford, California: Stanford University Press, 1926).

[2]Leta A. Hollingsworth, Gifted Children: Their Nature and Nurture (New York: Macmillan Company, 1926).

[3]Educational Policies Commission, Education of the Gifted (Washington, D. C." National Education Association, June, 1950).

identified. This was followed by demands for more and better trained personnel in industry, science, and technology. The greatest shortages in these areas were those positions which required high intellectual ability and specialized training.[4]

Underachievement of Gifted Children

The problem of underachievement of the gifted was inferred as early as 1924 by Richards-Nash in a quantitative study of the underachievement of superior children,

> Another point to be noted is the fact that mediocre children can be stimulated to high performance by proper motivation and thus achieve better than superior children who cannot be motivated by ordinary means.[5]

As more and more studies of the gifted were made, the problem became more clearly defined. In the early 1950's Gowan became interested in the "underachieving gifted" as a result of the findings in his doctoral study. He concluded that ". . . underachievement in academic work and underachievement in leadership tended to appear together. . . ."[6] In a later article published in 1955 he brought together a number of studies which had findings

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[4]Educational Policies Commission, Manpower and Education (Washington, D. C.: National Education Association, 1956).

[5]Richards-Nash, op. cit., p. 215.

[6]John C. Gowan, "The Analysis of Leadership in a Military School" unpublished Ph.D. dissertation, University of California, Los Angeles, 1952.

similar to those in his earlier research. It was noted that in some studies as many as 42.0 per cent of the gifted were underachieving and in most instances from 6.0 to 9.0 per cent of the gifted were severe underachievers.[7] In 1957 this study was followed by a paper in which Gowan again explored the problem of the underachieving gifted child. This time he included studies on causes and prevention of underachievement. The general conclusions were as follows:

> The gifted underachiever appears to be a kind of intellectual delinquent who withdraws from goals and active social participation generally. As a child his initial attempts at creative accomplishment may not have been seen by others as "worthwhile" but only as "queer" or "different." The blocking of this avenue of rewarding behavior by others, tending as it does to reinforce his often over-critical appraisal of the disparity between his goals and achievements, may slant his work libido, stifle his creativity, and consign him to a routine of withdrawal and escape as the most tolerable method of insulating his ego from hurt in an alien and disinterested world.[8]

In an effort to determine where underachievement in bright children began, Shaw and McCuen[9] made a study in grade levels one through eleven and classified them as

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[7]John C. Gowan, "The Underachieving Gifted Children: A Problem for Everyone," Exceptional Children, XXI (April, 1955), 249.

[8]Gowan, "Dynamics of Underachievement of Gifted Students," op. cit., pp. 98-99.

[9]Shaw and McCuen, op. cit.

achievers and underachievers on the basis of the cumulative grade-point average. They found that male underachievers tended to receive grades lower than the achievers beginning at grade one, and that this difference became significant at the 1 per cent level at grade three. From grades three to grade ten, the difference increased in significance every year.

Results for female underachievers indicated that they actually exceeded achievers in grade-point average for the first five years of school, although not at a significant level of confidence. Beginning in grade six underachievers began a precipitous drop in grade-point average and remained below the achieving group from grade six through grade eleven, becoming significant at grade nine.

Causes of Underachievement

Underachievement of the gifted became a focal point of research, experimentation and discussion in the late 1950's. Attempts were made to discover the underlying causes of underachievement and to recommend remedial practices and methods of preventing underachievement. Stanford[10] believed boredom, lack of motivation, and home problems to be the major causes. He stated that further causes of underachievement were insufficient

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[10]E. G. Stanford, "The Bright Child Who Fails," Understanding the Child, XI (June, 1952), 88.

mental and emotional stimulation in the classroom, feelings of inferiority based upon sibling rivalry, physical defects, feelings of inferiority among classmates, economic needs that have not been met, lack of security in home relationships between the child and his parents, or between the parents themselves, and finally, a home where one parent is missing because of divorce, desertion, chronic illness or death, or parents working at different times of the day or night.

Gough[11] listed disagreement between parents over methods of rearing the child, over-anxiety, fear of the parents regarding the child's health and safety, divorce and separations, and sibling rivalry as causes of underachievement.

Experimental Programs for Underachievers

As schools became interested in underachievement, research was undertaken by schools and educators to solve the problem. Frazier[12] reported on the experimental program which was conducted at Evanston Township High School at Evanston, Illinois. He concluded that underachievement had a variety of causes. As underachievers were

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[11]H. G. Gough, "Factors Related to Differential Achievement Among Gifted Persons," University of California, Berkeley, 1955. (Mimeographed.)

[12]Alexander A. Frazier, A. Harry Passow, and Miriam L. Goldberg, "Study of Underachieving Gifted," Educational Leadership, XVI (November, 1958), 121-125.

identified, they were able to master skills that were previously not acquired. Additional conclusions suggested the separation of teaching and guidance functions and the elimination of grouping.

Under a one year grant, New York City and Columbia University School of Engineering inaugurated a study of underachieving gifted students which they entitled "Talent Preservation Project." This project used extensive interviews, psychological and psychiatric studies, projective methods, and social work. Krugman and Impellizzeri[13] found that although the resulting conclusions were not final, the New York School System had put into effect the Higher Horizons Program in thirty-one elementary schools and thirteen junior high schools in an attempt to identify and appropriately stimulate talent of every kind. In the Higher Horizon Program, each school was assigned a full-time counselor, a part-time psychologist, and a part-time social worker.

Rice,[14] as coordinator of California Project Talent, a federally funded research program in cooperation with the California State Department of Education and various

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[13]Morris Krugman and Irene Impellizzeri, "Identification and Guidance of Underachieving Gifted Students," Exceptional Children, XXVI (February, 1960), 282-286.

[14]J. P. Rice, "California Project Talent: A Unique Educational Development," The Clearing House, XLII (January, 1968), 305-312.

local districts, reported on a unique demonstration program based on the pioneering research in this field by Terman, Richards-Nash, Hollingsworth, and others. It involved differential programing for gifted students in grades one through nine and was promulgated in four specific approaches. They were as follows: (1) acceleration through the use of summer school, (2) enrichment in the fine arts, science, and the language arts, (3) a cooperative counseling and instructional program, and (4) full-time classes organized for gifted pupils. It was launched in 1961 and when it was terminated in 1967 it involved approximately 90,000 students.

It was found that the students attending the summer school made "significantly greater achievement gains as well as demonstrating more psychological and social 'toughness' than did pupils who were 'skipped.'"

The educational outcomes regarding counseling were twofold: (1) growth in pupil personality and the understanding of the relatedness of social and literary issues to one's self, and (2) more dialogue with resultant curriculum modification and change between counselors and teachers.

The results of the enrichment program and of the special classes for the gifted were questionable since the problem of grouping and segregating of pupils posed as many problems as it resolved. The problems were of

a social and political nature rather than academic or scholarly. Teacher bias seemed to be as high as parent or student bias against the segregation of gifted students. In summation, California Project Talent was rated as a reasonable success. It has shown that educational programs can be created, planned, developed, and demonstrated in operational settings.

Background Factors Related to Underachievement

There have been a number of studies concerned with the background factors of gifted children and background factors that were related to their achievement. Terman's study,[14] made in 1926, was probably the most extensive ever undertaken concerning gifted children. He found that they not only exceeded their classmates academically but were superior in size and in general health. The gifted displayed unusual skills and a wide variety of interests. Their achievements were not limited to any department of school life; they were equally successful in tests of character and they showed less predisposition to nervousness than "normal" children. Furthermore, they were able to shoulder responsibility more willingly and cheerfully. They were not only able to study in a more concentrated fashion but they played harder, had more hobbies, read more and better books, excelled in athletics,

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[15]Terman, op. cit., p. 81.

and were animated by the highest sentiments of honor and integrity.

Terman and Oden[16] made a follow-up study of the group of subjects in 1947 in which they found that the gifted were better adjusted in all areas than the population in general.

Terman later on made still another follow-up study of his original subjects, a thirty-five years' follow-up of the superior students, which indicated that,

> . . . with few exceptions, the gifted subject became the able adult, superior in nearly every aspect to the generality. This superiority was greatest in intellectual ability, in scholastic achievement, and in vocational achievements. Physically, the gifted students continued to be above average as shown in their lower mortality record and in the health ratings. Clearly, desirable traits tended to go together. No negative correlations were found between intelligence and size, strength, physical well-being, or emotional stability.[17]

Hollingsworth's study, also completed in 1926, was primarily concerned with the background factors of birth, family size, and sibling status. On the education of parents she stated:

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[16]Lewis M. Terman and Melita H. Oden, The Gifted Child Grows Up (Stanford, California: Stanford University Press, 1947).

[17]Lewis M. Terman, The Gifted Child at Mid-Life, Genetic Studies of Genius, Volume V, Thirty-five Years' Follow-up of the Superior Child (Stanford, California: Stanford University Press, 1959), p. 143.

> In the majority of cases where the gifted child has been born since 1915, both parents are graduates of high school, and in far more cases than the population at large, both parents are college graduates.[18]

Porter in his study of 166 gifted sixth grade children, in an effort to further refine and update Terman's definition of gifted children, applied the Sixteen Personality Factor Test first used by R. B. Cattell for adults. He adapted it for the use of elementary school pupils and found that characteristics other than intelligence can be used in identifying gifted children whom he found to be "consistently superior to the non-gifted in conscientiousness, perseverance, super-ego strength, self-reliance, self-sufficiency, resourcefullness, and self-securedness."[19]

He stated further that the above characteristics established "a significant profile for the gifted which was definable from those of a norm group, and therefore, useful for guidance purposes."[20]

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[18] Hollingsworth, op. cit., p. 185.

[19] Rutherford B. Porter, "A Comparative Investigation of the Personality of Sixth Grade Gifted Children and a Norm Group of Children," Journal of Educational Research, LVIII (November, 1964), 133.

[20] Ibid.

Hughes and Converse[21] in an effort to update Terman's findings focused more attention on sociological and environmental factors rather than on purely personality and psychological ones. They criticized Terman's methodology but not his validity of the portrait of the gifted child because of the failure of the particular selection methods to take into account the underachievers who may have been excluded from his sample because of arbitrary selection methods. They stated that 1.4 per cent of the universe should have been included in the sampling process, not .4 per cent.

