THE RELATIONSHIP BETWEEN ACADEMIC SELF-CONCEPT OF GRADE VIII GIRLS IN AN URBAN SETTING AND EACH OF THE FOLLOWING VARIABLES: PARENT-CHILD RELATIONSHIP, TEACHER-CHILD RELATIONSHIP, PEER RELATIONSHIP, INTELLIGENCE, SOCIAL CLASS

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PARENT-CHILD RELATIONSHIP

TEACHER-CHILD RELATIONSHIP

PEER RELATIONSHIP

INTELLIGENCE

SOCIAL CLASS

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ABSTRACT

The major purpose of this study was to determine whether or not a relationship existed between academic self-concept and each of the following variables: parent-child relationship, teacher-child relationship, peer relationship, intelligence and the social class of the child's family. The order of importance of those relationships found to be moderately high was also determined.

The study involved Grade VIII girls in the city of St. John's. Information was obtained from pupils, teachers and parents. The academic self-concept score was determined by combining the score on Brookover's Self-Concept of Ability Scale with the score on the academic self-concept questionnaire devised by the writer. Information on parent-child relationship, teacher-child relationship and peer relationship was determined by the use of questionnaires also devised by the writer. Intelligence quotients for all pupils was determined by use of the Lorge-Thorndike Intelligence Test. Social class of the child's family was determined by use of the Blishen Occupational Class Scale.

Two samples were utilized in this study. The first consisted of Grade VIII pupils who completed all of the questionnaires as well as the intelligence test. Only three variables, teacher-child relationship, peer relationship and intelligence and their relation to academic self-concept, were studied in this sample. The second sample was randomly selected from academic self-concept scores. Nine were

chosen from scores above one standard deviation of the mean and nine were chosen from scores below one standard deviation of the mean. This sample consisted of nine girls with low academic self-concept and nine girls with high academic self-concept. This sample of eighteen is referred to throughout the thesis as the extremes. Five variables, parent-child relationship, teacher-child relationship, peer relationship, intelligence, social class and their relationship to academic self-concept, were studied in this sample.

Moderately high relationships were found to exist between academic self-concept and teacher-child relationship, peer relationship and intelligence. Although a relationship existed between academic self-concept and social class, it was very low. No relationship seemed to exist between academic self-concept and parent-child relationship.

With the larger sample it was found that intelligence was the best predictor of the academic self-concept. However, with the extremes, although intelligence was still the best predictor of academic self-concept, it seems that peer relationship and teacher-child relationship are also good predictors of academic self-concept.

The children involved in this study were grouped, based on high, low or average intelligence. This grouping could be one explanation as to why intelligence was found to be the best predictor of academic self-concept for the group as a whole.

For the group as a whole the implication would seem to be that intelligence, as measured by an intelligence test, must be increased in order for academic self-concept to increase. Perhaps

then it would be worthwhile for a preschool program to be established for children attending this school in future years. Continued evaluation of such a program would show whether or not functional intelligence can be increased by such a program and would also show if this increase is maintained throughout the child's school years.

With the extremes, particularly those with low academic self-concept, it would seem that teachers, by working closely with the child and through classmates, could be very influential in changing the academic self-concept the child holds.

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CHAPTER I

THE PROBLEM

I. INTRODUCTION

One of the most recent developments in contemporary education is the growing emphasis placed on the student's subjective personal evaluation of himself as a dominant influence on his success or failure in school.[1]

In the light of this contemporary approach, educators have investigated the relationship between this self-concept as it is usually called and one or more of the following: intelligence, achievement and underachievement, interests, anxiety, school adjustment, beginning achievement in reading. Most often positive correlations have been found between self-concept and each of the above variables.

Williams and Cole[2] found significant positive correlations between a global self-concept measure and each of the following variables: concept of school, social status at school, emotional adjustment, mental ability, reading achievement and mathematical achievement.

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[1]William W. Purkey, Self-Concept and School Achievement (New Jersey: Prentice-Hall, Inc., 1970), p. v.

[2]Robert L. Williams and Spurgen Cole, "Self-Concept and School Adjustment," Personnel and Guidance Journal, XXXXVI (January, 1968), p. 478.

Bruck and Bodwin[3] attempted to determine if there was a significant relationship between global self-concept and academic achievement. A significant, positive correlation was found between global self-concept and presence or absence of underachievement.

Shaw, Edson and Bell[4] in a study on the global self-concept of bright underachievers found indications that male underachievers have more negative feelings about themselves than do achievers, while female underachievers tend to be ambivalent with regard to their feelings about themselves.

A study by Wattenberg[5] dealt with a specific area of achievement — that of reading — and its relation to self-concept. Considering the reported association between poor self-concepts and reading disabilities, he designed an exploratory study in an attempt to determine which was the antecedent phenomenon. Measures of mental ability and self-concept were obtained for children in their first semester of kindergarten in two Detroit elementary schools. Over a two and one-half year period their progress in reading was followed and measures of their progress in reading were obtained. Self-Concept measures were also repeated at the end of this time period. Two aspects of self-concept; feelings of personal worth and feelings of competence, were noted.

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[3]Max Bruck and Raymond F. Bodwin, "The Relationship Between Self-Concept and Presence or Absence of Scholastic Underachievement," Journal of Clinical Psychology, XVIII (April, 1962), pp. 181-182.

[4]M. Shaw, "The Self-Concept of Bright Academic Underachievers," Personnel and Guidance Journal, XXXXII (December, 1863), p. 402.

[5]William W. Wattenberg and Clare Clifford, "Relationship of Self-Concepts to Beginning Achievement in Reading", