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SELF CONCEPT AND ACADEMIC ACHIEVEMENT IN MIDDLE GRADE PUBLIC SCHOOL CHILDREN

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by

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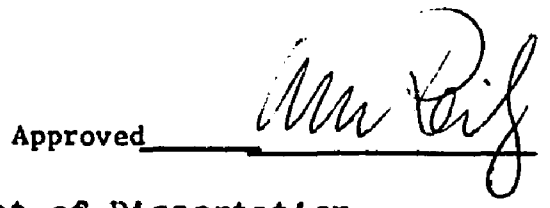
Approved  6/14/65

Abstract of Dissertation

SELF CONCEPT AND ACADEMIC ACHIEVEMENT IN MIDDLE GRADE PUBLIC SCHOOL CHILDREN

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I. INTRODUCTION

Statement of Purpose

This study examined the relationship between self concept and school achievement for Fourth, Fifth, and Sixth grade public school children. It also contrasted levels of self concept between boys' groups and girls' groups. An additional consideration of this study was the stability of the self concept, over a one year period, and the consistency of the interrelations within the Coopersmith Self-Esteem Inventory over the same period of time. Finally, the study examined a group of nine students who differed markedly from the general findings, in order to suggest hypotheses for clarification for the observed deviance.

Hypotheses

Six hypotheses were proposed in the study. They are

as follows:

1. There is a direct, linear relationship between self concept and school achievement for children in the Fourth, Fifth, and Sixth grades in a suburban public school.

2. There is a relationship between school achievement and the levels of self concept specific to the school setting.

3. The effect of ability upon the relationship between self concept and school achievement is to introduce non-linearity, with the size of the correlation decreasing at successively higher ability levels.

4. The effect of school grade placement upon the relationship between self concept and school achievement, is to introduce non-linearity, with the size of the correlation decreasing at successively higher grade levels.

5. The relationship between self concept and achievement is more pronounced for boys than for girls.

6. The level of those attributes of self concept specific to the school setting is higher for girls than for boys.

In addition to these hypotheses, three questions were posed. They are as follows:

1. Does the Coopersmith Self-Esteem Inventory maintain internal consistency?

2. Does the self concept remain relatively stable in time?

3. What may account for the observed deviations from the pattern of most middle grade school children?

II. SOURCES OF DATA

A group of 158 Fourth, Fifth, and Sixth grade students in a suburban elementary school were tested on measures of academic ability, academic achievement, and self concept.

III. METHODS OF DATA COLLECTION AND ANALYSIS

In June, 1963, the Coopersmith Self-Esteem Inventory was administered to 158 students. A Teacher Judgment of student self concept was also collected at this time. In October, 1963, the Iowa Test of Basic Skills (1955 edition) was administered to the same students. The Intelligence Quotients from the SRA Test of Primary Mental Abilities were obtained from the school records of these students. In June, 1964, the Coopersmith Self-Esteem Inventory was readministered. Descriptive statistics and Pearson product moment correlation coefficients were computed for the total group and for sub-groupings specific to the hypotheses. The t ratio, the Fisher z ratio, single classification analysis of variance, and the randomization test were used.

IV. CONCLUSIONS AND IMPLICATIONS

The data supported the hypotheses pertaining to the relationship between self concept and achievement for the total group, for specific school related self concept and

achievement, for the non-linear effect of grade placement, for the more pronounced relationship for boys than for girls, and for higher levels of self concept for girls than for boys. The data did not support the non-linear effect of ability level groupings. The correlations were not high enough to be useful in predicting achievement from self concept and intelligence.

The question of internal consistency was answered affirmatively for the Coopersmith Self-Esteem Inventory. The self concept, however, appears to change over a one year period. Poor adjustment, anti-social values, and extroversion appear to characterize those students who obtain high Self-Esteem scores while achieving relatively low academically. Poor adjustment, characterized by depressed and withdrawn behavior, appears to be associated with low Self-Esteem and high academic achievement.

These findings suggest that work with lower grade levels, and with boys, is more likely to be productive in influencing either self concept or achievement. The findings also suggest that modification of the school setting might improve boys' self concept and achievement.

Further research is indicated in connection with ability levels, because the trend supported the hypothesis of a non-linear effect of ability, although not at the selected significance level.

The Coopersmith Self-Esteem Inventory appears to be a useful device for assessing the effect of school practices upon the self concept of students.

PREFACE

This study was undertaken as a result of a concern of long standing about the apparent discrepancy between the ability of students and their actual performance. It is recognized that such a study can, at best, make a very small contribution to a total understanding of the problem of under-achievement. It is also recognized that there are many circumstances and conditions which may affect the achievement of an individual. This study, therefore, attempts to isolate one presumed aspect of the antecedents of achievement, self concept, and attempts to provide increased understanding of that aspect.

This analysis of self concept and achievement would not have been possible without the help of many people. Particular appreciation is extended to Dr. Harold C. Wells for his assistance in collecting the data and in contributing additional material from his personal experience with the students whose test scores were analyzed.

Appreciation is also extended to Dr. Virginia Roberts and Dr. Beatrice Bowen for their continued advice and encouragement, and to Mr. Bernard Rowan for his assistance with the proof-reading.

A sincere expression of gratitude is due to my adviser, Dr. Wilhelm Reitz, whose patience and persistence kept the

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CHAPTER I

INTRODUCTION

Background of the Study

An ever present difficulty facing teachers as they attempt to provide for the educational development of children is the complexity of the traits within and between individuals which influence the responses of the individuals to the developmental tasks which are undertaken. Teachers have long been attempting to take into account such traits as intelligence, past achievement, and motivation. Although these traits have been rather thoroughly studied over the past forty years, the existence of other trait variables still prevents accurate assessment and prediction in many cases. Further study of such variables is still necessary if teachers are to plan wisely for the education of individual students.

The self concept is one such trait which has attracted considerable attention in recent years. It is defined by Wylie as a phenomenological idea which deals with a person's conscious perception of his own relationship with his environment.[1]

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[1]Ruth C. Wylie, The Self Concept: A Critical Survey of Pertinent Research Literature (Lincoln University of Nebraska Press, 1961), p. 6.

Kelley states that a person must think well of himself in order to be fully functioning. He elaborates this idea by saying that such a person "looks at himself and likes what he sees well enough so that he can accept it."[1] Gordon puts it as follows:

> Our theoretical position is that the way one views himself is a significant variable in his performance. To date, research evidence is relatively scarce. What has been done tends to substantiate this position. 2

Prior to the time of the above statement, Brookover outlined a theory which is summarized as follows:

1. Persons learn to behave in ways each considers appropriate for himself.

2. Appropriateness is defined through internalization of the expectations of significant others.

3. Functional limits of ability are determined by the self concept acquired in social interaction. There are other limiting factors, but they are rarely reached.

4. The individual learns what he believes significant others expect him to learn.[3]

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[1]Earl C. Kelley, "The Fully Functioning Self," Perceiving, Behaving, Becoming: A New Focus, (Yearbook of the Association for Supervision & Curriculum Development, Washington, D.C., National Education Association, 1962), p. 10.

[2]Ira J. Gordon, Human Development From Birth Through Adolescence (New York: Harper & Brothers, Publishers, 1962), p. 259.

[3]W. B. Brookover, "A Social Psychological Conception of Classroom Learning," School and Society (LXXXVII, No. 2148, February 28, 1959), 84-87.

In practice, society in general, and educators in particular, have been operating as though the foregoing theory is, in fact, an established actuality. Lawrence, writing in a national weekly news magazine, quoted the following court opinion: "A sense of inferiority affects the motivation of a child to learn." This opinion, from a Federal Court in Kansas, was later upheld by the Supreme Court.[1]

Also the 1962 Yearbook of the Association for Supervision and Curriculum Development is devoted entirely to the discussion of self perception and its application to the function of an individual.[2] Furthermore, many studies have also appeared which explore the relationship of self concept to many things. For example, Morse reported a study which explores the relationship between self concept and time spent in school.[3] Alexander completed a dissertation on the relationships between self concept, self acceptance,

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[1]David Lawrence, "Mandate Against Hypocrisy?" U.S. News and World Report, (LVII, No. 21, November 23, 1964), 112.

[2]Arthur W. Combs, ed., Perceiving, Behaving, Becoming: A New Focus, (Yearbook of the Association for Supervision & Curriculum Development, Washington, D.C., National Education Association, 1962).

[3]William C. Morse, "Self Concept Data in the University School Research Project," The University of Michigan School of Education Bulletin, (XXXIV, No. 4, January 1963), p. 49.

and school marks.[1] Wylie published a comprehensive book surveying the research on the subject of self concept.[2] (Even a high school student newspaper showed concern about self concept by publishing an article on the research by Morse referred to above.)[3]

Significance

Although there is evidence of much research activity concerning self concept, many questions remain with inconclusive and partial answers. It is implied or stated, for example, by Kelley, Maslow, Combs, and Rogers that the more completely self perceiving person is a more fully functioning person.[4,5,6,7] It thus appears logical to say that a child

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[1]Eugene Donald Alexander, "The Relationship between Self-Concept, Self-Acceptance and School Marks" (unpublished Doctor's dissertation, University of Michigan, 1962), in Dissertation Abstracts, XXIII, 3229.

[2]Wylie, op. cit.

[3]Franklin Newsletter (Franklin High School, Vol. 2, No. 6, March, 1964).

[4]Kelley, op. cit., p. 10.

[5]A. H. Maslow, "Some Basic Propositions of a Growth and Self-Actualization Psychology," Perceiving, Behaving, Becoming: A New Focus, (Yearbook of the Association for Supervision & Curriculum Development, Washington, D.C., National Education Association, 1962).

[6]Combs, op. cit., p. 52.

[7]Carl R. Rogers, "Toward Becoming a Fully Functioning Person," Perceiving, Behaving, Becoming: A New Focus, (Yearbook of the Association for Supervision & Curriculum Development, Washington, D.C., National Education Association, 1962).

who accurately perceives himself as basically able to perform school tasks is apt to undertake them with greater success. Research for elementary school children, however, is not abundant nor conclusive on this point. Wylie includes a comprehensive bibliography of over 700 titles in her book, The Self Concept.[1] Of these titles, only nine relate primarily to school achievement, and only one, Reeder's dissertation, deals directly with the relationship between the level of self concept and academic achievement. Reeder reported that children achieve lower in comparison to their potential if they have a low self concept.[2] Perkins, however, reported no correlation between self, ideal self, and school achievement.[3] Other studies which also reported conflicting results are those of Coopersmith, Staines, and Shaw.[4,5,6]

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[1]Wylie, op. cit.

[2]Thelma A. Reeder, "A Study of Some Relationships Between Level of Self Concept, Academic Achievement and Classroom Adjustment" (unpublished Doctor's dissertation, in Dissertation Abstracts, XV, 1955), 2472.

[3]H. Perkins, "Factors Influencing Changes in Children's Self Concepts," Child Development, XXIX (1958), 221-30.

[4]Stanley Coopersmith, Betty J. Beardslee and David C. Lowy, "The Antecedents and Dynamics of Self-Esteem, M 2696," Progress Report covering the period Jan. 1, 1959 to Dec. 31, 1961, Submitted May 15, 1961 (unpublished Report of a study under a grant from the United States Public Health Service).

[5]J. Staines, "The Self-Picture as a Factor in the Classroom," British Journal of Education Psychology, XXVIII (June, 1958), 97-111.

[6]M. Shaw, K. Edson, and H. Bell, "The Self Concept of

This study is intended to provide more information about the kind of interaction which may exist between self concept and school achievement. Such information contributes to the empirical verification of Brookover's theory of classroom learning, particularly in respect to the determination of self concept of the functional limits of ability. The results of this study may then be useful to teachers of Fourth, Fifth, and Sixth grade students in determining the nature of under-achievement.

If the particular conditions can be identified under which the link between self concept and achievement have practical relevance, still other information is needed to make this knowledge functional. First, assuming a positive relationship between self concept and achievement, methods of measuring levels of self concept need to be refined to a degree which will permit the use of knowledge about this variable in predicting, explaining, and modifying achievement. For such a purpose, this study may contribute information about the utility of existing measuring methods. Second, assuming the aforementioned positive relationship, two other questions were posed; one concerning the direction of causality in the relationship, and the other concerning methods of improving self concept. Although these two questions are of high significance, they are beyond the

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Bright Under-achieving High School Students as Revealed by an Adjective Check List," Personnel and Guidance Journal, XXXIX (1960), 193-96.

scope of the present study.