Sister M. Raphael, F. D. C.,[22] stated that there was still no one universally accepted definition of giftedness. Some authorities restricted a definition of giftedness to Intelligence Quotient, while others ignored I. Q. in forming a definition. Still other authorities arbitrarily chose a percentage of the juvenile population in general intelligence and labeled these children as gifted. Based on the findings of French[23] she concluded

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[21]Herbert H. Hughes and Harold D. Converse, "Characteristics of the Gifted: A Case for a Sequel to Terman's Study," Exceptional Children, XXIX (December, 1962), 179-83.

[22]Sister M. Raphael, "Education for Today's Gifted," The Catholic School Journal, LXV (January, 1965), 17-20.

[23]Joseph L. French (Editor), Educating the Gifted (New York: Holt, Rinehart and Winston, Inc., 1964).

that observation was one of the two general approaches that should be used to identify gifted children. The other method should employ group and individual standardized tests relative to intelligence, specialized aptitudes as well as interest inventories and personality tests.

An investigation made by Tannor[24] of a survey of fifty American cities with a population over 250,000, with thirty-four reporting, revealed all but five had a formalized program for the gifted. Of those cities having a formalized program, eight were primarily interested in I. Q., three were oriented toward creativity, ten incorporated both criteria. The remaining cities did not describe their programs.

Most of the cities used a variety of screening techniques to identify the superior student, the most popular of which reported was teacher evaluation. Next in frequency came group achievement tests, followed by group I. Q. tests and individual I. Q. tests, maturity or psychological tests, and finally aptitude and non-academic tests (manual dexterity, artistic ability, etc.)

All systems segregated their children in some way, mostly in special classes and only six segregated completely for the whole day. Fewer than half of the cities

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[24]Shira Tannor, "Survey on the Gifted in Cities Over 250,000 Population," Exceptional Children, XXXII (May, 1966), 631-2.

used skipping, rapid promotions, early admissions, or ungraded classrooms as a regular rule, although some tried these on an individual basis or had other administrative techniques such as cluster or other groupings.

Since Terman's longitudinal studies it has been generally accepted that the gifted students will show superiority over the average child in many measurable dimensions such as physical development and social or emotional adjustment. Whether this superiority is due to superior intellect or to the generally superior environment from which these gifted samples were drawn has not been clearly determined according to Gallagher and Rogge.[25] In a study of 181 intermediate grade pupils comparing matched pairs of pupils having an I. Q. of 120 with those having an I. Q. of 100, he found no differences on any of the physical measures between these matched pairs. They concluded that when environmental differences are controlled the gifted child does not reveal superiority in physical dimension.

Keller[26] reported that our educational system has been wrong in two aspects regarding the gifted child: (1) it has been concerned chiefly with quality education

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[25]James J. Gallagher and William Rogge, "The Gifted," Review of Educational Research, XXXVI (February, 1966), 37-52.

[26]George C. Keller, "Bright Kids," American Education, III (March, 1967), 28-32.

at the secondary school and college level and neglectful of the primary schools where the most crucial part of intellectual development takes place, and (2) it has wrongly placed too much emphasis on the schools and not enough on the family life and environment of students.

He asserted that "much of the present evidence points to the crucial role of nurture, not nature." In support of this he cited Wechsler[27] who wrote, "the range of human physical traits is not really great, and the range of mental capacities may be less extreme than is usually supposed."

In further support of his contentions he cited Pressey,[28] who said, "too much stress has been put upon presumed constitutional genius and too little on a concomitant of favorable factors operating in the growth years within the family milieu."

Thomas and Crescimbeni[29] emphasized the need for the earliest possible identification of giftedness and early notification of parents through conferences at home with both parents preferably, or as a substitute, carefully

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[27]David Wechsler, The Measurement and Appraisal of Adult Intelligence (4th ed.; Baltimore: Williams and Wilkins, 1958).

[28]Sidney L. Pressey, Psychological Development Through the Life Span (New York: Harper and Row, 1957).

[29]George I. Thomas and Joseph Crescimbeni, Guiding the Gifted Child (New York: Random House, 1966).

planned conferences in the school in a sustained effort to coordinate their efforts continuously from grade one throughout the elementary school learning experience.

Hildreth[30] suggested fourteen characteristics by which parents could possibly identify giftedness in their pre-school children and she reiterated the absolute necessity of early identification by the school of such superior children.

Witty lends support to the foregoing stating that it was extremely important that the gifted child's ability be recognized early in his school career so that proper methods and materials could be utilized to challenge him. He concluded that "if a gifted child who already can read is required to follow routine textbook assignments and is forced to read highly repetitious and largely meaningless materials, he would often develop unfortunate attitudes and habits."[31]

He cautioned further against overemphasis on I. Q. testing as an identifier of creative students and states that "it is well to reiterate that giftedness should be estimated by observation of a child's behavior. The child whose performance is consistently remarkable in

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[30]Gertrude H. Hildreth, Introduction to the Gifted (New York: McGraw-Hill Book Company, 1966).

[31]Paul A. Witty, "Recent Publications Concerning the Gifted and the Creative Student," Phi Delta Kappan, (January, 1965), 221.

any potentially valuable area might well be considered gifted."[32]

Social Factors

The effect of social factors on the academic performance of overachieving and underachieving children was the subject of Ford's study. While it did not involve mentally able children, the factors he studied and his findings seem to be pertinent to this discussion. The factors he analyzed were social class, home conditions, peer relationships, aspiration level, and academic inclination. In reporting his findings, he stated:

> Most of the findings of significant differences between overachievers and underachievers can be related to fundamental propositions. The first is that academic performance of the junior high school student must be viewed within the broad context of socially defined age and sex roles. The second is that parental interest in, aspiration for, and relationships with their children can exert a powerful influence on children's school work.[33]

Social adjustment of the gifted has been the subject of many studies throughout the years. Hollingsworth[34] revealed that the extremely gifted children have social

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[32] Ibid., p. 223.

[33] Ford, "Social Factors Affecting Academic Performances: Further Evidence," op. cit., pp. 414-22.

[34] Leta Hollingsworth, Children Above 180 I. Q.; Origin and Development (New York: World Book Company, 1942).

difficulty because of the complexity of their play behavior and may alienate their peer group because of the high level of their interest. Boardman and Hildreth's findings did not agree with those of Hollingsworth. Their investigations showed that socially "a gifted child is more likely to behave well intuitively better than any other child."[35] The results of Ford's study added support to the Boardman and Hildreth investigation. He concluded that the differences between the very gifted and the moderately gifted were not significant. However, the gifted revealed superior social adjustment when compared with the average.

In recognizing and meeting the needs of the gifted through physical recreation, DeHaan and Havighurst stated that "precociousness is often recognized by the evidence of a child's early interest in artistic materials, musical instruments, or dramatics." They also suggested that

> . . . early learning in the home should be given a game-like quality, including the provision of some space for creative work and a variety of materials including various types of paper, scissors, paste, lumber scraps, old magazines, wallpaper books, old clothes, boxes, construction sets, and pieces of wire.[36]

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[35]Rhea K. Boardman and Gertrude Hildreth, "Adjustment Problems of the Gifted," Understanding the Child, XVII (April, 1948), 44.

[36]Robert F. DeHaan and Robert J. Havighurst, Educating Gifted Children (Chicago: University of Chicago Press, 1961).

Freehill[37] suggested aiding development of the highly talented through advantageous use of certain community recreational opportunities as offered by such youth organizations as the Boy Scouts, Girl Scouts, Camp Fire Girls, 4-H Clubs, YWCA and YMCA, as well as various church youth groups. He also suggested other activities of special interest such as visits to libraries, museums, and to government agencies.

Spragens recommended various guidelines in guiding recreational activities for gifted children. They were as follows:

1. Many gifted children can profit from the opportunity to learn individual sports such as tennis, bowling, badminton, archery, golf, and swimming.
2. Plan games with more complicated rules and organizational patterns for gifted children.
3. Be sure that the gifted child's experiences are meaningful to him and not just a convenience for the instructor when using him as an assistant.
4. Encourage them to develop special interests into a hobby.
5. Provide books and other instructional materials on the various sports and activities in which they have shown an interest and demonstrated an ability.[38]

Barbe stated that the widespread acceptance of the broader concept of giftedness was perhaps the most

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[37]Maurice F. Freehill, Gifted Children and Their Psychology and Education (New York: Macmillan Company, 1961).

[38]Jane Spragens, "Recreation for the Gifted Child," Journal of Health, Physical Education, and Recreation, XXXVI (April, 1965), 53-55.

important change which had taken place in recent years in this particular area. No longer must a gifted child be equally gifted in all areas, although it was true that today high ability in science was more likely a requisite for the label "gifted" than in previous years. He stated that,

> . . . special programs are being developed today which recognize that children may be gifted in some areas and not others and that the goal is to exploit the gifts of children not for the benefit of others but for the benefit of the children themselves. It is being recognized at last that merely putting together gifted children with similar characteristics in some areas accomplishes little educationally. If programs are to be successful there must be intentional differentiation of instructional materials and methods, different from both the materials and methods in the regular class and for individual children within the gifted class.
>
> The characteristic most readily identifiable in gifted children, varying in both kind and degree, is sensitivity. Whether the sensitivity is to one or more particular areas of learning, sensitivity to the feelings of one's fellow man, it is so much a characteristic of giftedness that it can almost be said that the two terms are synonomous.[39]

Liddle,[40] in his investigations, was concerned with five areas. Three were positive: intellectual talent, social leadership, and artistic talent; two were negative: aggressive maladjustment and withdrawn

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[39]Walter B. Barbe, Psychology and Education of the Gifted: Selected Readings (New York: Appleton-Century-Crofts, 1965), pp. 173-174.

[40]Gordon Liddle, "Overlap Among Desirable and Undesirable Characteristics in Gifted Children," Journal of Educational Psychology, XLIX (August, 1958), 219-223.

maladjustment. It was found that the children who were talented in one of the three positive areas were likely to be talented in the other positive areas and quite unlikely to be seen as highly maladjusted by their teachers and classmates.

Plowman suggested that activities which may engage the gifted in an active encounter with academic knowledge should be part of a planned sequential program rather than used as motivational devices to arouse momentary attention or to serve as antidotes for classroom lethargy. Such academic experiences should be as follows:

1. English language and American literature--encourage the talented to gain an appreciation for style through writing or conversing in the manners of Shakespeare, Shelley, Blake, and Poe.
2. Science--point out the importance of developing intuition and intuitive approaches in science.
3. Mathematics--encourage growth in this area through intuitive mathematics, mathematical games, and seeing mathematics in the world around us.
4. Social Sciences--relate the past dynamically to the present from a multitude of perspectives, namely, sociological, economic, political, and military.[41]

He stressed the key motivational factors were the home, school, curriculum, out-of-school experiences, peer group discussions and instructional media. He emphasized further that school administrators, counselors,

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[41]Paul D. Plowman, "Encouraging the Development of the Talented--In Academic Areas," Education, LXXXVIII (September, 1967), 35-42.

psychologists, teachers and students should work continuously in accord and none of these should "drop out" along the way.

Wiener explored the attitudes of psychologists and psychometrists compared with those of administrators, supervisors, and teachers toward gifted children and programs for the gifted in a recent study under the sponsorship of the Gifted Committee of the California Association of School Psychologists and Psychometrists. The results indicated that psychologists and psychometrists were more inclined to favor the gifted than the other groups. The conclusions indicated "there was need for more education about the field of the gifted, experience in working with the gifted, and understanding the gifted."[42]

In attempting to understand children with learning problems when the lack of mental ability was not the cause, Borenz and Kaufman[43] concluded that personality factors should be considered. They discussed five factors that could be used as a guide by the classroom teacher in attempting to understand the causation of

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[42]Jean Wiener, "Attitudes of Psychologists and Psychometrists Toward Gifted Children and Programs for the Gifted," Exceptional Children, XXXIV (January, 1968), 354-356.

[43]Harold F. Borenz and Melvin E. Kaufman, "Intellectual and Emotional Factors as Related to School Performance," Exceptional Children, XXVI (April, 1960), 401-403.

underachievement. These factors were listed as: curiosity, appropriate aggressiveness, positive identification, appropriate skepticism, and ability to concentrate.

Investigation of the relationship between socio-economic status and pupil achievement extends back over fifty years. In the literature there were to be found numerous articles and studies dealing with the subject, although in some cases the treatment of the data on the subject was incidental to some other purpose.

Practically all of the investigations have indicated the existence of a definite relationship between socio-economic status and scholastic achievement. Hilliard and Troxell[44] studied the relationship between informational background, reading readiness, and the reading progress of primary children. The subjects were divided into a "rich background" group and a "meager background" group. The former group had a significant advantage in reading readiness, and in the second grade, averaged six months above the standard in reading. The latter group averaged one month below the standard.

Frierson conducted a survey comparing upper and lower socio-economic status, gifted, elementary children

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[44] G. Hilliard and E. Troxell, "Informational Background as a Factor in Reading Readiness and Reading Progress," Elementary School Journal, XXXVIII (March, 1961), 255-263.

and he divided them into four groups: eighty-eight gifted upper status, fifty-six gifted lower status, eighty-six average upper status, and fifty-five average lower status. On a fourteen point interest inventory record he found "differences between the gifted and the average groups were greater in number than differences between the gifted groups from upper and lower socio-economic backgrounds." However, concerning a personality inventory including such factors as super-ego strength, conscientiousness, attentiveness to rules and people, self-control, consideration of others, and ability to control emotions, he found "upper status groups (gifted and average), had group means which were higher than the two lower status groups."[45]

The data clearly indicated that several differences between groups of gifted children were associated with differences in the socio-economic background of the children. It was equally clear from the data that many differences between gifted children and average children existed regardless of the socio-economic background of the children.

McGillivray[46] recently made the family of the gifted underachiever a national focus of further

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[45]Edward C. Frierson, "Upper and Lower Status Gifted Children: A Study of Differences," Exceptional Children, XXXII (October, 1965), 83-90.

[46]Robert Hilker McGillivray, "Differences in Home Background Between High-Achieving and Low-Achieving

investigation. In comparing families of achievers and underachievers he found no significant differences between the two groups on actual data such as size of family, birth order, number of broken homes, the educational level of parents, occupational aspirations of parents, and family income. He did, however, find that parents of high achievers showed more interest in education and in their children generally and concluded that while the physical environment was roughly the same for the two groups, the psychological environment in the home was different and was the crucial variable.

Studies in the sociology of learning recently reviewed by Boocock reflected an emerging concern for collecting information on the social context within which the student learns rather than on the characteristics or traits of the student himself as has been the case in educational psychology. Fathers' occupational levels and other socio-economic status characteristics were the most sought after of the social background variables. More and more other types of social background data were being gathered such as the number of specific courses taken during the teacher's college training, parents' educational levels, size of the school, neighborhood, amount of income, and the like. She stated that,

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Gifted Children: A Study of One Hundred Grade Eight Pupils in the City of Toronto Public Schools," Review of Educational Research, LXXXVIII (September, 1967), 56-60.

> . . . somewhat more sophisticated attempts at understanding the influence of the social context have dealt with such conditions as teacher-student ratios, rating of classroom structure, grouping procedures, competitive vs. cooperative atmospheres, and other related variables. Seldom, however, was attention given to the development of propositions about how varying social background factors became translated into differential behavior patterns in the classroom. Warnings against interpreting associations between variables on the order of socio-economic characteristics and school behavior as genuine independent-dependent causal type relationships are frequent but researchers have generally not been guided by these warnings.[47]

Serious attention has only recently been given to the search for giftedness among culturally and economically disadvantaged children. Torrance points out what he terms "misperceptions" in identifying such students. First,

> . . . anyone who possesses some spark of giftedness will somehow manage to show this potentiality despite neglect, punishment, and coercive pressures.
>
> Second, often gifted youngsters from disadvantaged backgrounds are bound to appear to middle class teachers and counselors as hopelessly crude, unsophisticated, withdrawn, strongly emotional, timid, sometimes fearful, stubborn and negativistic. Because teachers and counselors will usually find these traits disturbing, these children are repressed in many and varied ways.
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> Third, lack of verbal facility often veils creative potentialities and giftedness in other areas of endeavor.

He concluded that since the learning styles of economically and culturally disadvantaged children were different from those to which the school is generally

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[47] Sarane S. Boocock, "Toward a Sociology of Learning: A Selective Review of Existing Research," Sociology of Education, XXXIX (Winter, 1966), 73.

geared, it might be well to apply a checklist of other factors in play situations or situations geared to their way of learning. They were as follows:

> . . . intense absorption in listening, observing or doing; use of analogies in speech; tendency to challenge ideas of authorities; habit of checking many sources; eagerness to tell others about discoveries; continuing a creative activity after scheduled quitting time; diverse manifestations of curiosity; independent action and boldness of ideas; low degree of distractability; tendency to lose awareness of time; penetrating observations and questions; self-initiated learning; special talents in group leadership; and a high degree of humor and wit.[48]

Self-Evaluation and Teacher Evaluation Related to Underachievement

In his compendium concerning what research had to say about self-evaluation, Russell[49] cited four investigations on this subject.

Stier[50] produced a comprehensive, unpublished study utilizing personality tests and rating scales involving 325 children in five fifth grades and five eighth grades in several California schools. The investigations used sociometric measures, the California Test of Personality, and a teacher rating scale of personality. The results in terms of self-rating on the California Test of Personality indicated that girls

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[48] E. Paul Torrance, "Identifying the Creatively Gifted Among Disadvantaged Children," Education Digest, XXX (March, 1965), 8-11.

[49] D. H. Russell, "What Does Research Say About Self-Evaluation?" Journal of Educational Research, XXIX (April, 1943), 561-571.

[50] Ibid.

were better adjusted than boys at both grade levels and that differences between fifth and eighth grade levels were insignificant for each sex. He found that girls consistently rated themselves higher on both self-adjustment and social adjustment than boys.

In the administration of a twenty-two trait personality scale yielding a grand total of 409,536 ratings involving 1,542 children and 485 teachers in grades four through eight, Tschechtlin[51] found a tendency for girls to overestimate themselves and for boys to underestimate themselves, although the latter tendency seemed to decline with age.

An unpublished study by Tuddenheim[52] confirmed the fact that girls tended to overestimate their achievement on paper but he disagreed with Tschechtlin in finding that self-judgment became less favorable with age for both boys and girls.

Bonney[53] also agreed that fourth grade girls rated themselves more highly than boys rated themselves on a group of personality factors.

Another indication of the newer emphasis regarding sex differences relevant to gifted children was noted in

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[51] Ibid., II.

[52] Ibid., III.

[53] Ibid., IV.

the findings of Torrance.[54] In examining gifted intermediate grade children he concluded that girls had a higher self-concept on school-related variables, such as verbal originality, as well as various social aspects of home and school life, whereas, boys revealed a superior self-concept over girls in non-verbal originality.

In a recent doctoral dissertation, Bixler[55] studied the influence of classroom teachers and peer members upon 212 gifted sixth grade children's self-concept during the school year from October to May involving six selected variables. She found that children's self-concept and peer evaluation moved more toward initial teacher rating scores in the areas of "School Subjects," "Work Habits," and "Mental Ability." However, in the remaining three areas of "Physical Ability," "Physical Appearance," and "Social Virtues" self-concept ratings moved more toward peer evaluations. She found also that girls' self-concept scores moved more toward agreement with initial ratings than did the scores of boys.

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[54]E. Paul Torrance (Editor), "New Ideas," Third Minnesota Conference on Gifted Children, Center for Continuation Study, University of Minnesota, 1961.

[55]Patricia Ann Bixler, "Changing Self-Concept in Sixth Grade Class Groups," Dissertation Abstracts, XXVI, No. 7 (January, 1966), 3750.

Wiesen,[56] in his doctoral dissertation, explored the relationships among intelligence, organizational climate in the classroom, and self-concept as a learner, among 650 ten- and eleven-year-old children. He found that in positive organizational classroom climates self-concept was higher among those pupils who had a lower I. Q. than among those pupils whose I. Q. was higher but who were located in a classroom of a negative organizational climate. Self-concept was highest, however, in those classrooms whose organizational climate was the most positive and among those pupils who had a higher I. Q.

Brookover, Erickson, and Joiner, in the third and concluding report on a study of the relationships of self-concept and achievement, stated that "self-concept of academic ability refers to behavior in which one indicates to himself (publicly or privately), his ability to achieve in academic tasks as compared with others engaged in the same task." They perceived self-concept of academic ability as one of many concepts of self. Other concepts of self referred to other areas of behavior which varied from that involving school performance.