Purpose

This study, therefore, examines the relationship between self concept and school achievement, as measured by selected instruments, to determine if the relationship is direct or inverse, and to determine the degree of relationship as expressed by correlation coefficients. The study examines aspects of self concept specific to the school setting, and, therefore, presumed to be differential from general self concept, as they relate to achievement. It also examines the stability and validity of a measure of self concept. This examination is conducted by means of an *ex post facto* analysis of the accumulated data from an extensive testing program. Additional data were secured specifically for the purpose of this study from and about students who had participated in the testing program.

Research Hypotheses

The hypotheses proposed as a rationale for the foregoing analysis are stated first in generic terms, then as operational hypotheses in terms of specific measures, and finally as statistical hypotheses in the null form. The variables are indicated by capitalization when they refer to specific measurements obtained by the instruments. The hypotheses are as follows:

1. There is a direct linear relationship between self concept and school achievement for Fourth, Fifth, and Sixth

grade students. Stated operationally, there is a positive linear correlation, for Fourth, Fifth, and Sixth grade students, between the Coopersmith Self-Esteem Inventory Total Score and the Iowa Test of Basic Skills (1955 edition) Composite Score.[1,2] Stated as a statistical null hypothesis:

$$H_o : r = \rho = 0$$

2. There is a relationship between school achievement and the levels of self concept specific to the school setting. Stated operationally, when the Composite Scores from the Iowa Test of Basic Skills are categorized according to associated levels of the Coopersmith Self-Esteem Inventory School Scores, the category means will be unequal, and will increase as the Self-Esteem School Scores increase. The null hypotheses tested is as follows:

$$H_o : \mu_1 = \mu_2 = \cdots \mu_7$$

3. The effect of ability upon the relationship between self concept and school achievement is to introduce non-linearity, with the size of the correlation decreasing at successively higher ability levels. Stated operationally, the correlation between the Coopersmith Self-Esteem Inventory Total Score and the Iowa Test of Basic Skills (1955 edition)

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[1]E. F. Lindquist and A. N. Hieronymus, Iowa Test of Basic Skills State University of Iowa (Boston, Mass., Houghton Mifflin Co., 1955).

[2]Stanley Coopersmith, "Self-Esteem as a Determinant of Selective Recall and Repetition" (unpublished Doctor's dissertation, Cornell University, 1957), pp. 133-35.

Composite Score becomes successively lower from low to middle, to high groups selected on the basis of intelligence quotients obtained from the Science Research Associates Test of Primary Mental Abilities, for Ages 7-11 (1954 edition). The forms of the null hypotheses are these:

$$H_o : r_1 = \rho_1 = 0$$
$$H_o : r_2 = \rho_2 = 0$$
$$H_o : r_3 = \rho_3 = 0$$
$$H_o : \rho_1 = \rho_2$$
$$H_o : \rho_1 = \rho_3$$
$$H_o : \rho_2 = \rho_3$$

4. The effect of school grade placement upon the relationship between self concept and school achievement is to introduce non-linearity, with the size of the correlation decreasing at successively higher grade levels. Stated operationally, the correlation between the Coopersmith Self-Esteem Inventory Total Score and the Iowa Test of Basic Skills (1955 edition) Composite Score becomes successively lower from Fourth, to Fifth, to Sixth grade. The statistical null hypotheses selected to test this hypothesis are these:

$$H_o : r_1 = \rho_1 = 0$$
$$H_o : r_2 = \rho_2 = 0$$
$$H_o : r_3 = \rho_3 = 0$$
$$H_o : r_1 = \rho_1 - r_2 = \rho_2$$
$$H_o : r_1 = \rho_1 = r_3 = \rho_3$$
$$H_o : r_2 = \rho_2 = r_3 = \rho_3$$

5. The relationship between self concept and achievement is more pronounced for boys than for girls. Stated operationally, the correlation coefficient between the Coopersmith Self-Esteem Inventory Total Score and the Iowa Test of Basic Skills Composite Score is larger in the positive direction for boys than for girls. The forms of the null hypotheses are these:

$$H_o : r_1 = \rho_1 = 0$$
$$H_o : r_2 = \rho_2 = 0$$
$$H_o : \rho_1 = \rho_2$$

6. The level of those attributes of self concept specific to the school setting is higher for girls than for boys. Stated operationally, the Coopersmith Self-Esteem Inventory School Score mean is higher for girls than the corresponding mean for boys. The form of the null hypothesis is as follows:

$$H_o : \mu_1 = \mu_2$$

In addition to these hypotheses, a subordinate study of the self concept instrument was attempted. This involved a test-retest correlation, and a correlation between the Coopersmith Self-Esteem Inventory Total Score and self concept levels as estimated by the students' teacher. These later self concept levels were identified as Teacher Judgment. Particular attention was paid to the Self-Esteem Inventory Lie Score as it related to Teacher Judgment and to the Self-Esteem Inventory Total Score.

Assumptions

Assumptions pertinent to this study are these:

1. Self concept can be described in terms of levels of self-esteem.

2. Levels of self-esteem can be measured by self-report.

3. Teachers are able to infer levels of self-esteem from observed behavior.

4. Existing standardized tests are of sufficient reliability and validity to provide measurements of academic achievement and academic ability suitable for use in this research project.

5. The precision of measurement is sufficient to justify the application of the statistical procedures utilized.

6. There is a cause-effect relationship between self concept and achievement.

Definitions

Definitions of the significant terms in the hypotheses and the assumptions are as follows:

Self concept is defined in this study as a measure of a student's feelings about himself inferred from his performance on the Coopersmith Self-Esteem Inventory.

A high self concept is attributed to the student who usually considers himself to have such traits as confidence, pride in school work, popularity with his classmates, happiness, and ability to stick to his decisions. A low self

concept is attributed to one who feels he is not good looking, is often ashamed of himself, is unable to meet his parents' expectations, and is unhappy in being with other people.

Although Sears described a differentiation between self concept and self-esteem, in the context of this study they are interchangeable terms. She described self-esteem as the possession of a favorable opinion about oneself, or in other words, a favorable self concept. In contrast to self-esteem, so defined, the possession of unfavorable opinions about oneself represents the opposite pole. The self concept, as previously described, represents the student's judgments about himself with respect to his ability to solve problems or to accomplish tasks. Such judgments could fall anywhere within the range from optimism to pessimism. Self-esteem is enhanced when a prediction of success is born out by the reality of experience.[1]

Since a high degree of self-esteem is associated with a high level of self concept, and the converse of this situation is also presumed to exist, the differentiation is not of specific importance to this study.

Academic achievement is defined in this study as the performance of a student in the school subjects of reading,

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[1]Pauline S. Sears and Vivian S. Sherman, In Pursuit of Self-Esteem Case Studies of Eight Elementary School Children (Belmont, California: Wadsworth Publishing Co., 1964), p. 11.

language (spelling, usage, punctuation, and capitalization), and arithmetic; and his performance on the work study skills of map reading, use of references, and reading graphs and tables. This performance is measured by the Iowa Test of Basic Skills (1955 edition).[1]

Intelligence is defined in this study as aptitude for school tasks as measured by the Science Research Associates Test of Primary Mental Abilities for Ages 7 to 11, and expressed as a quotient derived from weighted factor scores.[2]

Teacher Judgment refers in this study to the rank ordering of students in a class group according to the teacher's estimate of level of self concept on a four point scale. For example, if a student was judged by his teacher to be in the highest fourth of his class in self concept, he was given the score of "One." If he was considered to be in the lowest fourth of his class, he was given the score of "Four."

Summary

Beginning with the concern of teachers for a better understanding of the influences which contribute to school achievement, this chapter discusses the idea of the self concept as a contributing variable. The points of view of several writers are included, and practices in relation to

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[1] Lindquist and Hieronymus, op. cit.

[2] L. L. Thurstone and Thelma Gwinn Thurstone, Science Research Associates Test of Primary Mental Abilities for Ages 7 to 11 (Chicago: Science Research Associates, Inc., 1954).

these positions are detailed. A brief outline of Brookover's theory as it relates to self concept is also included. The dearth of pertinent specific research is shown as well as the apparently conflicting results of certain available studies. The practical application of increased knowledge about the relationship of self concept and achievement is conjectured. Research hypotheses are proposed and then detailed as operational and statistical hypotheses. The chapter concludes with a statement of assumptions and definitions of significant terms.

CHAPTER II

RELATED LITERATURE

A survey of literature concerning the construct of self concept can well begin with a review of Ruth Wylie's book The Self Concept. This volume of nearly 400 pages covers the writings and experiments relating to a person's perceptions of himself from Adler's work in 1924 through reports in journals and dissertations as recently as 1961. Wylie defines self concept as a phenomenological construct which deals with a person's conscious perception of his environment and his relation to it.[1] She discusses phenomenological theories and the difficulties they present to experimentation. She points out the methodological requirement of observable antecedents. Up to this time, the most common experimental method has been of the response-response type, with correlations of results reported.[2] Wylie developed, however, a possible method of applying stimulus-response models to the self concept problem.[3] It involves the establishment of stimulus-response patterns for

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[1]Wylie, op. cit., p. 6.

[2]Ibid., p. 13.

[3]Ibid., p. 17.

subjects, and then the use of these same subjects for further experimentation. She next explores the problem of measurement, with emphasis on the problem of construct validity. The problem of general measurement is summarized by these requirements for future research.

1. Systematic introduction of all controls found to be useful in related research into the instruments and interpretations of the data.

2. Study of these controlled variables as independent variables to determine their effects, if any.

3. Systematic variation of method and inferred construct to explore the discriminant validity of a specific method in measuring a given construct.[1]

This approach is based upon the ideas advanced by Campbell and Fiske. They suggest that construct validity may be established by measuring each of several traits by each of several methods, and then comparing the correlations between traits and between methods as they apply to each of the given traits.[2]

Wylie then discusses selected instruments which have been proposed and used. Of particular interest is Coopersmith's Self-Esteem Inventory, which is utilized in the

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[1]Wylie, op. cit., p. 38.

[2]D. F. Campbell and D. W. Fiske, "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix," Psychology Bulletin, LVI (1959), 81 105.

present study.[1,2] Wylie's conclusion regarding these instruments is that sufficient use has not been made to provide the necessary validation.[3]

Pertinent to the present study are the studies of self concept as an assumed antecedent to experimental learning. Wylie reports on three available in this area.[4] One of these supports the hypothesis that learning tasks associated with conflict areas in a subject's self concept are more difficult than learning tasks associated with a non-conflict area of self concept. Another study supports the hypothesis of greater memory for stimuli perceived as related to the self than for those perceived as non-related. The third study reports somewhat conflicting evidence, since no significant difference was obtained in associating stimulus adjectives to persons most like and least like the subjects. Wylie concludes that further response-response studies were pertinent in this area.

Her final conclusions are these: (a) theories are not yet well defined, (b) instruments need much refinement, (c) more sophisticated design of experiments is required, (d) patience, gradualness and drudgery are the prices

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[1]Wylie, op. cit., p. 88.

[2]Further discussion of this particular instrument is undertaken in a subsequent chapter of this paper.

[3]Wylie, op. cit., p. 98.

[4]Ibid., p. 201.

attached to attaining knowledge in this field.[1] She did not mention Brookover's proposed theory.[2]

Gordon also points up the need for additional refinement in knowledge about self. Although he holds the theoretical position that a person's self concept affects his performance, in spite of sparse research evidence, he emphasizes the need to develop methods to learn more about the following: (a) concept formation; (b) the relationships between self concept, behavior and experience; (c) the causal role of family, peers and school; (d) techniques for precisely describing the self concept of a specific individual.[3]

More recent attempts have been made toward the solution of the foregoing problems. Piers and Harris reported in 1963 the first step of a study which includes the development of a new self concept instrument for use with children over a wide age range. They reported satisfactory internal consistency (ranging from .78 to .93) and test-retest reliability (ranging from .71 to .72 after four months). They also reported on item analysis and on factor analysis for their instrument.[4]

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[1]Wylie, op. cit., p. 324.

[2]Brookover, op. cit.

[3]Gordon, op. cit., p. 384.

[4]Ellen V. Piers and Dale B. Harris, "Age and Other Correlates of Self-Concept in Children," Journal of Educational Psychology, LV, No. 2 (1964), 91.

A somewhat different approach which appears notably in the writings of Rogers and Maslow is that which refers to the self-actualizing person. This condition is often seen as the result of therapy.[1,2] Shostrom reported in 1964 an instrument developed to measure self-actualization. Items measure the following factors: social pressure, expectation and goals, time competence, and self support. These elicited a high ratio of positive to negative responses among previously identified highly self-actualized persons.[3]

Validity studies show significant differences between the means of self-actualized groups and non-self-actualized groups.