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[56]Henry H. Wiesen, "An Investigation of Relationships Among Intelligence, Organizational Climate in the Classroom and Self-Concept as a Learner Among Ten and Eleven Year Olds," Dissertation Abstracts, XXVI, No. 11 (1966), 6520-6521.

This study represented the culminating phase of a continuous six-year longitudinal investigation of the relationship of self-concept of academic ability to school achievement among students in one school class while in the seventh through twelfth grades. They found that it was not the actual behavior of others which directly determined the individual's actions but rather it was "the individual's interpretation of the expectations and evaluations of significant others which most influenced his behavior."[57] Significant others were defined as parents, teachers, and peer groups.

Summary of Research

A review of the literature has been presented concerning background factors related to achievement and underachievement of the mentally able student. The research was focused primarily on particular factors or traits of subjects on the secondary level. These studies suggest the need for additional investigation on a lower academic level in an effort to identify the factors associated with underachievement as early as possible. An increasing amount of attention has focused recently on self-concept related to achievement but the preponderance of these studies have been conducted at the junior and senior high school levels as well as at the

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[57] Brookover, op. cit., p. 5.

college level. Those comparatively few studies that have been made on the elementary school level have centered largely on self-concept of academic achievement as well as teacher evaluation of their pupils.

Realizing the growing importance and emerging concern about self-concept as a significant factor in underachievement, this study will attempt to determine whether or not it is a significant factor related to achievement of mentally able children in a type of community in which the social and economic differences are relatively small.

Since parents and teachers have been defined as and considered to be significant others as perceived by the child and thereby exert an influence on their self-perception, an evaluation by parents and teachers will be included in an endeavor to determine whether or not their evaluation are significant factors related to achievement of mentally able children.

Since the literature has suggested that such background factors as parents' educational level, occupation, income, and vocational aspirations as well as enrichment in and stability of the home, to be background factors associated with a child's school achievement, this study will attempt to confirm or disconfirm these findings in a type of community in which socio-economic differences are not widely divergent but are relatively undifferentiated.

In summation, there was no unanimity of opinion concerning a precise or universal definition of giftedness or of the causes of underachievement. However, certain conclusions seem warranted on the basis of the available evidence. They are as follows:

1. Factors other than Intelligence Quotient, results of achievement tests, and mental ability should be considered in taking into account a definition of giftedness.
2. Teacher observation as well as specialized aptitudes and interests are being considered to a greater degree in the identification of the gifted student.
3. A growing amount of research in recent years is focusing on sociological factors associated with giftedness instead of on purely psychological and physiological factors.
4. Underachievement, especially of the gifted student, is a costly waste of human resources.
5. Underachievement, especially of the gifted student, should be discovered earlier in the academic career of the child.
6. Underachievement does not begin on the secondary level; it manifests itself on a lower academic level.

7. The preponderance of evidence indicate a positive relationship existing between socio-economic background and school achievement.
8. More and more school systems are developing formal programs in providing for the gifted student and these are being implemented on a lower level than the secondary level.
9. The antecedents and consequences of self-concept of academic ability among elementary school children have not been fully determined.

There seems to have been adequate support for the assumption that many able students fail to achieve at their level of grade level expectancy. Much research has been undertaken to determine underachievement origins and causes. To the author's knowledge there has been no study of a community, classified as lower-middle and upper-lower class, comparing mentally able fifth and sixth grade subjects who were achieving two or more years above and two or more years below age grade expectancy, with the specific intent of attempting to determine whether differences in certain of their background factors were significant as related to achievement.

In order to accomplish this, the city of Hialeah, Dade County, Florida, was selected, studied, and found to be such a community.

CHAPTER III

DESCRIPTION OF THE SUBJECTS, THE COMMUNITY, AND THE PROCEDURES THAT WERE USED IN THIS STUDY

Description of the Subjects

This study involved fifth and sixth grade children from the regular classrooms of thirteen elementary schools in the community of Hialeah, Dade County, Florida. Children of Cuban families were not included in this study because of language difficulties and other barriers to effective communication. For the 1966-67 academic year the student population of these thirteen elementary schools numbered approximately 9,900 of which 2,787 were fifth and sixth grade children.

Procedures Used in Selection of Subjects

The initial selection was based on the results of group intelligence test data taken from school records and cumulative folders of the children. The intelligence test score used for each subject was the California Short Form Test of Mental Maturity that is regularly given at the fifth grade level in this school

system. Only those children who had attained an Intelligence Quotient (I. Q.) score of 120 or higher in this test were included in the study. They are referred to in this research as "mentally able" children.

Children's raw test scores from the Stanford Achievement Test, Intermediate Partial Battery, Forms J and K, were converted to grade level equivalents. The second screening process involved a comparison of these test scores to the mental age levels of the subjects who had attained the 120 I. Q. level and above. Those pupils who had achieved academically two or more years above their mental age grade level are referred to as the Plus group and those pupils who had achieved academically two or more years below their mental age level are referred to as the Minus group. Only these subjects were selected for this study.

Data were collected on 2,787 pupils drawn from eighty-seven classrooms in the fifth and sixth grades from thirteen elementary schools in Hialeah, Dade County, Florida. Of this number, ninety-one subjects were selected who had attained an intelligence quotient score of 120 or higher on the above mentioned group intelligence tests and who had achieved two or more years above expectancy or two or more years below expectancy. Fifty-two subjects were found to qualify for the Plus group and thirty-nine were classified as belonging in the Minus group.

Description of the Community

Hialeah is an incorporated city in the northwestern part of Dade County with an approximate population somewhat in excess of 80,000.[1] There is a greater concentration of light industry in Hialeah than in any of the other twenty-six municipalities in the county.

A cursory observation of this community seemed to indicate a somewhat homogeneous socio-economic character that could be hypothesized as being classified as lower-middle and upper-lower class. However, in order to substantiate this fact and also to determine the extent to which certain families would not lie within these two aforementioned classifications, an attempt was made to implement W. Lloyd Warner's Index of Status Characteristics[2] in order to assess accurately the socio-economic character of this community.

In applying Warner's Social Class Equivalents to the families of the ninety-one subjects, it was found that eighty-six came within the range indicating a lower-middle class and upper-lower class level. Of the remaining five families, three were found to be properly classified as upper-middle class and two families as fitting into the lower-lower class. In the final selection of

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[1]Estimated population for 1967 based on the last official census of 1960.

[2]W. Lloyd Warner, Marcia Meeker, and Kenneth Eells, Social Class in America (New York: Harper and Brothers, 1953).

the eighty-six subjects, the Plus group consisted of forty-nine pupils, twenty-five boys and twenty-four girls. The Minus group consisted of thirty-seven pupils, twenty-three boys and fourteen girls.

Instruments of Investigation

After the eighty-six subjects had been selected for this study, data were obtained through questionnaires, interviews, and checklists. The following instruments were used in this research: (1) a Parent Questionnaire, (2) a Pupil Self-Evaluation Checklist, (3) a Parent Evaluation Checklist, and (4) a Teacher Evaluation Checklist.

The Parent Questionnaire included the following factors:

1. Economic level of the family
2. Parents' occupation and job stability
3. Parents' educational level
4. Parents' vocational aspirations for their children
5. Certain enrichment factors in the home, such as, number of books and encyclopedias, hobbies and collections, private lessons taken, and membership in formally organized groups
6. Child's home responsibilities
7. Stability of the home
8. Special health and physical problems

Each family was personally interviewed and the totals for each factor were computed for both the Plus and the Minus groups. At the same time information was gathered relative to the Parent's Questionnaire, data were also collected on an evaluation of the child made by the parents about their child. This evaluation included what were considered to be five key areas in the child's home and school life. They are as follows: Area I, skills in learning and competency in subject matter, (this includes ability to solve problems, knowledge of subject matter, and ability to see relationships). Area II, use of mental abilities, (this includes research skills, ability to work independently, and critical thinking ability). Area III, intellectual motivation, (this includes interest in school, motivation toward learning, and intellectual curiosity). Area IV, attitudes and relationships with peers and teachers, (this includes status in peer groups and rapport with teachers). Area V, self-understanding, (this includes ability to accept responsibility both in school and at home, a self-understanding, and the acceptance of leadership roles).

Based upon these five critical areas, seventeen specific items were submitted to the parents for their evaluation. At school the child was given the exact questions in the exact same order for a self-evaluation. The teacher also was given the same questions in the same order for his or her appraisal of the child.

The rating scale for these three evaluations was as follows:

1 = Excellent; 2 = Very good; 3 = Above average;
4 = Average; 5 = Below average; 6 = Poor;
7 = Very poor.

These seventeen items are as follows:

1. I rate his ability to see how things go together in a problem as
2. I rate him in reading as
3. I rate him in arithmetic as
4. I rate him in English as
5. I rate his interest in school as
6. I rate his ability to think things through for himself as
7. I rate his ability to find facts in school library sources as
8. I rate his ability to do homework on his own as
9. I rate his ability to get along with other boys and girls as
10. I rate his ability to use knowledge he has as
11. I rate his ability to get along with teachers as
12. I rate his interest in learning new things as
13. I rate his interest in figuring things out for himself as
14. I rate his ability to take responsibility in school as

15. I rate his ability to take responsibility at home as

16. I rate his ability to see both his good side and his bad side as

17. I rate him on being willing to work as a leader as

A concept basic to this research is that academic behavior and school learning are governed to a certain extent by a pupil's self-concept as well as by that of "significant others." Brookover postulated and concluded that "self-concepts resulted from the interpretation of expectations and evaluations held by significant others as perceived by the student."[3] Two of the most important significant others were parents and teachers. Therefore, the above mentioned seventeen pertinent questions in five key areas of a child's home and school life were constructed so as to form the theoretical framework for hypotheses one, two, and three. The questions submitted to the pupil, to the parent, and to the teacher were worded identically and listed in the same sequence in order to maximize the validity and reliability of the results.