Using these and other previously devised instruments, a number of studies have been done which attempt to find the relationship which might exist between self concept and school performance. Many of these concern high school and college students; relatively few pertain to elementary school children. Some of the high school and college studies are those of Walsh, Chickering, and Berger.[4,5,6]

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[1]Rogers, op. cit., pp. 21-22, 26.

[2]Maslow, op. cit., pp. 35-36, 45.

[3]Everett L. Shostrom, "An Inventory for the Measurement of Self-Actualization," Educational and Psychological Measurement, XXIV, No. 2 (Summer, 1964), 207-18.

[4]Ann Marie Walsh, Self Concept of Bright Boys with Learning Difficulties (New York: Bureau of Publications, Teachers College, Columbia University, 1956).

[5]A. W. Chickering, "Self Concept, Ideal Self Concept,

Walsh reported that bright boys who are low achievers perceive themselves as defensive and limited in communication with their environment.[1] Chickering, however, found no stable relationship between self discrepancy and school effort.[2] Since this study involves actual-ideal self discrepancy, it is interesting to note that achievement appears more closely related to the actual self than to the ideal, whereas Coopersmith found that low self concept is associated with high achievement when high achievement need is present.[3] Berger found support for the hypothesis that college students who are willing to accept their limitations perform better academically than those who have a lower willingness.[4] This finding lends support to the position on self-actualization taken by Rogers and by Maslow.[5,6]

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and Achievement" (unpublished Doctor's dissertation, Columbia University, in Dissertation Abstracts, XIX, (1958), p. 164.

[6]E. M. Berger, "Willingness to Accept Limitations and College Achievement," Journal of Counseling Psychology, VIII (1961), 140-46.

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[1]Walsh, op. cit., p. 52.

[2]Chickering, op. cit., p. 164.

[3]Coopersmith, op. cit., p. 11.

[4]Berger, op. cit., pp. 140-46.

[5]Rogers, op. cit.

[6]Maslow, op. cit.

Four relatively recent (1958 to 1962) studies concerning elementary school children are those of Smock, Hamachek, Eubank, and Peppin. Three of these four deal at some point with the relationship between self concept and school achievement. The remaining one, that of Smock, is more general. His findings relating to the present study are those concerning quality of perception. He reported that children who are anxious about themselves are more rigid and more constricted in their environmental perceptions.[1] Hamachek identifies what he calls "high status" children on the basis of measures of reading age, mental age, and education age. These children were above the mean on each of the aforementioned measures. Using techniques devised by Rogers, he inferred self concept levels for them, and found these levels to be higher in achievement and intellectual categories than those of children not so classified.[2] Eubank, however, reported a study with Fourth and Sixth grade children in which no significant differences were found between the means of intelligence and achievement scores for high and low self concept groups. She used the Bills-Lipsitt Self-Concept Scale and nationally standardized

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[1]C. Smock, "Perceptual Rigidity and Closure Phenomenon as a Function of Manifest Anxiety in Children," Child Development, XXIX (1958), 237-47.

[2]D. E. Hamachek, "A Study of the Relationships Between Certain Measures of Growth and the Self-Images of Elementary School Children" (unpublished Doctor's dissertation, University of Michigan, 1960, in Dissertation Abstract, XXI, 1961), 2193.

achievement and intelligence tests.[1] The children in this study were those whose inferred self concept differed markedly from that predicted by their teachers. She also reported that parents tend to agree with the teacher's prediction when the child's inferred self concept is low, and to disagree when the inferred self concept is high.[2]

Peppin studied over and under-achievers in relation to three aspects; self concept, parental understanding, and parental acceptance. He used the Haggerty-Olson-Wickman Behavior Rating Scale. Each student rated himself, and was rated by his peers. Self concept level was inferred from the direction of discrepancy between the subject's self rating and his rating by peers. Peppin reported that over-achievers tend to rate themselves more highly than under-achievers.[3]

This variety of methods and of studies tends to support a low, direct relationship between self concept and achievement, and indicates the feasibility of the present

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[1]California Achievement Test and California Test of Mental Maturity, Short Form. Copyright dates of these tests are not given in the report.

[2]Grace Jones Eubank, "A Comparative Study of Elementary Pupils Whose Self Concepts are Markedly Contrary to Expectations" (unpublished Doctor's dissertation, University of Georgia, in Dissertation Abstracts, XXIII, 1962), 2007.

[3]Bruce Hilands Peppin, "Parental Understanding, Parental Acceptance, and the Self Concept of Children as a Function of Academic Over- and Under-Achievement" (unpublished Doctor's dissertation, The Claremont Graduate School, in Dissertation Abstracts, XXIII, 1962), 442.

undertaking. Conflicting evidence indicates the need for further study as well.

Summary

This chapter presents a review of certain writings and experimentation regarding self concept by Wylie, and then proceeds to more recent and specific studies on that topic. The studies reported are in four general categories.

1. The development of instruments.

2. The measurement of self-actualization (considered frequently as a result of therapy).

3. The relationship of self concept and achievement in high school and college students.

4. The relationship of self concept and achievement in elementary students.

There is a particular scarcity of material at the elementary level, and although results generally favor a low positive correlation between self concept and achievement, the evidence is conflicting.

CHAPTER III

DESIGN AND PROCEDURES OF THE STUDY

The Experimental Design

Testing the proposed hypotheses required a design which would produce correlation coefficients between pertinent variables and which would permit testing the significance of these coefficients. In addition, the statistics necessary to examine the significance of differences between means were required.

The sub-ordinate study of the self concept instrument likewise required coefficients between test-retest scores, between part scores, and between test and validating scores.

The practical question of the usefulness of the self concept test scores in predicting achievement required a comparison with other predictive measures. The usefulness of the sub-tests involved information about the contribution of each to a prediction of achievement.

A design and procedure to fit these requirements is outlined as follows:

Method of Data Collection

1. Administer the Coopersmith Self-Esteem Inventory, the Iowa Test of Basic Skills, and the Science Research Associates Primary Mental Abilities Test to a population of

Fourth, Fifth, and Sixth grade school children.

2. Collect a Teacher Judgment of the self concept of each subject.

3. Re-administer the Coopersmith Self-Esteem Inventory approximately one year later.

Method of Data Analysis

1. Compute the mean and standard deviation of each variable.

2. Compute a correlation coefficient between all combinations of variables (total and part scores) taken two at a time for the total group.

3. Compute a test of significance for the obtained correlations by means of Fisher's z ratio, using a $1.96\,\sigma_z$ confidence interval, or by means of a t ratio test, requiring a five per cent level of significance.

4. Compute multiple regression equations with Intelligence Scores and Self-Esteem Scores as independent variables and Achievement Scores as the dependent variable.

5. Sort the experimental population into sub-groups on the basis of sex, grade in school (Fourth, Fifth, and Sixth), and ability level (Low, Middle, and High).

6. Compute the means, standard deviations, and correlations for each sub-group.

7. Test the significance of the obtained correlations for each pair of variables by means of the t ratio test. Test the significance of the differences between sub-group

correlations by means of the Fisher correlation z ratio technique.[1]

Beginning with the largest differences between sub-groups, test for significance until the probability of obtaining an observed correlation difference by chance exceeds the five per cent level.

8. Apply the t ratio test technique to the Coopersmith Self-Esteem Inventory School Score means of the sex grouping.

9. Compute multiple correlations including the ability and self concept variables for those sub-groups where significant correlations are found.

10. Report Coopersmith Self-Esteem Inventory test-retest correlations, Teacher Judgment-test correlations, Self-Esteem and Lie Score-Total correlations.

11. Study cases extremely deviant from the correlation pattern and report suggestive trends.

The Setting of the Study

This study was conducted in a midwestern suburban community of approximately 80,000 people. The school district which serves the children of this suburb has enjoyed considerable, but not always ungrudging, support from the community.

The district extends beyond the boundaries of the

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[1] J. P. Guilford, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill Book Company, Inc., 1950), p. 224.

suburb which provides the majority of the school population, to include portions of an unincorporated township. There are 30 elementary schools, six junior high schools, and two senior high schools at the time of the study. The elementary schools have an average of 19 teachers per building. The range in teaching staff size, however, is from seven to 33, but with the majority of staffs falling between 18 and 24 in number.

Evidence of the interest in, and support for, education in this community is observed in the number and variety of special programs. The school district provides special rooms for emotionally disturbed children, for educable and trainable mentally handicapped students, for blind students, and, in cooperation with adjacent districts, for otherwise physically handicapped children. The district also provides such services as speech correction, visiting teacher service, homebound teaching service, and psychological diagnosis. A reading center is provided to career teachers for in-service training in the teaching skills for reading. Special classes, with especially trained teachers, provide additional help to selected poor readers in each elementary school.

Growth in this suburb's schools is illustrated by the vigorous expansion in physical facilities. Of the 30 elementary schools, only four are more than 12 years old, and of that four, three have been extensively remodeled.

The school which the students in this study attend

represents a fair cross section of the community. The school's attendance area includes a small section of upper middle class homes and a similar size group of lower middle class homes. The majority of the homes are subdivision type, single family, brick ranch residences on 60 to 70 foot lots. The school itself has been in operation as a unit for five years. Grade organization follows the kindergarten through sixth grade pattern, with students moving on to junior high school after seven years in elementary school. This pattern is in effect for all of the elementary schools in the district, except for students in special education. Retention and double promotion are very occasional practices.

Students in the Fourth, Fifth, and Sixth grades at the school selected for the study were compared on measures of achievement and intelligence with their counter-parts in the school system as a whole. This comparison utilized the standardized testing programs of the school district. The results support the presumption that this school did not differ markedly from the student population of the entire district. These comparisons are shown in Table 1.

The school had 19 teachers, the system average, at the time of this study.

Although the population of the selected school is not a randomly drawn sample of the total school district, the similarities observed render tenable the assumption of no significant difference between the sample and the total district population. Hence, although the findings of the

study could not be statistically generalized to the total population, they can be considered indicative of what one might expect to find if further investigations were conducted.

TABLE 1

MEAN INTELLIGENCE QUOTIENTS AND MEAN ACHIEVEMENT COMPOSITE SCORES FOR FOURTH, FIFTH, AND SIXTH GRADE STUDENTS IN THE SAMPLE AND IN THE ENTIRE SCHOOL SYSTEM

Grade	Number of Cases	Intelligence Quotients		Composite Achievement	
		Sample	School System	Sample	School System
		Mean	Mean	Mean	Mean
Four	49	110.0	111.0	44.1	46.0
Five	67	111.0	112.0	58.3	58.0
Six	42	112.0	111.0	68.0	69.0

Data Collection Procedures

Data collection first involved the establishment of identifying information for each student in the Fourth, Fifth, and Sixth grades. A student number was assigned; sex, grade level, and ability level were then determined. The latter item, ability level, was based upon a three way division of the total range of the subject group on the Science Research Associates Primary Mental Abilities Test for Ages 7 to 11, in order to permit comparisons between

the groups. The distribution of ability scores tended to be normal and few scores were found at the extremes, while many tie scores existed near the mean. Extreme scores on group tests are always of doubtful reliability because the small number of cases available at the extremes requires extrapolation in order to provide a comparative base for the obtained raw scores.[1] Although the range encompassed 75 intelligence quotient points, the elimination of six scores from the extremes (three from each end) reduced it to 36 quotient points. Because this range is barely three standard deviations in width, and because Thurstone reports standard errors of difference between parts of the selected Intelligence Test as high as 14 quotient points for the one per cent level of confidence, it appeared meaningless to refine further the ability level groupings.[2] Beginning with three equal groups, the number in the middle group was adjusted until no tie scores were broken between groups. This procedure resulted in a low group of 50 cases, a middle group of 62 cases, and a high group of 46 cases. They are designated in this study as Group One, Group Two, and Group Three, and are called Intelligence level groupings hereafter

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[1] L. L. Thurstone and Thelma Gwinn Thurstone, Technical Supplement for the SRA Primary Mental Abilities for ages 5 to 7 (Chicago: Science Research Associates, Inc., 1953), p. 2.

[2] L. L. Thurstone and Thelma Gwinn Thurstone, Technical Supplement for the SRA Primary Mental Abilities for ages 7 to 11 (Chicago: Science Research Associates, Inc., 1954), p. 6.

because they are derived from Intelligence quotients.