In order to make the results more meaningful and subject to statistical analysis that was manageable, a chi-square table for each of the seventeen items was

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[3]Brookover, op. cit., p. 5.

constructed containing six cells. Ratings 1, 2, and 3 (Excellent, Very good, and Good, respectively), were combined into a single cell. Rating 4 (Average), because it was largely a modal one with all three groups of evaluators, was assigned a separate cell. Ratings 5, 6, and 7 (Below average, Poor, and Very poor, respectively), were similarly combined into one cell. This was done for the Plus group and for the Minus group. In Appendix "C" are listed the chi-square tables and computed chi-square test values for each of the seventeen questions and for each of the three groups of evaluators. This was done in an effort to determine whether or not the data confirmed these three hypotheses. This included hypothesis one, relative to the pupil's self-evaluation, hypothesis two, relative to the parents' evaluation, and hypothesis three, relative to the teachers' evaluation. The 1 per cent confidence level was used with two degrees of freedom. The tables for each of the evaluators for the seventeen items will appear as follows:

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+						
-						

In the investigation of the fourth hypothesis, and in collecting information about the parents' educational level, it was considered to be more definitive and appropriate to categorize the data as "high," "medium," and "low," rather than dichotomized as "high" and "low." The high classification included those parents whose minimal formal education was the completion of two years or more of a four-year college or university, or the completion of two years of work at a junior college. The medium classification included those parents who had completed the junior year in high school and up to the completion of one year of work at a college or university, or a year at a junior college. The low classification included those parents who did not complete the junior year in high school.

In assessing the vocational aspirations of the parents it was similarly decided to make a three-fold classification in order that this would be comparable with the classification of the educational level of the parents.

In determining which vocations could be classified as high, medium, and low, W. Lloyd Warner's Revised Scale for Rating Occupations was used and applied. This is in accordance with Alba M. Edwards' classification[4] which

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[4]Alba M. Edwards, Alphabetical Index of Occupations and Industries, Bureau of the Census, U. S. Department of Commerce (Washington, D. C.: U. S. Government Printing Office, 1940).

was mentioned earlier. A rating of high was assigned to those subjects whose parental vocational aspirations included the highest two classifications on this scale, namely, "professional and proprietors of large businesses." A rating of medium was assigned to those subjects whose families indicated categories three, four, and five, namely, "clerks and kindred workers," (corresponding to Edwards' category three), and "proprietors of small businesses." A rating of low was assigned to those subjects whose families indicated categories six and seven, namely, "semi-skilled workers," (corresponding to Edwards' category four), and "unskilled workers, including laborers, domestics, and migrant workers." Also, those parents who had absolutely no plans for their children were placed in this category.

After these two tables were completed chi-square tests were applied in order to determine whether or not the obtained data confirmed the null hypothesis. Since the hypothesis was stated in the null form and since a 1 per cent confidence level was considered more definitive, this level of significance was used with these tables.

In the investigation of the fifth hypothesis, whether mentally able children from two parent homes (mother and father), or two parent substitutes, (two adults in loco parentis), are more likely to achieve above expectancy than children from one parent homes

(father or mother only), or a one parent substitute (only one adult in loco parentis), the data were collected in accordance with the Parent Questionnaire and then dichotomized using a chi-square table with four cells.

In the investigation of the sixth hypothesis, that is, whether there is a positive relationship between certain enrichment factors in the home and a child's achievement level, the data were gathred in accordance with the Parent Questionnaire and a six cell chi-square table was used. For the Plus group and the Minus group the rating for each was designated as "high," (much enrichment), "medium," (some enrichment), and "low," (little or no enrichment).

The following are the guidelines for each of the three categories: High (or much enrichment), included possession of 100 or more books, one or more complete sets of a national encyclopedia, a hobby and/or a collection in which the child was currently and actively involved, the taking of a private lesson (art, music, dancing, voice), currently or within the past three years, and a membership in a formally organized group (Boy Scouts, Girl Scouts, civic swimming, baseball, football, or other athletic groups, Little League baseball or football, Drum and Bugle Corps, etc.); Medium (or some enrichment), included possesstion of 50-100 books in the home, a set of a national encyclopedia, an ongoing hobby or collection, or, taking of a private

lesson as specified above, or, a membership in a formally organized group in accordance with the stipulations set forth above; Low (little or no enrichment), would be a designated category in the event any of the above criteria in the medium classification were lacking.

A six cell, chi-square table was used to indicate whether or not there was a significant difference in the enrichment factors in the homes of the Plus and the Minus group subjects.

CHAPTER IV

THE RESULTS OF THE INVESTIGATION

The purpose of this chapter is to present the results of the evaluation checklists as well as the results of the questionnaires insofar as they are related to the established hypotheses.

Results of the Pupil Self-Evaluation

The pupil self-evaluation checklists were used to evaluate the subjects in this study through the opinion of the subjects themselves, their parents, and teachers.

The seventeen items on the checklists were selected as a means of rating the subjects in five key areas: (1) skills in learning and competence in subject matter, (2) use of mental ability, (3) intellectual motivation, (4) attitudes and relationships with peers and teachers, and (5) self-understanding.

The data relative to the composite table for the seventeen items for self-rating by the Plus and Minus groups showed a computed chi-square value of 6.61 which compared with an indicated chi-square table value of 9.21 at the 1 per cent level of confidence with two degrees of freedom. Therefore, there exists no difference

that is statistically significant between these two groups in their self-evaluation. The self-rating of eleven of the seventeen items was not consistent with the first hypothesis while the self-rating on six questions revealed a significant difference and was, therefore, consistent with this hypothesis. Suffice to mention here, the following six items indicated a significant difference in the self-evaluation made by the Plus group as compared with the Minus group. These items are as follows:

Item two (rating in reading), item four (rating in English), item five (rating in interest in school), item eight (rating in ability to do homework on his own), item ten (rating in ability to use knowledge he has), and item twelve (rating in interest in learning new things). The chi-square test values for the above ratings are located in Appendix "C."

It seems pertinent to note also that the item showing the least statistical difference in the evaluation made by the two groups was the subject's "ability to see both his good side and his bad side." Conversely, the question revealing the greatest difference statistically between the two groups was relative to "interest in school."

The results of the self-rating on the other eleven questions indicated no significant difference between the two groups.

The composite table for the seventeen items for these two groups in their respective self-evaluation is as follows:

TABLE 1.--Composite self-rating.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	443	378.4	261	241.5	129	211.6
-	222	285.7	164	182.4	243	159.4

Computed chi-square value = 6.61.

Results of the Parent Evaluation

The same procedures were used in compiling and analyzing the data relative to the evaluation of the subjects made by their parents as was used in the self-evaluation. It was found that of the seventeen items, eleven revealed a significant difference between the Plus and the Minus group, and on six questions there was no significant difference. Those items revealing a significant difference were as follows:

Item one (rating of ability to see how things go together in a problem), item two (rating in reading), item three (rating in arithmetic), item four (rating in English), item five (rating of interest in school), item seven (rating of ability to find facts in school

library sources), item ten (rating of ability to use knowledge), item eleven (rating of ability to get along with teachers), item twelve (rating of interest in learning new things), item fourteen (rating of ability to take responsibility in school), item seventeen (rating of being willing to work as a leader).

The results of the evaluation of the other six questions indicated no significant difference between the two groups in the rating made by the parents. The chi-square test values for each individual rating above are found in Appendix "C."

The composite table for the seventeen items for these two groups as evaluated by their parents is as follows:

TABLE 2.--Composite rating by the parents.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	517	399.2	197	207.7	119	224.5
-	185	301.6	168	153.4	276	164.4

Computed chi-square value = 11.43.

The complete data after statistical analysis yielded a computed chi-square test value of 11.43 which compared with a chi-square table value of 9.21 at the 1 per cent level of confidence with two degrees of freedom. Therefore, there exists a difference that is statistically significant between the Plus group and the Minus group in their evaluation by the parents.

Results of the Teacher Evaluation

The same procedures were used in compiling and analyzing the data relative to the evaluation of the subjects made by the teachers as were used in the two previous evaluations. It was found that on the seventeen items, two revealed no significant difference between the Plus and the Minus group. These two items were related to questions number fifteen and sixteen, that is, the rating of the subject's ability to take responsibility at home and the rating of the ability of the subject to see both his good side and his bad side. The results of the remaining items showed a significant difference existed relative to the teachers' evaluation of the two groups of subjects. The chi-square test values for each individual rating given above are located in Appendix "C." The composite table for the seventeen items for these two groups as rated by their teachers is as follows:

TABLE 3.--Composite rating by the teachers.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	477	342.5	264	235.9	92	250.2
-	126	259.0	158	177.8	346	190.0

Computed chi-square value = 20.84.

After statistical analysis the data indicated a computed chi-square value of 20.84 which compared with a chi-square table value of 9.21 at the 1 per cent level of confidence with two degrees of freedom. Therefore, there exists a significant difference that is sizeable between the Plus group and the Minus group in the evaluation of them by their teachers.

In comparing the three groups of evaluators it seems important to mention that the teachers' evaluation indicated the greatest significant difference in their rating of the Plus and Minus group subjects while the self-rating by the pupils revealed the least significant difference between these two groups. The parents made their evaluation closer to that of the teachers than to that of the children.

Table 4 shows the computed chi-square test values for the pupils' self-evaluation, the parents' evaluation, and the teachers' evaluation.

TABLE 4.--Composite evaluation by the three groups of evaluators.

Question Number	Self-Evaluation	Parent Evaluation	Teacher Evaluation
1	7.54	14.51	15.94
2	14.83	35.30	38.15
3	5.94	13.66	36.60
4	13.36	16.94	16.90
5	15.38	23.18	29.60
6	7.76	8.31	30.87
7	7.93	10.51	28.98
8	10.34	9.64	15.36
9	7.59	1.63	15.96
10	13.69	24.95	31.84
11	2.49	11.68	21.07
12	12.66	27.49	31.30
13	7.85	1.94	20.72
14	5.15	22.78	36.04
15	5.58	6.30	7.53
16	1.12	2.07	5.17
17	4.15	19.59	16.48

The above chi-square data were computed at the 1 per cent level of confidence with two degrees of freedom.

Results of the Investigation of the Parents' Educational Level and the Vocational Aspirations of the Parents

As mentioned previously in Chapter III relative to the investigation of and collection of information about the parents' educational level, it was considered to be more definitive and meaningful to categorize the data as high, medium, and low, rather than dichotomized as high and low. The qualifications of these three categories were given at that time. Table 5 shows the data for the

educational level of the parents of the subjects of both the Plus and Minus groups. Five of the Plus group subjects were from a one parent home (father or mother only), or a one parent substitute (only one adult in loco parentis). Six of the Minus group subjects were from such a family group situation.