The individual scores from the Iowa Test of Basic Skills (1955 edition) and the Science Research Associates Test of Primary Mental Abilities for Ages 7 to 11 (1954 edition) were then transcribed from the records of each student.

For the Iowa Test, these scores consisted of a grade equivalent for the following parts: Verbal, Reading Comprehension, Language, Work Study, Arithmetic, and Composite--a mean grade equivalent score.

For the Primary Mental Abilities Test a quotient score consisting of the weighted sum of five part quotients was used. These five part quotients were described by the test makers as Verbal-Words, Verbal-Pictures, Reasoning-Words, Reasoning-Figures, and Perceptual Speed.[1]

Prior to the collection of the data used in this study, the teaching staff spent several meetings discussing the ideas of self concept and self-esteem. They were particularly influenced by the work of Morse in these discussions.[2] Other readings were involved, however, including those of Wylie, Redl and Wattenberg, and the 1962 Yearbook of the Association for Supervision and Curriculum Development

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[1]Thurstone and Thurstone, Examiner Manual for the SRA Primary Mental Abilities for Ages 7 to 11 (Chicago: Science Research Associates, Inc., 1954), pp. 3-4.

[2]Morse, op. cit.

under the editorship of Combs.[1,2,3] Subsequent to this period of discussion, each teacher of each Fourth, Fifth, and Sixth grade was asked to sort the students in his classroom into four categories, from high to low, based upon his informal observation of their classroom behavior which seemed pertinent to self concept. Each teacher was instructed to select first the highest and lowest students of his class, and then to divide those remaining between the two middle categories. The high level was assigned the rank of "One," and the lowest level was ranked "Four." An element of forcing was the stipulation that some children be placed in each category. Four categories were selected to avoid the tendency to dichotomize or to cluster about the middle of the scale. The teachers were given these instructions orally by the building principal, who was also the discussion leader during the study period prior to the required judgments.

The first administration of the Coopersmith Self-Esteem Inventory-Behavior Rating Form was conducted after the Teacher Judgments were obtained. This instrument consists of 58 items which are answered by a check mark or cross in columns headed "like me - unlike me." It is scored

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[1]Wylie, op. cit.

[2]Fritz Redl and William W. Wattenberg, Mental Hygiene In Teaching (New York: Harcourt, Brace & World, Inc., 1959).

[3]Combs, op. cit.

in five parts, although this division is not apparent from the format of the instrument. The part scores are designated as Self, Social, School, Home, and Lie. There are 26 items scored for the Self category. They include items such as "I'm pretty sure of myself," and "I often wish I were someone else." In scoring, a "like me" response is counted for a self accepting statement such as the first item quoted above; an "unlike me" is counted for a self rejecting statement such as the second one. The opposite responses are not counted. Thus the Self Score represents a high degree of self-esteem if it is large, and a low degree if it is small. The remaining four parts contain eight items each. Representative items are as follows: Social, "I'm easy to like"; School, "I'm proud of my school work"; Home, "I get upset easily at home"; and Lie, "I never worry about anything." The Total Score is the sum of all of the part scores except the Lie Score. Nearly all students complete all items. The Lie Score is made up of eight absolute statements which are unlikely to be completely true of any person, and therefore should be checked in the "unlike me" column. A five week test-retest reliability of .88 was reported.[1] One of the concerns of this study is the relationship of the Lie Score to other kinds of data as an estimate of the validity of the instrument. Finally, after a period of one year, the Coopersmith Self-Esteem Inventory-Behavior Rating Form was readministered to the same students.

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[1]Wylie, op. cit., p. 88.

These data were then prepared for processing at the Wayne State University Computing and Data Processing Center. They were identified by name, symbol, and number as follows:

1. Intelligence Quotient ..... IQ
2. Teacher Judgment of Student Self Concept ..... TJ
3. Coopersmith Self-Esteem Inventory -- Self ..... Se
4. -- Social ... So
5. -- School ... Sc
6. -- Home ..... Ho
7. -- Lie ..... Lie
8. -- Total .... Tot
9. Iowa Test of Basic Skills (Achievement) -- Composite Ach

The Integrated Statistical Program was used. It provided simple regression, a correlation matrix, multiple regression analysis, and variance analysis in addition to basic statistics.[1] With one exception the hypotheses proposed could be tested by these statistics.

This exception refers to the analysis of variance of the Self-Esteem School Scores for the sex sub-grouping. While the Integrated Statistical Program does provide such an analysis, an examination of the score distribution indicated the possibility of a marked negative skewness. The hypothesis of a normal distribution of the School Scores

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[1]"Integrated Statistics" (Wayne State University Computing and Data Processing Center, March 16, 1964), p. 1. (Multilith.)

was tested, using the method described by Guilford involving the computation of chi square from the expected frequencies of a best-fitting normal curve.[1]

The obtained chi square was 22.576. Entering the table of chi square with four degrees of freedom (seven class intervals less three), the probability of random variation accounting for the discrepancy between the obtained distribution and the expected normal distribution was less than .01 (tabled value = 13.277).[2] The hypothesis of a normal distribution of Self-Esteem School Scores was therefore rejected.

Because this assumption underlies the use of the F ratio test, and, therefore, the application of classical analysis of variance techniques, as well as the t test, it was decided to use the randomization test for two independent samples, which does not require the assumption of a normal distribution.[3,4]

Because correlation coefficients played a very important role in the analysis of the data, linearity of regression was subjected to test. For this purpose, a correlation ratio ( ) was computed between variable x (Self-Esteem Total) and

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[1]Guilford, op. cit., pp. 284-85.

[2]Ibid., p. 611.

[3]Ibid., p. 258.

[4]Sidney Siegel, Nonparametric Statistics For The Behavioral Sciences (New York: McGraw-Hill Book Company, Inc.,1956), pp. 152-58.

variable y (Iowa Composite). The Fisher Test of Linearity of Regression was then applied, using the formula as outlined by Guilford.[1]

The limitation placed by Guilford on this test is that of the relative size of N (number of cases) and k (number of columns in the frequency table). He recommends that N be considerably larger than k.[2]

The N for the data under test was 157, while k was seven for η_{yx} and 12 for η_{xy}. It was, therefore, assumed that Guilford's condition was met, and the test was applied.

The obtained values for η_{yx}, η_{xy}, and r_{xy} are as follows:

$$\eta_{yx} = .332$$

$$\eta_{xy} = .523$$

$$r_{xy} = .308$$

A chi square of 2.465 resulted from the computation involving η_{yx}, which is not significant at the five per cent level for five degrees of freedom. A chi square of 16.58 resulted from the computation involving η_{xy}, which is likewise not significant at the five per cent level for ten degrees of freedom. It was, therefore, considered plausible to attribute the divergence between the regression line for r_{xy} and the regression lines for the two etas to chance.

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[1]Guilford, pp. 320-21.

[2]Ibid.

The assumption of linearity was accepted.

An examination of the frequency distribution of the Total Scores on the Self-Esteem Inventory, shown in Table 2 raised a question about the normality of this distribution as well. This distribution, likewise, was analyzed using the method described by Guilford of plotting a best fitting normal curve from the data and then applying a chi square test to determine whether the discrepancies were attributable to sampling errors.[1] The resulting chi square was 25.24, which is significant at the one per cent level for ten degrees of freedom. Since a normal distribution could not be assumed from this analysis, a further check on the results was undertaken. The Self-Esteem Inventory Total Scores were normalized by conversion to T-scale scores.[2] A product moment correlation coefficient was computed, using the formula for r from a scatter diagram.[3] The correlation between the converted Self-Esteem Total and the Iowa Composite scores was .277. The corresponding value obtained from the original Self-Esteem Total Scores was .308. Because the effect of the normalizing transformation was to modify slightly the size of the correlation, it was assumed that the correlations computed from original scores could be interpreted as estimates of the actual relationships. The

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[1]Guilford, op. cit., pp. 140-43, 284-85.

[2]Ibid., pp. 296-99.

[3]Ibid., p. 162.

generality of their significance is not assured, however, and they should be regarded in this light.

TABLE 2

FREQUENCY DISTRIBUTION
OF TOTAL SELF CONCEPT SCORES

Class Intervals	Frequency
45-49	15
40-44	34
35-39	36
30-34	38
25-29	22
20-24	11
15-19	2

The execution of the foregoing procedures resulted in the findings which are analyzed in Chapter IV.

Summary

This chapter presents the design and procedural aspects of the study through discussion of and detailing of the following major concerns:

1. The data requirements.
2. A step-by-step procedural outline.
3. A description of the subject school and its setting in the total school community.
4. Tests of the linearity of regression and the normal distribution of scores.

CHAPTER IV

THE FINDINGS

Hypothesis One

The first hypothesis of this study is that of a positive relationship between self concept and achievement, as measured respectively by the Coopersmith Self-Esteem Inventory and the Iowa Test of Basic Skills. This relationship was tested by means of Pearson product moment correlation coefficients as indices of the degree and direction of such relationship. The working hypothesis stated that there is a significant, direct linear, correlation between Self-Esteem Total Score and Iowa Composite Scores. The corresponding null hypothesis is $H_o : r = \rho = 0$.

The correlations between the Self-Esteem Total, the Iowa Composite, and other variables are shown in Table 3. This correlation matrix was produced from the total data by the Wayne State University Computing and Data Processing Center. The value of the correlation between Self-Esteem Total Scores and Iowa Composite Scores is .308. Evaluation of the null hypothesis, $r = \rho = 0$, was accomplished by means of a table of significant values of r based on the t distribution.[1]

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[1]Guilford, op. cit., Table D, p. 610.

TABLE 3

CORRELATION MATRIX OF INTELLIGENCE, TEACHER JUDGMENT, SELF-ESTEEM INVENTORY AND ACHIEVEMENT SCORES

Variables	1	2	3	4	5	6	7	8
2	.331							
3	.337	.221						
4	.132	.185	.433					
5	.224	.170	.627	.335				
6	.181	.215	.509	.416	.339			
7	.076	.054	-.184	-.016	-.230	-.004		
8	.315	.254	.929	.631	.750	.686	-.165	
9	.619	.416	.286	.226	.173	.245	.181	.308

Variable 1 SRA Intelligence Quotient
Variable 2 Teacher Judgment of self concept
Variable 3 Self-Esteem Inventory Self Score
Variable 4 Self-Esteem Inventory Social Score
Variable 5 Self-Esteem Inventory School Score
Variable 6 Self-Esteem Inventory Home Score
Variable 7 Self-Esteem Inventory Lie Score
Variable 8 Self-Esteem Inventory Total Score
Variable 9 Iowa Test of Basic Skills (1955 edition) Composite Score

Entering this table at 156 degrees of freedom (N - n, where N = number of pairs and n = number of variables) the nearest tabled value (for 150 degrees of freedom) is found to be .208 at the one per cent level of confidence. Since the obtained value of the correlation between Self-Esteem Total and Iowa Composite is well in excess of this value, and since the five per cent level of confidence was specified prior to the analysis of the data, the null hypothesis is rejected.

There is also available a second estimate of self concept from a Teacher Judgment rating scale. The correlation coefficient obtained from the data between this variable and the Achievement variable (Iowa Composite) is .416. This value is likewise significant well in excess of the one per cent level of confidence for r (.208).

Hypothesis Two

This hypothesis states that there is a relationship between school achievement and the levels of self concept specific to the school setting.

Because the Self Esteem School Scores are found to be non-normal in distribution, with a much narrower range than the Self Esteem Total Scores, testing the significance of the difference between the obtained correlations is considered unsatisfactory. The Self-Esteem School Score relationsip to the Iowa Composite Score is, however, of particular interest. The nature of this relationship was examined by the application of analysis of variance. For this analysis, the

distribution of Achievement Scores is assumed to be normal.

If there were no relationship between School Scores and Achievement (Iowa Composite), then the selection of any group of Achievement Scores on the basis of their associated School Scores might have included with equal probability any Achievement Score in the total distribution. If, on the other hand, a relationship does exist, differences in the distributions within the School Score selection groups, not attributable to chance, should arise. Table 4 shows the results of this analysis. The assumption of equal variance within the categories is accepted on the basis that moderate departures do not alter the outcomes appreciably.[1]

An F ratio was computed and evaluated, with the conclusion that the category means differ significantly and, therefore, a significant relationship between Iowa Composite and Self-Esteem School Scores is established. The nature of this relationship may be observed by examining Table 4. The category means represent points on a non-linear regression line. Inspection of these means reveals an inverse relationship at the lower end of the School Score scale, and an increasing relationship at the upper end.

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[1]Dixon and Massey, op. cit., p. 151.