TABLE 5.--Educational level of the parents.

Group	High	Medium	Low
+	14	57	22
-	8	27	33

Computed chi-square value = 11.41.

After statistical analysis the data revealed a computed chi-square test value of 11.41, which when compared with the table value of 9.21 at this confidence level and two degrees of freedom, shows a statistically significant difference existed between the two groups under comparison.

In assessing the vocational aspirations of the parents it was similarly decided to make a three-fold classification in order that this would be comparable with the classification relative to the educational level of the parents. Table 6 gives the data for the vocational aspirations of the parents of the subjects of both groups being studied.

TABLE 6.--Vocational aspirations of the parents.

Group	High	Medium	Low
+	57	32	4
-	33	23	12

Computed chi-square value = 8.19.

After this table was completed chi-square tests were applied in order to determine whether or not the obtained data confirmed the null hypothesis. The computed chi-square test value of 8.19, which when compared with a table chi-square of 9.21 at the 1 per cent confidence level with two degrees of freedom, indicated the difference was not statistically significant between the parents of the two groups of subjects. Therefore, the findings did not support this null hypothesis since the data relative to the educational level of the parents were significant, whereas, the data relevant to the vocational aspirations of the parents were not significant.

In collecting and analyzing data concerning the children from two parent homes, or two parent substitutes (two adults in loco parentis), and children from one parent homes (father or mother only), or a one parent substitute (one adult in loco parentis), it was found that five Plus group subjects and six Minus group subjects resided in homes with only one parent, or a one parent substitute. Table 7 reveals these figures.

TABLE 7.--Two parent homes (or two parent substitutes) one parent homes (or one parent substitute).

Group	Two Parent	One Parent
+	44	5
-	31	6

Computed chi-square value = .62.

The chi-square test did not confirm this hypothesis since the computed value was only .62 as compared with a table value of 6.64 at the 1 per cent level of confidence with one degree of freedom. The difference, therefore, was not statistically different.

In the investigation of certain enrichment factors in the home, as mentioned previously, it was decided to use a three-fold classification because of the many different criteria by which enrichment could be measured. The qualifications for high (or much enrichment), medium (or some enrichment), and low (little or no enrichment), were explained in Chapter III. Table 8 below indicates the pertinent data relative to enrichment factors in the homes of the two groups under comparison.

TABLE 8.--Enrichment factors in the home.

Group	High	Medium	Low
+	23	20	6
-	9	12	16

Computed chi-square value = 11.17.

A chi-square test was used to determine whether or not there was a statistically significant difference in the enrichment factors in the homes of the Plus and Minus group subjects. The computed chi-square test value of 11.17 yielded a result indicating a significant difference existed between these two groups at the 1 per cent confidence level with two degrees of freedom since the table value showed a figure of 9.21.

In summation, the data and statistical analyses confirmed hypotheses two, three, and six and did not confirm hypotheses one, four, and five.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to discover if there were differences in selected background factors between mentally able children, in a relatively homogeneous socio-economic community, who achieved above expectancy and mentally able children who achieved below expectancy as measured by standardized achievement and mental maturity tests. Specifically, this research investigated the following background factors:

1. Economic level of the family
2. Parents' occupational and job stability
3. Parents' educational level
4. Parents' vocational aspirations for their children
5. Certain enrichment factors in the home, such as number of books and encyclopedias, hobbies and collections, private lessons taken, and membership in formally organized groups
6. Child's home responsibilities
7. Stability of the home
8. Special health and physical problems

9. An evaluation of mentally able fifth and sixth grade children who had achieved two or more years above expectancy and those who had achieved two or more years below expectancy that was made by themselves, their parents, and their teachers

Methods of Investigation

The literature and research concerning underachievement of mentally gifted pupils were reviewed. Relatively little agreement was found concerning precisely what constituted mental giftedness; therefore, an arbitrary definition of mental-giftedness was established. Any fifth or sixth grade pupil attending any of the thirteen elementary schools in the city of Hialeah, Dade County, Florida, for the 1966-67 school year who had achieved an average I. Q. score of 120 or more on the California Short Form Test of Mental Maturity, Form S, was defined as mentally able.

The cumulative records of 2,787 fifth and sixth grade children were examined to determine those students with average I. Q. scores of 120 or higher. It was found that 538 pupils met this first criterion. The I. Q. scores of these children were then converted to mental age grade levels.

Scores from the Stanford Achievement Test, Intermediate Partial Battery, Forms J and K, were converted

to achievement grade levels. These were compared with the mental age grade levels of subjects who had met the criterion of mental ability. Those pupils who had achieved academically two or more years above their mental age grade level expectancy and those who had achieved two or more years below their mental age grade expectancy were selected as subjects for this study. With these criteria it was found that fifty-two of the 538 high I. Q. students achieved two or more years above expectancy and thirty-nine achieved two or more years below expectancy. Three subjects from the Plus group and two from the Minus group were not included in the study because they were found to lie not within the classification as being in the lower-middle or upper-lower class according to the established classification of W. Lloyd Warner which was used in this research.

After the subjects had been selected for inclusion in the study, further data were obtained through checklists, questionnaires, and interviews. The teachers of the subjects were contacted and were asked to rate their pupils on the Teachers' Evaluation of Pupil Checklist and they were also asked to administer the Pupils' Self-Evaluation Checklist. Parents were interviewed to obtain data for the Parent Questionnaire, and in addition, they were asked to rate their children on the Parents' Evaluation of Pupil Checklist.

The results of the checklists of the pupils and teachers, together with the information from parental interviews, questionnaires, and checklists concerning eighty-six mentally able children, furnished the data necessary for the completion of this study.

The group that achieved above expectancy consisted of forty-nine subjects, twenty-five boys and twenty-four girls. The group that achieved below expectancy consisted of thirty-seven subjects, twenty-three boys and fourteen girls. In the Plus group, twenty-one of the subjects were fifth grade pupils and twenty-eight were sixth grade pupils. In the Minus group twenty pupils were in the fifth grade and seventeen were in the sixth grade.

In the Plus group the intelligence quotients ranged from 120 to 157 with a mean of 128.6. The intelligence quotient range in the Minus group was from 120 to 152 with a mean of 124.7.

Evaluations Made by the Three Groups of Evaluators

The pupil self-evaluation revealed no statistically significant difference between the Plus and Minus group subjects, and, therefore, the findings did not support the first hypothesis. On the self-rating of eleven items no significant difference existed while on six of the items a significant difference did exist.

The parents' evaluation indicated a statistically significant difference existed between these two groups under comparison and, therefore, the results did support the second hypothesis. On eleven items a significant difference was found to exist while on the other six items no significant difference was in evidence.

The teachers' evaluation showed a statistically significant difference existed between the two groups of subjects and, therefore, the findings did support the third hypothesis. On fifteen of the seventeen items this same result held true and on only two items was the difference not significant.

The chi-square analysis used was at the 1 per cent level of confidence with two degrees of freedom.

Educational Level of the Parents

As mentioned previously in Chapter IV relative to the parents' educational level, the results showed a computed chi-square value of 11.41 compared with a table chi-square value of 9.21 thereby revealing the existence of a statistically significant difference between the educational level of the parents of the Plus group subjects compared with the educational level of the parents of the Minus group subjects.

The mean educational level for the Plus group parents was 12.9 years and for the Minus group parents was 10.4 years. Seventeen and seven-tenths per cent of

the fathers and 6.1 per cent of the mothers of the Plus group earned college degrees; 9.2 per cent of the Minus group fathers and 1.8 per cent of the Minus group mothers had attained a similar educational level.

Vocational Aspirations of the Parents

The comparison of the vocational aspirations of the parents of the Plus and Minus group children indicated that, although generally the goals set by the parents of the Plus group were higher, the findings did not reveal a statistically significant difference at the 1 per cent level of confidence between the vocational aspirations of the parents of these two groups. Also, there were more parents of the Minus group children who did not specify any plans for their children.

Since the findings revealed a statistically significant difference between the parents of the two groups under comparison in one relationship stated in the null hypothesis, namely, their educational level and the achievement level of their children, but not a statistically significant difference in the other expressed relationship, that is, the vocational aspirations of the parents and the achievement level of their children, the null hypothesis, therefore, was not confirmed.

Children from Two Parent Homes and One Parent Homes

Although there was a slightly higher per cent of Minus group children living with one parent only, or with a one parent substitute, the findings indicated that the difference between the two groups was not statistically significant at the 1 per cent confidence level and, therefore, did not support hypothesis five.

Enrichment Factors in the Home

In the investigation of certain enrichment factors in the homes of the Plus and Minus group subjects, the application of a chi-square test revealed that there was a statistically significant difference in such home factors in that the computed chi-square test value was 11.17, at the 1 per cent level of confidence, compared with a chi-square table value of 9.21. Therefore, the findings confirmed this sixth hypothesis.

Conclusions

The following conclusions seem to be warranted on the basis of the findings of this comparative study of mentally able fifth and sixth grade children achieving above and below expectancy:

1. Mentally able children who had a higher self-concept in the following five key areas were more likely to achieve above than below grade level expectancy when compared with mentally

able children who had a lower self-concept in these same areas. These five key areas were as follows: Area I, skills in learning and competency in subject matter; Area II, use of mental abilities; Area III, intellectual motivation; Area IV, attitudes and relationships with peers and teachers; Area V, self-understanding.

2. Mentally able children who had achieved two or more years above grade level expectancy and mentally able children who had achieved two or more years below grade level expectancy revealed no statistically significant difference in their self-rating, whereas, their parents and teachers, in their respective ratings of the two groups, indicated a variation that was statistically significant. It was recognized under Limitations of the Study that a child's self-evaluation may vary from the evaluations made of him by the parents and teachers because of differential interpretations of the Evaluation Checklist questions.
3. The educational level of parents of mentally able children was far more likely to be a determinant of the achievement level of their children than the factor of vocational aspirations of the parents.