TABLE 4

ANALYSIS OF ACHIEVEMENT IN CATEGORIES DETERMINED BY OBTAINED SCHOOL SCORES[1]

School Score Categories						
2	3	4	5	6	7	8
10 9 9 5 4 4	13 10 10 9 7 7 7 6 5 5 5 4 3 3 3 2 2 1 1	13 10 10 10 9 9 8 8 8 8 8 7 7 6 6 5 5 5 5 4 4 4 3 2 2 1	14 12 12 10 10 9 8 7 7 7 6 6 6 6 5 5 5 4 4 4 3 3 3 2 2 2 1	16 16 13 12 12 12 10 10 9 9 9 8 8 7 7 7 7 6 6 6 6 6 5 5 4 4 4 3 3 1 1	13 12 12 11 11 11 10 9 9 8 8 8 6 6 6 6 5 5 4 4 4 3 3	18 18 14 14 14 13 12 11 9 9 9 8 8 7 7 7 6 6 6 5 4 4 3 2
$n_1 = 6$	$n_2 = 19$	$n_3 = 27$	$n_4 = 29$	$n_5 = 31$	$n_6 = 24$	$n_7 = 23$
$\bar{X}$=6.8	5.4	6.4	5.9	7.5	7.6	9.0

[1]The column headings represent the obtained Self-Esteem School Scores for the individuals in each column.

TABLE 4a

ANALYSIS OF VARIANCE OF ACHIEVEMENT
BY SCHOOL SCORE CATEGORIES

	Sum of Squares	df	Mean Square	F Ratio
Category Means	197	6	32.83	$F = \frac{32.83}{12.45} = 2.63$
Within	1880	151	12.45	$F_{.95}(6,151) = 2.18$
Total	2077			

Hypothesis Three

The third hypothesis states that the effect of ability on the relationship between self concept and achievement is to introduce non-linearity, and that the larger correlations occur in the lower groups. To test this hypothesis the sample was divided into three groups on the basis of Intelligence level. Table 5 summarizes the data for this analysis.

The reservations regarding the normality of the distribution of the total group data apply to these data as well. The correlations are treated as estimates of the true relationships between the variables, and the results of the significance tests should be considered with caution. With these reservations in mind, the null hypothesis, $H_o : r = \rho = 0$, was evaluated for the correlation between the Self-Esteem Inventory Total Score and the Iowa Composite Score.

TABLE 5

DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENTS FOR THREE INTELLIGENCE GROUPINGS

	Group One	Group Two	Group Three
	n = 46	n = 62	n = 50
Means			
V_1	96.717	110.129	124.580
V_2	1.131	1.839	2.000
V_7	5.065	5.451	5.420
V_8	32.348	34.968	37.720
V_9	47.130	54.322	67.800
Standard Deviations			
V_1	6.980	3.280	6.274
V_2	0.710	0.970	0.825
V_7	1.822	1.775	1.430
V_8	7.524	6.647	6.106
V_9	10.619	9.353	14.088
Correlation Coefficients			
r_{12}	.020	.083	.008
r_{18}	.267	.174	-.092
r_{19}	.094	.248	.463
r_{28}	.296	.042	.254
r_{29}	.334	.220	.380
r_{78}	-.320	-.141	-.117
r_{79}	-.168	.308	-.067
r_{89}	.233	.134	.181

Variable 1 - Intelligence Quotient
Variable 2 - Teacher Judgment of Student Self Concept
Variable 7 - Self-Esteem Inventory Lie Score
Variable 8 - Self-Esteem Inventory Total Score
Variable 9 - Achievement (Iowa Composite)

The correlations between these two variables, shown in Table 5, and the corresponding correlation values at the specified significance level, are listed below for each of the Intelligence level groups.

Group One	(low)	r_{89} =	.223	$r_{5,95}$ =	.304
Group Two	(average)	r_{89} =	.134	$r_{5,95}$ =	.250
Group Three	(high)	r_{89} =	.181	$r_{5,95}$ =	.288

These correlations do not attain the specified level of significance for any of the three Intelligence level groups, and the null hypothesis cannot, therefore, be rejected. A plausible explanation of this lack of significance is that the combination of the error variance of the measuring devices with the contributing variance from other unknown sources submerges the effects of ability. The trend of the results, though not significant, suggests the possibility that more precise measurement and more rigorous design might disclose a relationship.

Hypothesis Four

This hypothesis states that the effect of assigned grade level in school is to introduce non-linearity into the relationship between the Self-Esteem Inventory Total Scores and the Iowa Composite Scores. The size of the correlation is expected to be larger at successively lower grade levels. To test this hypothesis, the total group was divided into three parts on the basis of the grade assignment of the students. Fourth, Fifth, and Sixth grade groups resulted. Table 6 shows the statistics computed for this analysis. The null

TABLE 6

DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENTS FOR THREE GRADE LEVEL GROUPINGS

	Grade Four	Grade Five	Grade Six
No. Cases	49	67	42
Means			
V_1	109.980	110.701	111.905
V_2	1.633	1.597	1.881
V_7	4.816	5.657	5.405
V_8	34.224	35.239	35.810
V_9	44.061	58.373	68.000
Standard Deviations			
V_1	11.144	12.174	13.293
V_2	.983	.978	.730
V_7	1.859	1.551	1.574
V_8	7.146	7.491	6.130
V_9	8.860	11.159	11.639
Correlation Coefficients			
r_{12}	.148	.410	.428
r_{18}	.291	.315	.342
r_{19}	.657	.821	.785
r_{28}	.343	.243	.101
r_{29}	.480	.494	.492
r_{78}	-.159	-.217	-.165
r_{79}	.055	.167	.071
r_{89}	.445	.377	.150

Variable 1 - Intelligence Quotient
Variable 2 - Teacher Judgment of Student Self Concept
Variable 7 - Self-Esteem Inventory Lie Score
Variable 8 - Self-Esteem Inventory Total Score
Variable 9 - Achievement (Iowa Composite)

hypothesis, $H_o : r = \rho = 0$, was evaluated by means of a table of significant values of r. The tabled values were derived from t ratios. The correlations between Self-Esteem Total Scores and Iowa Composite Scores, as shown in Table 6, are listed below, together with significant values of the correlations for each of the grade level groups.

Grade Four	$r_{89} = .445$	$r_{5,95} = .288$
Grade Five	$r_{89} = .377$	$r_{5,95} = .250$
Grade Six	$r_{89} = .150$	$r_{5,95} = .304$

The null hypothesis may be rejected for the correlation between Self-Esteem Total Scores and Iowa Composite Scores in the Fourth and Fifth grade groups. The hypothesis of zero correlation in the population may not be rejected for the Sixth grade group. The null hypothesis, $H_o : \rho_1 = \rho_2$, was then evaluated as a test for a significant difference between these correlations for the Fourth and Fifth grades. The Fisher z ratio was used to test the significance of this hypothesis.[1]

The value of the z ratio computed for this test is .43, which falls considerably short of the required value, 1.96, for the five per cent level of significance. The hypothesis of no difference could not, therefore, be rejected for the correlations between Self-Esteem Total Score and Iowa Composite Score at the Fourth and Fifth grade levels.

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[1]Guilford, op. cit., p. 224.

A test of the significance of difference was not necessary between the Fourth and Sixth, or Fifth and Sixth grade correlations because the test of $H_o : r = \rho = 0$ established this difference. The trend in the size of the correlations between Self-Esteem Total and Iowa Composite for Fourth, Fifth, and Sixth grade students is considered to support the hypothesis of a non-linear relationship when the effects of grade placement are taken into account. The direction of the trend supports the hypothesis that the correlations are larger at lower grade levels.

Hypothesis Five

This hypothesis concerns the nature of the relationship between the Self-Esteem Total Scores and the Iowa Composite Scores for sex subgroupings. It was predicted that the correlations for both groups would differ significantly from zero, and that the boys' group would show a larger correlation between Self-Esteem Total Score and Iowa Composite Score than the girls' group. The null hypotheses, $H_o : r = \rho = 0$, and $H_o : \rho_1 = \rho_2$, were evaluated by means of a table of significant values of r and by z ratio technique. Table 7 shows the statistics computed for description of the sex sub-groups and for the tests of significance. The computed values of the correlation coefficients for the Self-Esteem Total and the Iowa Composite variables together with the values of r significant at the five per cent level, are listed as follows:

Boys' group	$r_{89} = .417$	$r_{r,95} = .250$
Girls' group	$r_{89} = .233$	$r_{5,95} = .205$

TABLE 7

DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENTS FOR BOYS AND GIRLS

	Boys	Girls
No. Cases	66	92
Means		
V_1	110.803	110.793
V_2	1.621	1.728
V_7	5.579	5.293
V_8	33.288	36.359
V_9	55.227	57.402
Standard Deviations		
V_1	14.322	10.417
V_2	.966	.898
V_7	1.454	1.851
V_8	6.860	6.942
V_9	14.583	13.606
Correlation Coefficients		
r_{12}	.325	.344
r_{18}	.343	.311
r_{19}	.807	.776
r_{28}	.444	.099
r_{29}	.419	.408
r_{78}	-.008	-.251
r_{79}	.071	.255
r_{89}	.417	.233

Variable 1 - Intelligence Quotients
Variable 2 - Teacher Judgments of Student Self Concept
Variable 7 - Self-Esteem Inventory Lie Score
Variable 8 - Self-Esteem Inventory Total Score
Variable 9 - Achievement (Iowa Composite)

The null hypothesis, $H_o : r = \rho = 0$, may be rejected at the specific level for both groups. The hypothesis of no difference between the two correlations for two populations was then tested by z ratio technique. The value of the z ratio, computed from the correlations between the Self-Esteem Total Score and the Iowa Composite Score, is 1.29. This value is not significant at the five per cent level of confidence, and the null hypothesis can not, therefore, be rejected.

The rationale underlying the hypothesis of a difference in the correlations for the two populations just tested is based upon an assumption that boys are more likely to find the school setting a negative one, because the more common types of classroom activity are more markedly different from out of school activity for boys than for girls. If, in spite of this initial drawback, boys achieve a high level of self concept, it is reasoned that a corresponding level of success in school-oriented tasks is likely to occur. The data also suggest the possibility that inaccuracy of measurement may have contributed to the finding, in that the Self-Esteem Total Scores for girls appear to be somewhat less valid than for boys, because a significant negative correlation between the Self-Esteem Lie Score and the Self-Esteem Total Score was obtained for girls. This correlation is -.251, while the required value for r to be significantly different from zero at the five per cent level is $\pm$.205. The direction of such a contamination is unknown, although

it is expected to inflate to Self-Esteem Total Score. No conclusions are drawn from it.

A further analysis was then attempted. Since it is known that Intelligence (variable one) is positively correlated with Self-Esteem Total (variable eight) and with Iowa Composite (variable nine), a partial correlation was computed for these variables. The results shown in Table 8 were obtained, with the indicated significance levels computed from the standard error of a partial correlation coefficient.[1] The hypothesis tested in this instance is the null hypothesis, $\rho = 0$.

TABLE 8

PARTIAL CORRELATION BETWEEN TOTAL SELF-ESTEEM AND IOWA COMPOSITE WITH THE EFFECTS OF INTELLIGENCE REMOVED

Girls	Boys
$r_{89.1} = -.133$	$r_{89.1} = .252$
$\sigma_{r_o} = .106$	$\sigma_{r_o} = .126$
$r_{(95,5)} = .212$	$r_{(95,5)} = .252$
d.f. = 89.	d.f. = 63.

It was found that the partial correlation coefficient between Self-Esteem Inventory Total and Iowa Composite is

[1]Guilford, op. cit., p. 347.

not significantly different from zero for girls, while the comparable partial correlation for boys ($r = .252$) remains significant at the five per cent level. This finding supports the fifth hypothesis. It is, therefore, finally concluded that there is a greater correlation for boys than for girls between the Self-Esteem Total Scores and Iowa Composite Scores.

Hypothesis Six

The sixth hypothesis deals with the nature of the Self-Esteem School Scores of the self concept instrument. Of particular concern are the differences between the scores for boys and for girls. It was conjectured that boys are likely to find school a less rewarding place with fewer appropriate models and with more conflicting demands. Girls, on the other hand, are more likely to find school expectations like home expectations, and, therefore, less conflict-producing. It is, therefore, hypothesized that girls are likely to score higher than boys on this sub-test. This hypothesis was tested by computing a *t* ratio for the difference between means of the sex sub-groups on the Self-Esteem Inventory School Score. There was some question about the nature of the distribution of the Self-Esteem Inventory School Score, since it appeared, in the case of the girls, to be negatively skewed. An approximation of the randomization test was, therefore, computed, using the method described by Siegel.[1] Although a *t* ratio was computed and

[1]Siegel, op. cit., pp. 152-58.

evaluated, it serves as an approximation of the probability distribution of all possible arrangements of scores between the boys' and girls' groups, with the rejection region representing the extreme arrangements having the probability of occurring with a frequency of five per cent or less. This test assumes only interval measurement, small kurtosis, and limited ratio of n_1 to n_2 (no less than one-fifth and no greater than five). With n's of 66 and 96, the limited ratio requirement is satisfied. As to kurtosis, the actual distribution had 13 per cent more cases in the three intervals about the peak than the computed normal distribution. This deviation is assumed to be small enough to justify using the test. The computation results are those shown in Table 9.

TABLE 9

DESCRIPTIVE STATISTICS AND SIGNIFICANCE TESTS OF DIFFERENCES BETWEEN SCHOOL SCORES FOR SEX SUB-GROUPS

	Girls	Boys
N	92	66
$\bar{X}$	5.7608	4.8636
s^2	2.51	3.05

$t = 3.32$

$t_{1,99}$ for $(N_1 - 1) + (N_2 - 1) = 156$ degrees of freedom = 2.61

These findings support the hypothesis of a significant difference between Self-Esteem Inventory School Scores for

boys and girls. A question remained, however, because of the negative significant correlation between the Self-Esteem Lie Scores and the School Scores for girls ($r = -.288$), a feature not significantly found for boys ($r = -.122$). The size of the correlation for girls, however, is such that it accounts for a very small proportion of the underlying variance in the Self-Esteem School Score (.08). It is, therefore, considered plausible that the influence of falsification does not alter significantly the magnitude of the mean School Score for girls. The conclusion is thus reached that the school aspect of self concept as measured by the Self-Esteem Inventory School Score is significantly higher for girls than for boys.

Predicting Achievement from Intelligence and Self Concept

A further objective of this study is the consideration of the joint contribution of Self-Esteem Scores and Intelligence Scores in predicting Iowa Composite achievement. To this end, multiple regression equations were computed from these two relationships for the sub-groups showing the greatest promise of practical significance. The highest obtained relationship is that for the boys' group correlation between Self-Esteem Total and Iowa Composite. This value .417, was used with the Intelligence - Self-Esteem correlation, .343, to compute a multiple correlation.[1] This

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[1]Guilford, op. cit., p. 427.

multiple correlation is .820. Since prediction is the object of this computation, a correction for small sample size (n = 66) was deemed necessary before further computation was undertaken. Again, Guilford's methods were followed.[1] The resulting corrected R^2 is .662, from which the multiple R of .814 is obtained by extracting the square root. The most obvious consideration suggested by this value is that of the practical contribution toward improved prediction when the zero order correlation between Achievement (Iowa Composite) and Intelligence for these same subjects is .807. A difference of only .007, with the third significant figure undoubtedly containing rounding errors, leads to the conclusion that there is no additional contribution made by Self-Esteem Scores to the prediction of achievement as represented by Iowa Composite scores. This conclusion is also supported by the findings regarding the stability of the self concept as measured by the Self-Esteem Inventory. These findings are reported in the next section.

Analysis of Self Concept Instrument

The analysis of the Self-Esteem Inventory was approached in two parts. First, the stability of the self concept as measured by the Inventory was examined by test-retest correlations computed from test administrations one year apart. Secondly, the interrelations of the Self-Esteem Part Scores

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[1]Guilford, op. cit., p. 434.

to each other and to the Total Scores were examined. These analyses were accomplished through examination of the correlation matrix of Self-Esteem Scores and the Teacher Judgment Scores. This correlation matrix is shown in Table 10.

The stability of the self concept as measured by the Self-Esteem Inventory is relatively low for the present sample. The correlation between the Total Score (pre-test) and the Total Score (post-test) is .60. Interpreted as a proportion of the variance common to both scores, or an index of determination, this value becomes .36 ($.60^2$), which leaves a coefficient of alienation (k) of .64. This value may also be interpreted by saying that 64 per cent of the variance underlying the post-test Total Scores is unaccounted for by the variance found in common with the pre-test Total Scores. The question is then raised concerning the nature of this unaccountable variance. It could have resulted from random measurement error due to a weak instrument. It could also have been due to actual changes in the traits measured by the Self-Esteem Inventory. The evidence, though not conclusive, supports the second supposition. First, a reliability coefficient of .88 for a short term test-retest situation is reported by Wylie.[1] Secondly, the relation of the Part Scores to the Total Scores remains relatively constant in the two situations. The obtained values of r for these

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[1]Wylie, op. cit., p. 88.

TABLE 10

CORRELATIONS BETWEEN TEACHER JUDGMENTS, PART SCORES, AND TOTAL SCORES FOR PRE- AND POST-ADMINISTRATIONS OF THE SELF-ESTEEM INVENTORY

	TJ	Se_1	So_1	Sc_1	Ho_1	Lie_1	Tot_1	Se_2	So_2	Sc_2	Ho_2	Lie_2
Se_1	.22											
So_1	.19	.43										
Sc_1	.17	.63	.34									
Ho_1	.21	.51	.42	.34								
Lie_1	.05	-.18	-.12	-.23	.00							
Tot_1	.25	.93	.63	.75	.69	-.16						
Se_2	.25	.58	.38	.39	.39	-.09	.59					
So_2	.17	.25	.36	.07	.26	-.05	.29	.43				
Sc_2	.21	.39	.18	.35	.30	-.23	.41	.61	.29			
Ho_2	.22	.37	.25	.28	.42	-.09	.43	.44	.36	.37		
Lie_2	.07	-.04	-.04	-.06	-.05	.39	-.06	-.08	-.08	-.21	.02	
Tot_2	.28	.56	.39	.39	.46	-.14	.60	.90	.62	.75	.66	-.08

1. Teacher Judgment of self concept ... TJ
2. Self-Esteem Inventory Self Score ... Se
3. Self-Esteem Inventory Social Score ... So
4. Self-Esteem Inventory School Score ... Sc
5. Self-Esteem Inventory Home Score ... Ho
6. Self-Esteem Inventory Lie Score ... Lie
7. Self-Esteem Inventory Total Score ... Tot

The subscripts refer to the first and second administrations of the Inventory.

part to whole relationships are as follows:

TABLE 11

CORRELATIONS BETWEEN PART SCORES AND TOTAL SCORES FOR THE PRE- AND POST-APPLICATIONS OF THE SELF-ESTEEM INVENTORY

	Self Score	Social Score	School Score	Home Score	Lie Score
Pre-Test Total Score	.93	.63	.75	.69	-.16
Post-Test Total Score	.90	.62	.75	.66	-.08

The Self-Esteem Inventory, therefore, appears to be quite consistent in terms of its internal relationships, a situation which is considered unlikely to occur if large error variances are present.

It is, therefore, tentatively concluded that the Coopersmith Self-Esteem Inventory does measure with practical accuracy a trait variable which changed substantially and unsymmetrically over a one year period.

Other observations of interest from the matrix of correlations concern the Teacher Judgment variable and the Lie Score variable. The first of these, Teacher Judgment, correlates with the pre-test Self-Esteem Total Score in a low, positive manner. The correlations between Teacher Judgment and the pre-test Self-Esteem Total Score is .25, while the correlation between Teacher Judgment and the

post-test Self-Esteem Total Score is .28. The value of r required to be significantly different from zero at the one per cent level is ± .208. Since obtained values are in excess of this, the hypothesis of no relationship is rejected. It was noted, however, that the correlation between Achievement and Self-Esteem Total is .308, while the correlation between Achievement and Teacher Judgment is .415. This suggests the possibility that the variance common to both Teacher Judgment and Self-Esteem Total is that of Achievement (Iowa Composite). Accordingly, a partial correlation, with the effects of achievement removed, was computed. It is hypothesized that if Achievement is the underlying variable common to both Teacher Judgment and Self-Esteem Total Score, then the significant correlation between Teacher Judgment and Self-Esteem Total will disappear when Achievement is partialled out. The obtained partial correlation is .159. This value is less than the required partial r (.198) for significance at the five per cent level with three variables. The conclusion is reached, therefore, that Achievement very likely does contribute substantially to the underlying common variance, and there remains no significant proportion not so accountable. This finding suggests that achievement is antecedent to self concept, although it is also plausible to suppose that each contributes to the other. The presence of other contributing factors, as evidenced by the relatively low correlations, probably nullifies the effect in many cases.

The second variable, the Self-Esteem Lie Score, shows only four significant correlations. Three of these are the relationships between the pre-test Lie Score, and pre-test School Score; between the pre-test Lie Score and the post-test School Score; and between the post-test Lie Score and the post-test School Score. These correlations are -.23, -.23, and -.21, respectively. Each exceeds the r value (±.208) significantly different from zero at the one per cent level. The remaining significant correlation is that for the pre-test Lie Score and the pre-test Total Score. The obtained value is -.164, which barely exceeds the value ±.159 required for r to be significant at the five per cent level. The correlation between the post-test Lie Score and the post-test Self-Esteem Total Score is not significant at this level. This finding could have resulted from a reduction of the tendency to falsify responses. The pre-test r could also have been merely a variation accountable to the presence of the School Score within the Total Score. A partial correlation between Lie Scores and Total Scores, with the effects of the School Scores removed, was, therefore, computed. A value was obtained for r of .02, which is obviously non-significant. It is concluded, in the light of these findings, that the School Score is the only area sensitive enough to produce significant defensiveness for the total group. As previously noted, the girls' sub-group also exhibits the same tendency, while the boys' sub-group does not. This finding suggests that school personnel are

"significant others" to children in terms of Brookover's theory; and that they are more significant for girls than for boys.[1]

One other investigation was undertaken in the study. Since the correlation between Self-Esteem Total and Iowa Composite is low, though significant, a group of students representing the most extreme deviants from the trend were considered in more detail. These students were high achievers with low self concepts and low achievers with high self concepts as measured in this study. They were selected on the basis of extreme deviation from the apparent trend of the Iowa Composite - Self-Esteem Total scattergram. Since correlation is low, the scattergram is quite diffuse, and only those cases which appeared distinctively apart were selected. There were ten of these. No hypotheses were proposed for this small group. Instead, they were examined for patterns which might account for their divergence and might lead to further fruitful inquiry about the antecedents of achievement. The method of examination consisted of three steps: First, the students were identified by name. Secondly, the teachers of these students were interviewed, using the Rating Scale for Pupil Adjustment and an unstructured, open-ended question asking for anything which might differentiate these students from the majority of their

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[1]Brookover, op. cit., pp. 84-87.

classmates.[1] Finally, in order to provide a rough comparison, the test scores for both the Self-Esteem Inventory and the Iowa Test of Basic Skills were converted to standard scores with a mean of zero and a standard deviation of one. The differences between the Self-Esteem and Iowa Composite Scores approached two standard score units in every case but one. This case was dropped, since it did not appear deviant enough to contribute the type of information sought. The remaining minimum difference was 1.8 standard score units. Thus it appears reasonable to assume that chance error is not responsible for the observed differences. These students were then sorted into a high Self-Esteem low Achievement group, and a low Self-Esteem high Achievement group. Some differences were apparent between these groups and the classes in which they were observed by their teachers. Both groups were in general classified as having poor overall emotional adjustment. The students with high Self-Esteem Scores and low Iowa Composite (Achievement) Scores were characterized by the following traits: Four of the five were in the low Intelligence group (lower one-third). The remaining student was in the middle group. One student had a Lie Score of zero in the Self-Esteem Inventory, possibly resulting in a spuriously high Self-Esteem Score, and, therefore, possibly accounting for the divergence between self concept and achievement. All of this group tended to

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[1]Michigan Department of Mental Health, Rating Scale for Pupil Adjustment (Chicago: Science Research Associates, Inc., 1953).

be outgoing. Four of the five were characterized as having value systems markedly divergent from school expectations. Manipulativeness and untruthfulness were attributed to them as differentiating characteristics.

In contrast, there were fewer commonalities among the members of the low Self-Esteem high Achievement group. All of this group were classed as insecure and apprehensive.

It is, therefore, plausible from these findings that the opposite extremes do represent differing types of adjustment which could account for the observed divergence. It also seems likely that this divergence is accountable within the framework of Brookover's theory.