4. Mentally able children from one parent homes (or a one parent substitute), were only very slightly less likely to achieve above grade level expectancy than mentally able children from two parent homes (or two parent substitutes). This difference was not statistically significant at the 1 per cent confidence level as evidenced by the fact that the computed chi-square test value was .62 compared with an established chi-square table value of 6.64.
5. Certain enrichment factors in the home such as encyclopedias, number of books present and magazines to which subscribed, hobbies, collections, private lessons taken, and membership in formally organized children's activities, contributed to differences in the achievement level of mentally able children.

Recommendations

The following recommendations are made, based upon the data that were analyzed and upon the conclusions that were drawn from this study:

1. Elementary classroom teachers should be furnished with information relative to certain background factors as they may relate to achievement.

2. As soon as mentally able children are identified by the school, the parents should be notified to such effect in order to encourage them to provide enrichment materials and activities for their children.
3. Since this study as well as the literature has indicated that boys outnumber girls as underachievers, special cooperative planning between the school and the home should be provided for them.
4. Since certain background factors are related to achievement of mentally able children and since the teacher evaluation indicated the most significant difference from the child's self-evaluation, the possibility should be explored of providing released time for teachers for home visitation during the school year in order to better understand these certain background factors as they are related to achievement.

Implications for Further Research

The following suggestions are made as implications for further research:

1. A follow-up of this group of mentally able children at the eleventh and twelfth grade level might be conducted as a means of determining their longitudinal achievement.

2. A study might be made to determine the earliest age at which the underachieving mentally able child can be identified and remedial programs inaugurated.
3. Case studies might be made of children revealed in this study whose achievement as measured by group achievement tests was found to be two or more years below age grade level.
4. A study might be conducted to investigate other background factors as they may relate to achievement of mentally able elementary school children.
5. A study might be undertaken comparing achieving and underachieving mentally able elementary pupils in an effort to correlate certain background factors as they may relate to achievement.

APPENDICES

APPENDIX A

PARENT QUESTIONNAIRE

PARENT QUESTIONNAIRE

IDENTIFICATION FACTORS

Name_____ Sex_____
Age_____ Grade_____
Birthdate_____ School_____

ECONOMIC LEVEL

Do you own your home? Yes_____ No_____
Do you rent your home? Yes_____ No_____

Yearly income of	Father	Mother	Value of Home
Below $5,000			
$5,000 - $7,500			
$7,500 - $10,000			
$10,000 - $12,500			
$12,500 - $15,000			
$15,000 - $20,000			
Over $20,000			

Child has his/her own room ( );
shares with others ____ (number).

OCCUPATION AND JOB STABILITY

Name	Occupation	Job Title
Father		
Mother		

How long have you been in your present position?
Father_____ Mother_____

What is your source of income?	Father	Mother
a. Inherited wealth		
b. Earned wealth		
c. Profits and fees		
d. Salary		
e. Wages		
f. Private relief		
g. Public relief		

HOUSE TYPE

Size	Condition
Very large	Very good
Large	Good
Medium	Medium
Small	Bad
Very small	Very bad

DWELLING AREA

Very high	Average
High	Below average
Above average	Low
	Very low (slum districts)

PARENTS' EDUCATIONAL LEVEL

Highest grade completed:	Father	Mother
6 or less		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16 (College graduate)		
Above 16 (Post graduate)		

PARENTS' VOCATIONAL ASPIRATIONS FOR THEIR CHILDREN:

Father's vocational aspirations for the child_____
Mother's vocational aspirations for the child_____

HOME RESPONSIBILITY

Child's home responsibilities_____

STABILITY OF THE HOME

Child living with natural parents (or two parent substitutes)
Child living with one parent (or one parent substitute)

ENRICHMENT FACTORS IN THE HOME

Number of books in the home_____

Number of encyclopedias in the home_____

Number of magazines subscribed to_____

Number of hobbies and/or collections_____

Number of series of private lessons taken_____

Membership in formally organized groups:

If yes, how many_____

No_____

Which organizations?_____

SPECIAL HEALTH AND PHYSICAL PROBLEMS

Does the child have a special problem in any of the following:

Speech_____

Hearing_____

Sight_____

Allergy_____

Diabetes____

Epilepsy____

Heart_____

Extreme Emotional Problems_____

Rheumatic fever_____

Tuberculosis_____

Other Serious Illness_____

Major Operations____

_____

APPENDIX B

PUPILS' SELF-EVALUATION CHECKLIST

PARENTS' EVALUATION CHECKLIST

TEACHERS' EVALUATION CHECKLIST

PUPILS' SELF-EVALUATION CHECKLIST

Pupil's Name_____

Please rate yourself on the following items. You may have difficulty in answering some of these, but if so, please make the very best judgment you can. Please check the proper rating as shown below. Thank you for your cooperation.

1 = Excellent; 2 = Very good; 3 = Above average;
4 = Average; 5 = Below average; 6 = Poor;
7 = Very poor

		1	2	3	4	5	6	7
1.	I rate my ability to see how things go together in a problem as.....	—	—	—	—	—	—	—
2.	I rate myself in reading as..	—	—	—	—	—	—	—
3.	I rate myself in arithmetic as.....	—	—	—	—	—	—	—
4.	I rate myself in English as..	—	—	—	—	—	—	—
5.	I rate my interest in school as.....	—	—	—	—	—	—	—
6.	I rate my ability to think things through for myself as.	—	—	—	—	—	—	—
7.	I rate my ability to find facts and use school library materials as.....	—	—	—	—	—	—	—
8.	I rate my ability to do homework on my own as.....	—	—	—	—	—	—	—
9.	I rate my ability to get along with other boys and girls as.....	—	—	—	—	—	—	—
10.	I rate my ability to use and apply the knowledge I have as	—	—	—	—	—	—	—
11.	I rate my ability to get along with my teachers as....	—	—	—	—	—	—	—
12.	I rate my interest in learning new things as.....	—	—	—	—	—	—	—

		1	2	3	4	5	6	7
13.	I rate my interest in figuring things out for myself as.....	—	—	—	—	—	—	—
14.	I rate my ability to take responsibility in school as..	—	—	—	—	—	—	—
15.	I rate my ability to take responsibility at home as....	—	—	—	—	—	—	—
16.	I rate my ability to see both my good and my bad side as.....	—	—	—	—	—	—	—
17.	I rate myself as being willing to work as a leader as.....	—	—	—	—	—	—	—

PARENTS' EVALUATION OF PUPIL CHECKLIST

Pupil's Name_____

Please rate your child on the following items. You may have difficulty in answering some of the items, but if so, please make the very best estimate you can. Please check the appropriate rating as shown below. Thank you for your cooperation.

1 = Excellent; 2 = Very good; 3 = Above average;
4 = Average; 5 = Below average; 6 = Poor;
7 = Very poor.

		1	2	3	4	5	6	7
1.	I rate his ability to see how things go together in a problem as.....	—	—	—	—	—	—	—
2.	I rate him in reading as....	—	—	—	—	—	—	—
3.	I rate him in arithmetic as.	—	—	—	—	—	—	—
4.	I rate him in English as....	—	—	—	—	—	—	—
5.	I rate his interest in school as.....	—	—	—	—	—	—	—
6.	I rate his ability to think things through for himself as.....	—	—	—	—	—	—	—
7.	I rate his ability to find facts and use school library materials as.....	—	—	—	—	—	—	—
8.	I rate his ability to do homework on his own as.....	—	—	—	—	—	—	—
9.	I rate his ability to get along with other boys and girls as.....	—	—	—	—	—	—	—
10.	I rate his ability to use and apply the knowledge he has as.....	—	—	—	—	—	—	—
11.	I rate his ability to get along with his teachers as..	—	—	—	—	—	—	—
12.	I rate his interest in learning new things as.....	—	—	—	—	—	—	—

		1	2	3	4	5	6	7
13.	I rate his interest in figuring things out for himself as.....	—	—	—	—	—	—	—
14.	I rate his ability to take responsibility in school as..	—	—	—	—	—	—	—
15.	I rate his ability to take responsibility at home as....	—	—	—	—	—	—	—
16.	I rate his ability to see both his good side and his bad side as.....	—	—	—	—	—	—	—
17.	I rate him on being willing to work as a leader as.....	—	—	—	—	—	—	—

TEACHERS' EVALUATION OF PUPIL CHECKLIST

Pupil's Name_____

Please rate your child on the following items. You may have difficulty in answering some of the items, but if so, please make the very best estimate you can. Please check the appropriate rating as shown below. Thank you for your cooperation.

1 = Excellent; 2 = Very good; 3 = Above average;
4 = Average; 5 = Below average; 6 = Poor;
7 = Very poor.

		1	2	3	4	5	6	7
1.	I rate his ability to see how things go together in a problem as.....	—	—	—	—	—	—	—
2.	I rate him in reading as.....	—	—	—	—	—	—	—
3.	I rate him in arithmetic as...	—	—	—	—	—	—	—
4.	I rate him in English as.....	—	—	—	—	—	—	—
5.	I rate his interest in school as.....	—	—	—	—	—	—	—
6.	I rate his ability to think things through for himself as.	—	—	—	—	—	—	—
7.	I rate his ability to find facts and use school library materials as.....	—	—	—	—	—	—	—
8.	I rate his ability to do homework on his own as.....	—	—	—	—	—	—	—
9.	I rate his ability to get along with other boys and girls as.....	—	—	—	—	—	—	—
10.	I rate his ability to use and apply the knowledge he has as.	—	—	—	—	—	—	—
11.	I rate his ability to get along with his teachers as....	—	—	—	—	—	—	—
12.	I rate his interest in learning new things as.....	—	—	—	—	—	—	—

		1	2	3	4	5	6	7
13.	I rate his interest in figuring things out for himself as.....	—	—	—	—	—	—	—
14.	I rate his ability to take responsibility in school as	—	—	—	—	—	—	—
15.	I rate his ability to take responsibility at home as...	—	—	—	—	—	—	—
16.	I rate his ability to see both his good side and his bad side as.....	—	—	—	—	—	—	—
17.	I rate him on being willing to work as a leader as.....	—	—	—	—	—	—	—

APPENDIX C

STATISTICAL ANALYSES OF THE EVALUATION CHECKLISTS

TABLE 9.--Self evaluation--I rate my ability to see how things go together in a problem as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	19	18.8	24	19.3	6	10.8
-	14	14.2	10	14.6	13	8.1

Question one, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 10.--Self-evaluation--I rate myself in reading as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	31	25.0	14	12.5	4	11.4
-	13	18.9	8	9.4	16	8.6

Question two, self-evaluation--The results indicate a significant difference between the two groups.