Summary

This chapter reports results of the analysis of the data of this study with respect to the previously specified hypotheses. It reports support for the hypothesis of a positive relationship between Self-Esteem and Achievement (Iowa Composite). Support is also found for the hypotheses that the relationship decreases at progressively higher grade levels, that the relationship is higher for boys than for girls, and that the mean school score differs in value for boys and girls, with girls obtaining higher scores. The hypothesis of differing degrees of relationship between Self-Esteem and Achievement (Iowa Composite) for high, middle, and low Intelligence groupings is not supported.

The utility of the Self-Esteem Inventory Scores as contributors to prediction of Achievement (Iowa Composite)

Scores in a multiple regression equation with Intelligence was examined. Such use is not considered worthwhile on the basis of this analysis.

It was also found that the Self-Esteem Inventory is consistent in the relationship of the five Part Scores to one another, and to the Total Scores, over a one year period, but that the traits measured do not appear to remain stable among individuals.

Finally, an examination of the students who departed markedly from the trend was made, and it is conjectured that true differences in types of adjustment exist for them.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

The Problem

This study examines the relationship between achievement, as measured by the Iowa Test of Basic Skills, and self concept, as measured by the Coopersmith Self-Esteem Inventory. The study is specifically concerned with this relationship for Fourth, Fifth, and Sixth grade students.

Methodology

A population of 158 boys and girls was tested on both of these measures, as well as on measures of intelligence (SRA Test of Primary Mental Abilities). A Teacher Judgment of self concept level was also obtained on a four point scale. The Coopersmith Self-Esteem Inventory was administered one year later, for the purpose of collecting retest data to examine the stability of the self concept instrument and the construct it purports to measure.

Because it is assumed possible, on the basis of previous studies, that the relationship between achievement and self concept may not be very great, if it does exist, several sub-groupings were proposed within which more strength of relationship might appear.

The population was divided into these sub-groups on

the basis of Sex, Grade, and Intelligence level. The relationships expressed by correlation coefficients between Achievement (Iowa Composite) and Self-Esteem Total Scores were examined for the total group and for each sub-group.

The relationship between the Self-Esteem School Score and Iowa Composite Score was examined by the method of analysis of variance. The means of the Self-Esteem School Scores were subjected to test for significant differences between boys and girls. Cases which differed markedly from the general pattern of correlation were studied in more detail for suggestion of leads for future research.

Finally, the relationships of the Self-Esteem Part Scores to Teacher Judgment, to Self-Esteem Total Score, to Lie Score, and to Achievement were examined.

Conclusions Concerning the Relationship Between Self Concept and Achievement for Fourth, Fifth, and Sixth Grade Students

It appears that there is a direct relationship between self concept and achievement as measured respectively by the Coopersmith Self-Esteem Inventory and the Iowa Test of Basic Skills (1955 edition). The correlation is .308. The null hypothesis, $H_o : r = \rho = 0$, is rejected at the one per cent level of confidence. The correlation is observed to be positive. It is, therefore, concluded that the data support the hypothesis of a direct linear relationship between self concept and achievement for Fourth, Fifth, and Sixth grade students.

Conclusions Concerning the Relationship Between School Related Self Concept and Achievement

It appears that there is a relationship between the school related aspects of self concept and achievement as measured by the Self-Esteem School Score and the Iowa Composite Score.

The means of the Iowa Composite Scores from seven categories, determined by each individual's Self-Esteem School Score, differ significantly. The null hypothesis, $\mu_1 = \mu_2 = \cdots \mu_7$, is rejected at the five per cent level of confidence. Inspection of the means reveals an apparently non-linear trend, with the highest Achievement Scores associated with the highest Self-Esteem School Scores. The extremely low Self-Esteem School Score category, however, has a higher mean than the next three successively higher categories. This finding suggests that for a significant number of very low achievers, the relationship between self concept and achievement may be inverse.

Conclusions Concerning the Effect of Ability upon the Relationship Between Self Concept and Achievement

The data do not support the hypothesis of a non-linear effect of ability upon the relationship between self concept and achievement.

Although the means of the Self-Esteem Total Scores and the Iowa Composite Scores do not appear to increase in comparative proportion from the lowest to the highest Intelligence group, the null hypothesis, $H_o : r = 0$, can not be rejected at the five per cent level of confidence for any

group. The null hypothesis regarding differences between groups ($H_o : \rho_1 = \rho_2 = \rho_3$) can not be tested, because rho can not be considered significantly different from zero for any Intelligence group. The direction of the trend, however, suggests that more rigorous design and more precise testing might disclose a relationship consistent with this hypothesis.

Conclusions Concerning the Effects of School Grade Placement upon the Relationship Between Self Concept and Achievement

It appears, when the population is considered in grade level groupings, that there is a non-linear relationship between self concept, as measured by the Self-Esteem Total Score, and achievement, as measured by the Iowa Composite Score. The largest correlation occurs in the Fourth grade group and the smallest occurs in the Sixth grade group. The null hypothesis, $H_o : r = / = 0$, may be rejected at the five per cent level of confidence for the Fourth and Fifth grade groups. It may not be rejected for the Sixth grade group. The null hypothesis, $H_o : \rho_1 = \rho_2$, for the difference between the population correlations for the Fourth and Fifth grade groups can not be rejected at the specified level of confidence. These two groups, however, differ significantly from the Sixth grade group, where the correlation between Self-Esteem Total and Iowa Composite is not significantly different from zero. In addition, the direction of the trend supports the hypothesis of a non-linear

relationship. It is, therefore, tentatively concluded that the effect of school grade placement upon the relationship between self concept and achievement is to introduce a non-linear trend, and that the larger correlations occur at the lower grade levels.

Conclusions Concerning the Relationship Between Self Concept and Achievement for the Boys' Group and the Girls' Group

It appears that the relationship between self concept, as measured by the Self-Esteem Total Score, and achievement, as measured by the Iowa Composite, differs significantly between the boys' group and the girls' group. While the null hypothesis, $H_o : r = / = 0$, may be rejected at the five per cent level of confidence for both groups, the hypothesis of no difference in population correlations, $H_o : \rho_1 = \rho_2$, may not be rejected at this level. However, when the effects of Intelligence are removed from this relationship by partial correlation techniques, the correlation between Self-Esteem Total and Iowa Composite for girls becomes negative, though not significant. The corresponding correlation for boys is observed to be positive and remains significant at the five per cent level. It is, therefore, concluded that there is a greater degree of relationship between self concept and achievement for boys than for girls.

Conclusions Concerning the Level of School Associated Self Concept for the Boys' Group and for the Girls' Group

It appears that the Self-Esteem School Score mean of

the girls' group is significantly larger than the corresponding mean of the boys' group. The null hypothesis, $H_o : \mu_1 = \mu_2$, may be rejected at the one per cent level of confidence. It is, therefore, concluded that the school associated self concept for girls is higher than the corresponding self concept for boys. This implies that the school setting is more supportive to girls than to boys.

Conclusions Concerning the Contribution of the Self-Esteem Total to Prediction of Achievement

This study also explores the use of multiple correlation as a predictive device, with Self-Esteem and Intelligence as independent variables, and Achievement (Iowa Composite) as the dependent variable. The resulting multiple correlation is not enough larger than the direct, zero order correlation between Intelligence and Achievement (Iowa Composite) to suggest any usefulness in this procedure.

Conclusions Concerning the Validity of the Coopersmith Self-Esteem Inventory

The final conclusions of this study concern the nature of the self concept instrument. Correlations between its Part Scores and Total Scores were obtained for two administrations of the test, taken at a one year interval. Analysis of these correlations show consistency of the relationship of the parts to the total from one administration to the next, but considerable variation in the performance of the subjects. The attempt at validation through correlation with Teacher Judgment of self concept did not show significant

results when the effects of Achievement were removed by partial correlation technique. Two conclusions are suggested by these findings. First, the Self-Esteem Inventory consistently measures an underlying set of variables which are not stable over extended periods of time. Secondly, Teacher Judgment of self concept reflects a different underlying variable than does self concept measured by the Self-Esteem Inventory. The common variance between these two appears to be the effects of Achievement.

Implications for Educational Practice

The findings of this study raise more questions than are answered; a not uncommon result of research. Nevertheless, several practical and theoretical considerations are suggested. This study was originally undertaken as an effort to discover methods of improving school achievement, especially where apparent under-achievement in terms of ability exists. Knowledge about the antecedents of achievement is considered necessary as a prior step in developing such methods. An assumed antecedent, self concept, was tested and found wanting, as measured, as a practical approach to the problem. Several alternative uses of the self concept construct are suggested, however, as a result.

Accepting the premise that schools cannot operate with achievement alone in a social vacuum, the Self-Esteem Inventory may serve a useful purpose in assessing the non-achievement effects of instructional methods. Secondly, because the goals of schools are not limited in our present culture to

academic achievement alone, the schools may find themselves properly concerned with the improvement of self concept as a worthwhile end in itself. With such a concern, the Coopersmith Self-Esteem Inventory may well be used in assessing the success of programs designed to accomplish this end. Finally, the use of the Self-Esteem Inventory should be explored as part of a battery of tests other than achievement and ability. This study does not consider many types of groupings which might be pertinent to understanding the function of self concept in terms of performance more generalized than academic achievement. In summary, the self concept instrument used in this study appears to have utility in both evaluation and experimentation, although it is not useful in predicting achievement.

A further implication of this study arises from findings relating to the differences between the boys' group and the girls' group. It is apparent that efforts to improve self concept have a greater chance of affecting the achievement of boys than that of girls. To this end it appears that curriculum and environmental changes are suggested. For example, a group of boys who were subjects of this study were asked on another occasion whether they regarded reading as a masculine or feminine activity. The majority responded that reading was feminine. This suggests that the heaviest curriculum emphasis of the elementary school is at variance with the concept which boys view as appropriate to themselves. Since it is hardly likely that reading can be eliminated from

the curriculum in the near future, a change in boys' perception is indicated. This might well be accomplished by altering instructional methods to take into account the structure and sources of the boys' self concept.

It also appears likely that attention to the development of a high level of self-esteem is more significant to achievement in Fourth and Fifth grades than in Sixth. Although the findings of this study do not suggest a reason, it is possible that this situation results because the degree of dependence upon the teacher as a significant person seems to decrease as the student proceeds through school.

Implications for Further Research

Several questions regarding self concept and achievement, which look to research for solutions, remain after, and arise from, this study. They are detailed as follows:

1. Is the self concept-achievement relationship stable for the same student through the grades, or, as suggested by the differing grade groups, does it change through time?

2. If changes in self concept can be brought about by school related, non-achievement centered activities, will academic achievement reflect the change?

3. Are there factors of self concept other than those measured by the Coopersmith Self-Esteem Inventory which relate more closely to academic achievement?

4. In terms of Brookover's theory, can the school intervene between the student and the "significant others"

from whom he is internalizing the non-success concept?

5. Would some type of forced choice instrument produce less fakeable measures of self concept than those provided by the present rating scale?

Suggested Future Studies

Research directed toward the solution of these problems could well provide additional operational schema for practice in elementary education. Specifically, a longitudinal study which follows the same group throughout the elementary grades seems indicated, with an accounting made of the non-school changes which might affect self concept. This exploration should concern itself with the development of an instrument which would identify types of self concept, or self perception, rather than levels of self-esteem. Some sort of a broad range behavior preference check list might be developed to accomplish this purpose. Analysis of variance by types might then lead to the particular perceptions which seem to intervene most in the realization of achievement predicted by ability.

It seems likely that self concept does play a significant role in achievement, although the level of self-esteem is not necessarily the variable. Self concept type may be more important.

The major accomplishment of this study thus appears to be the reshaping of the direction which should be taken by further studies of the antecedents of achievement.

APPENDIX I

Exhibit A

TEACHER JUDGMENT OF STUDENT SELF CONCEPT

TEACHER JUDGMENT OF STUDENT SELF CONCEPT

Instructions to the teacher:

List the names of each of your students in one of the four groups below according to your estimate of the level of his self concept. Start with the students you estimate to be the highest and lowest in your class. After you have completed these two groups, divide the remaining members into the two middle groups. Some students should be placed in each of the four groups.

High Low

1	2	3	4

APPENDIX I

Exhibit B

COOPERSMITH SELF-ESTEEM INVENTORY

BEHAVIOR RATING FORM

BEHAVIOR RATING FORM

NAME _____ DATE _____

CLASS _____ TEACHER _____

Please mark each statement in the following way:

If the statement describes how you usually feel, put a check in the column "LIKE ME." If the statement does not describe how you usually feel, put a check in the column "UNLIKE ME."

There are no right or wrong answers.

	LIKE ME	UNLIKE ME
EXAMPLE: I'm a hard worker.		
1. I spend a lot of time day-dreaming.		
2. I'm pretty sure of myself.		
3. I often wish I were someone else.		
4. I'm easy to like.		
5. My parents and I have a lot of fun together.		
6. I never worry about anything.		
7. I find it very hard to talk in front of the class.		
8. I wish I were younger.		
9. There are lots of things about myself I'd change if I could.		
10. I can make up my mind without too much trouble.		
11. I'm a lot of fun to be with.		
12. I get upset easily at home.		
13. I always do the right thing.		
14. I'm proud of my school work.		
15. Someone always has to tell me what to do.		
16. It takes me a long time to get used to anything new.		
17. I'm often sorry for the things I do.		
18. I'm popular with kids my own age.		

	LIKE ME	UNLIKE ME
19. My parents usually consider my feelings.		
20. I'm never unhappy.		
21. I'm doing the best work I can.		
22. I give in very easily.		
23. I can usually take care of myself.		
24. I'm pretty happy.		
25. I would rather play with children younger than I.		
26. My parents expect too much of me.		
27. I like everyone I know.		
28. I like to be called on in class.		
29. I understand myself.		
30. It's pretty tough to be me.		
31. Things are all mixed up in my life.		
32. Kids usually follow my ideas.		
33. No one pays much attention to me at home.		
34. I never get scolded.		
35. I'm not doing as well in school as I'd like to.		
36. I can make up my mind and stick to it.		
37. I don't really like being a (boy), (girl).		
38. I have a low opinion of myself.		
39. I don't like to be with other people.		
40. There are many times when I'd like to leave home.		
41. I'm never shy.		
42. I often feel upset in school.		
43. I often feel ashamed of myself.		
44. I'm not as nice looking as most people.		
45. If I have something to say, I usually say it.		
46. Kids pick on me very often.		

	LIKE ME	UNLIKE ME
47. My parents understand me.		
48. I always tell the truth.		
49. My teacher makes me feel I'm not good enough.		
50. I don't care what happens to me.		
51. I'm a failure.		
52. I get upset easily when I'm scolded.		
53. Most people are better liked then I am.		
54. I usually feel as though my parents are pushing me.		
55. I always know what to say to people.		
56. I often get discouraged in school.		
57. Things usually don't bother me.		
58. I can't be depended upon.		

Coopersmith Self-Esteem Inventory
Livonia Public Schools: McKinley School
June, 1963

APPENDIX I

Exhibit C

RATING SCALE FOR PUPIL ADJUSTMENT

RATING SCALE FOR PUPIL ADJUSTMENT

Be sure to compare the pupil with others of his own age group. See Manual for further directions.

NAME OF PUPIL (Print) _____ SCHOOL _____ CITY _____

AGE YRS. _____ MOS. _____ GROUP _____ RATED BY _____

POSITION _____ DATE _____

I. Over-all Emotional Adjustment

(*Definition:* Total emotional adequacy in meeting the daily problems of living as shown in school.)

A. Very well adjusted
B. Well adjusted
C. Moderately adequate adjustment
D. Poorly adjusted
E. Very poorly adjusted

A B C D E
☐ ☐ ☐ ☐ ☐

II. Social Maturity

(*Definition:* Ability to deal with social responsibilities in school, in the community, and at home, appropriate to his age.)

A. Very superior social maturity
B. Slightly superior social maturity
C. Average social maturity
D. Slightly inferior social maturity
E. Very inferior social maturity

A B C D E
☐ ☐ ☐ ☐ ☐

III. Tendency Toward Depression

(*Definition:* Tendency toward pervasive unhappiness.)

A. Generally very happy
B. Moderately happy
C. Occasionally unhappy
D. Tendency toward depression
E. Generally depressed

A B C D E
☐ ☐ ☐ ☐ ☐

IV. Tendency Toward Aggressive Behavior

(*Definition:* Overt evidence of hostility and/or aggression toward other children and/or adults.)

A. Rarely aggressive
B. Occasionally aggressive
C. Fairly aggressive
D. Frequently aggressive
E. Extremely aggressive

A B C D E
☐ ☐ ☐ ☐ ☐

V. Extroversion-Introversion

(*Definition:* Tendency toward living outwardly and expressing his emotions spontaneously vs. tendency toward living inwardly and keeping emotions to himself.)

A. Extremely extroverted
B. Characteristically extroverted
C. About equally extroverted and introverted
D. Moderately introverted
E. Extremely introverted

A B C D E
☐ ☐ ☐ ☐ ☐

VI. Emotional Security

(*Definition:* Feeling of being accepted by and friendly toward one's environment and the people in it.)

A. Extremely secure
B. Moderately secure
C. Only fairly secure
D. Moderately insecure and apprehensive
E. Extremely insecure and apprehensive

A B C D E
☐ ☐ ☐ ☐ ☐

VII. Motor Control and Stability

(*Definition:* Capacity for effective coordination and control of motor activity of the entire body.)

A. Extremely good motor control and stability
B. Moderately good motor control and stability
C. Fair motor control and stability
D. Moderately poor motor control and stability–restless, hyperkinetic
E. Extremely poor motor control—markedly restless, hyperkinetic

A B C D E
☐ ☐ ☐ ☐ ☐

Published by Science Research Associates, Inc., 259 East Erie Street, Chicago 11, Illinois

Please use number 7-2147 to reorder this Rating Scale.

VIII. Impulsiveness

(*Definition:* Tendency toward sudden or marked changes of mood.)

A. Extremely stable in mood
B. Stable in mood
C. Usually stable—only infrequent and minor mood changes
D. Unstable in mood—shows marked mood changes on occasion
E. Extreme changes in mood—shows marked or sudden mood changes frequently

A ☐ B ☐ C ☐ D ☐ E ☐

IX. Emotional Irritability

(*Definition:* Tendency to become angry, irritated, or upset.)

A. Unusually good-natured
B. Good-natured—rarely irritable
C. Fairly good-natured—occasionally irritable
D. Moderately irritable—frequently shows *moderate* irritation
E. Extremely irritable—frequently shows *marked* irritation

A ☐ B ☐ C ☐ D ☐ E ☐

X. School Achievement

(*Definition:* Over-all evaluation of pupil's competency in school subjects, relative to his own age group.)

A. Very superior
B. Slightly superior
C. Average
D. Slightly inferior
E. Inferior

A ☐ B ☐ C ☐ D ☐ E ☐

XI. School Conduct

(*Definition:* Conduct in the classroom situation as evidence of his ability to accept the rules and regulations of the school community.)

A. Exceptionally good conduct
B. Superior conduct
C. Average conduct
D. Somewhat inadequate conduct--troublesome disciplinary problem
E. Very inadequate conduct—very serious disciplinary problem

A ☐ B ☐ C ☐ D ☐ E ☐

XII. Below are listed a number of physical conditions which may handicap the child in some or all phases of his adjustment to school life. Place a cross in the parentheses to the right to indicate which conditions apply to this child. Feel free to add any relevant comments in the space labeled "Comments."

1. Unusually tall for his age	( )	7. Limitations in the movement of his leg(s)	( )
2. Unusually short for his age	( )	8. Seriously impaired vision	( )
3. Markedly overweight	( )	9. Seriously impaired hearing	( )
4. Unusually underweight or anemic	( )	10. Poor heart condition	( )
5. Physical disfigurement (specify)	( )	11. Diseased lung condition	( )
6. Limitations in the movement of his arm(s)	( )	12. Speech handicap (specify)	( )

COMMENTS: _____

_____

_____

_____

_____

_____

Number of A ratings for items I, II, VI, & VIII *multiplied by 5* _____

Number of B ratings for items I, II, VI, & VIII *multiplied by 4* _____

Number of C ratings for items I, II, VI, & VIII *multiplied by 3* _____

Number of D ratings for items I, II, VI, & VIII *multiplied by 2* _____

Number of E ratings for items I, II, VI, & VIII _____

TOTAL SCORE _____

APPENDIX II

Exhibit A

INTELLIGENCE, SELF-ESTEEM, AND ADJUSTED ACHIEVEMENT SCORES

INTELLIGENCE, SELF-ESTEEM, AND ADJUSTED ACHIEVEMENT SCORES

Girls

Case Number	Intelligence	Self Esteem	Adjusted Achievement
1	118	46	44
4	103	44	32
12	129	31	67
14	127	31	62
15	105	32	42
20	106	40	35
21	125	40	67
22	127	44	55
27	90	20	53
32	103	40	37
33	128	34	60
39	108	40	43
41	119	41	62
42	104	35	55
43	112	32	53
44	104	22	31
46	109	40	39
47	122	42	64
53	130	37	62
55	101	36	42
56	112	40	44
57	107	31	50
62	107	37	38
63	106	22	43
64	95	37	34
65	130	42	66
67	117	31	55
69	122	37	43
70	93	31	33
74	104	27	45
78	123	43	45
82	114	29	52
83	94	47	36
84	125	46	67
85	114	26	39
86	114	37	54
87	107	26	56
88	112	40	49
89	92	27	38
90	105	22	45
91	98	38	38
95	103	42	52
97	105	41	44
99	118	43	53

Girls

Case Number	Intelligence	Self Esteem	Adjusted Achievement
101	121	37	49
102	118	46	68
103	120	33	66
105	94	37	41
106	116	45	54
109	117	42	45
110	137	44	82
113	123	46	55
114	108	34	36
122	95	47	47
123	108	39	52
126	103	39	44
127	112	39	53
128	89	32	30
129	110	45	44
131	105	27	47
134	112	41	57
136	97	34	51
137	104	33	52
138	132	39	65
139	114	36	49
140	121	41	54
141	114	39	49
142	105	39	46
143	106	43	45
147	118	44	47
151	116	40	59
152	108	38	47
154	105	27	40
161	109	39	48
162	99	27	35
166	121	38	55
167	99	38	39
168	109	41	49
169	132	36	73
171	112	40	54
173	108	34	47
174	119	32	44
175	113	47	38
176	104	45	40
177	111	27	46
178	102	21	31
182	107	29	43
183	99	27	37
184	103	19	42
186	104	44	45
193	108	31	38
199	119	35	39

INTELLIGENCE, SELF-ESTEEM, AND ADJUSTED ACHIEVEMENT SCORES

Boys

Case Number	Intelligence	Self Esteem	Adjusted Achievement
6	119	39	48
7	109	31	42
8	113	34	51
9	88	29	35
10	115	38	47
11	137	43	79
16	125	28	53
17	118	33	37
18	110	42	44
26	94	40	37
29	134	38	61
30	83	30	30
34	128	37	46
35	109	45	42
36	90	32	31
37	96	39	39
40	112	36	49
50	123	40	58
58	91	25	32
60	117	27	56
66	122	39	55
68	117	43	53
71	115	31	54
72	113	42	40
75	97	30	30
76	109	42	50
77	95	31	43
79	132	38	62
80	108	32	44
92	132	31	65
96	96	31	36
100	128	16	57
104	111	34	38
107	96	28	49
108	143	42	73
112	89	25	34
115	123	39	62
116	121	46	62
119	107	29	42
121	109	27	40
124	99	24	34
125	114	39	51
130	116	24	56
133	97	25	28
135	109	23	40

Boys

Case Number	Intelligence	Self Esteem	Adjusted Achievement
144	105	36	42
145	129	33	63
146	116	31	52
148	112	31	37
149	97	39	34
155	111	30	42
158	111	40	51
159	67	22	33
164	111	30	46
165	104	22	33
170	104	33	38
172	99	29	30
179	113	46	45
180	89	26	28
187	136	32	46
190	117	45	59
191	123	34	49
192	102	39	34
196	123	30	35
198	111	20	36
200	124	32	47

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AUTOBIOGRAPHICAL STATEMENT

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Personal Background: Born August 16, 1926; Clarion, Clarion County, Pennsylvania. Attended the public schools at Munderf and Brookville, Pennsylvania. Served in the U.S. Navy from 1944-1946. Married Lucile I. Wensley in 1946; three sons and twin daughters: Paul Jr., Richard, David, Judith and Jacquelyn. Mark Jefferson Scholar in Geography in 1950.

Education: High School - Brookville, Pennsylvania
Colleges - Spring Arbor College, Spring Arbor, Michigan, 1946-1947
Eastern Michigan University, B.A., 1950
University of Michigan, M.A., 1952
Wayne State University, Ed.D., 1965

Positions: Classroom Teacher, Vandercook Lake Public Schools, Jackson, Michigan, 1950-1952
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Livonia Educational Association
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