TABLE 11.--Self-evaluation--I rate myself in arithmetic as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	26	21.5	15	14.8	8	12.5
-	12	16.3	11	11.2	14	9.4

Question three, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 12.--Self-evaluation--I rate myself in English as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	26	22.2	20	17.0	3	9.6
-	13	16.7	10	13.0	14	7.3

Question four, self-evaluation--The results indicate a significant difference between the two groups.

TABLE 13.--Self-evaluation--I rate my interest in school as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	31	24.5	14	13.1	4	11.5
-	12	18.5	9	9.9	16	8.6

Question five, self-evaluation--The results indicate a significant difference between the two groups.

TABLE 14.--Self-evaluation--I rate my ability to think things through for myself as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	28	23.9	14	12.5	7	12.5
-	14	18.1	8	9.4	15	9.4

Question six, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 15.--Self-evaluation--I rate my ability to find facts and use school library materials as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	23.9	14	16.5	5	8.5
-	12	18.0	15	12.4	10	6.4

Question seven, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 16.--Self-evaluation--I rate my ability to do homework on my own as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	25	21.6	21	18.8	3	8.5
-	13	16.3	12	14.2	12	6.4

Question eight, self-evaluation--The results indicate a significant difference between the two groups.

TABLE 17.--Self-evaluation--I rate my ability to get along with other boys and girls as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	29	22.8	7	10.2	13	15.9
-	11	17.2	11	7.7	15	12.0

Question nine, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 18.--Self-evaluation--I rate my ability to use and apply the knowledge I have as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	26	19.3	15	14.2	8	15.4
-	8	14.6	10	10.7	19	11.6

Question ten, self-evaluation--The results indicate a significant difference between the two groups.

TABLE 19.--Self-evaluation--I rate my ability to get along with my teachers as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	25	21.6	12	12.5	12	14.8
-	13	16.3	10	9.4	14	11.2

Question eleven, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 20.--Self-evaluation--I rate my interest in learning new things as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	31	26.8	12	10.8	6	11.4
-	16	20.2	7	8.1	14	8.6

Question twelve, self-evaluation--The results indicate a significant difference between the two groups.

TABLE 21.--Self-evaluation--I rate my interest in figuring things out for myself as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	27	22.8	15	13.6	7	12.5
-	13	17.2	9	10.3	15	9.4

Question thirteen, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 22.--Self-evaluation--I rate my ability to take responsibility in school as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	21	17.1	16	15.3	12	16.5
-	9	12.9	11	11.6	17	12.3

Question fourteen, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 23.--Self-evaluation--I rate my ability to take responsibility at home as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	25	24.5	15	11.4	9	13.0
-	18	18.5	5	8.6	14	9.9

Question fifteen, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 24.--Self-evaluation--I rate my ability to see both my good side and my bad side as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	21	22.8	17	14.8	11	11.4
-	19	17.2	9	11.2	9	8.6

Question sixteen, self-evaluation--The results indicate no significant difference between the two groups.

TABLE 25.--Self-evaluation--I rate myself on being willing to work as a leader as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	22	19.3	16	14.2	11	15.4
-	12	14.6	9	10.7	16	11.6

Question seventeen, self-evaluation--The results indicate no significant difference between the two groups.

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TABLE 26.--Parent evaluation--I rate his ability to see how things go together in a problem as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	31	25.6	14	12.0	4	11.4
-	14	19.3	7	9.0	16	8.6

Question one, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 27.--Parent evaluation--I rate him in reading as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	39	26.2	9	13.6	1	9.1
-	7	19.8	15	10.3	15	6.8

Question two, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 28.--Parent evaluation--I rate him in arithmetic as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	34	26.7	11	12.0	4	10.2
-	13	20.2	10	9.0	14	7.7

Question three, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 29.--Parent evaluation--I rate him in English as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	31	22.2	12	14.2	6	12.5
-	8	16.8	13	10.7	16	9.4

Question four, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 30.--Parent evaluation--I rate his interest in school as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	33	23.3	9	8.5	7	17.1
-	8	17.6	6	6.4	23	12.9

Question five, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 31.--Parent evaluation--I rate his ability to think things through for himself as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	28	24.5	17	15.3	4	9.1
-	15	18.5	10	11.6	12	6.8

Question six, parent evaluation--The results indicate no significant difference between the two groups.

TABLE 32.--Parent evaluation--I rate his ability to find facts and use school library materials as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	26	21.6	16	13.6	7	13.6
-	12	16.3	8	10.3	17	10.3

Question seven, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 33.--Parent evaluation--I rate his ability to do homework on his own as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	22	17.0	16	14.2	11	17.6
-	8	12.9	9	7.7	20	8.6

Question eight, parent evaluation--The results indicate no significant difference between the two groups.

TABLE 34.--Parent evaluation--I rate his ability to get along with other boys and girls as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	28	27.3	12	10.2	9	11.4
-	20	20.6	6	7.7	11	8.6

Question nine, parent evaluation--The results indicate no significant difference between the two groups.

TABLE 35.--Parent evaluation--I rate his ability to use and apply the knowledge he has as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	32	21.6	11	12.0	6	15.3
-	6	16.3	10	9.0	21	11.6

Question ten, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 36.--Parent evaluation--I rate his ability to get along with his teachers as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	22.2	7	10.2	12	16.5
-	9	16.8	11	7.7	17	12.4

Question eleven, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 37.--Parent evaluation--I rate his interest in learning new things as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	39	27.3	7	11.4	3	10.2
-	9	20.6	13	8.6	15	7.7

Question twelve, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 38.--Parent evaluation--I rate his interest in figuring things out for himself as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	29	26.2	13	13.6	7	9.1
-	17	19.8	11	10.3	9	6.8

Question thirteen, parent evaluation--The results indicate no significant difference between the two groups.

TABLE 39.--Parent evaluation--I rate his ability to take responsibility in school as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	20.0	10	10.8	9	18.2
-	5	15.0	9	8.1	23	13.7

Question fourteen, parent evaluation--The results indicate a significant difference between the two groups.

TABLE 40.--Parent evaluation--I rate his ability to take responsibility at home as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	24.7	11	11.4	8	12.5
-	14	18.9	9	8.6	14	9.4

Question fifteen, parent evaluation--The results indicate no significant difference between the two groups.

TABLE 41.--Parent evaluation--I rate his ability to see both his good side and his bad side as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	23	20.0	14	16.7	12	12.5
-	12	15.0	15	12.4	10	9.4

Question sixteen, parent evaluation--The results indicate no significant difference between the two groups.

TABLE 42.--Parent evaluation--I rate his being willing to work as a leader as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	32	22.8	8	8.0	9	18.2
-	8	17.2	6	6.0	23	13.7

Question seventeen, parent evaluation--The results indicate a significant difference between the two groups.

The Teachers' Evaluation

TABLE 43.--Teacher evaluation--I rate his ability to see how things go together in a problem as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	27	21.0	16	13.6	6	14.2
-	10	15.8	8	10.3	19	10.7

Question one, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 44.--Teacher evaluation--I rate him in reading as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	37	24.5	10	10.8	2	13.6
-	6	18.5	9	8.1	22	10.3

Question two, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 45.--Teacher evaluation--I rate him in arithmetic as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	21.6	17	14.8	2	12.5
-	8	16.2	9	11.1	20	9.4

Question three, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 46.--Teacher evaluation--I rate him in English as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	22.2	17	11.4	2	15.3
-	8	16.7	9	8.6	20	11.6

Question four, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 47.--Teacher evaluation--I rate his interest in school as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	35	24.5	9	8.0	5	16.5
-	8	18.5	5	6.0	24	12.4

Question five, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 48.--Teacher evaluation--I rate his ability to think things through for himself as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	24	17.6	23	17.0	2	13.1
-	9	14.2	7	12.9	21	9.9

Question six, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 49.--Teacher evaluation--I rate his ability to find facts and use school library facilities as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	31	21.6	15	13.6	3	13.6
-	7	16.2	9	10.3	21	10.3

Question seven, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 50.--Teacher evaluation--I rate his ability to do homework on his own as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	22	16.0	20	18.2	7	14.8
-	6	12.0	12	13.7	19	11.1

Question eight, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 51.--Teacher evaluation--I rate his ability to get along with other boys and girls as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	22	19.2	17	11.4	10	16.5
-	12	14.6	3	8.6	22	13.7

Question nine, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 52.--Teacher evaluation--I rate his ability to use and apply knowledge he has as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	23	16.0	23	18.2	3	14.8
-	5	12.0	9	13.7	23	11.2

Question ten, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 53.--Teacher evaluation--I rate his ability to get along with his teachers as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	30	20.5	10	10.2	9	18.2
-	6	15.5	8	7.7	23	13.7

Question eleven, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 54.--Teacher evaluation--I rate his interest in learning new things as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	35	23.3	11	13.1	3	12.5
-	6	17.6	12	9.9	19	9.4

Question twelve, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 55.--Teacher evaluation--I rate his interest in figuring things out for himself as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	28	21.0	17	14.8	4	13.1
-	9	15.9	9	11.1	19	9.9

Question thirteen, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 56.--Teacher evaluation--I rate his ability to take responsibility in school as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	34	21.0	8	9.1	7	18.8
-	3	15.9	9	6.8	26	14.2

Question fourteen, teacher evaluation--The results indicate a significant difference between the two groups.

TABLE 57.--Teacher evaluation--I rate his ability to take responsibility at home as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	19	16.0	27	25.6	3	7.4
-	9	12.0	18	19.3	10	5.6

Question fifteen, teacher evaluation--The results indicate no significant difference between the two groups.

TABLE 58.--Teacher evaluation--I rate his ability to see both his good side and his bad side as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	21	16.5	17	17.6	11	14.8
-	8	12.4	14	13.3	15	11.1

Question sixteen, teacher evaluation--The results indicate no significant difference between the two groups.

TABLE 59.--Teacher evaluation--I rate him on being willing to work as a leader as.

Group	Rating					
	1-2-3		4		5-6-7	
	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.	Obs. Freq.	Exp. Freq.
+	29	20.0	7	8.5	13	20.5
-	6	15.0	8	6.4	23	15.5

Question seventeen, teacher evaluation--The results indicate a significant difference between the two groups.

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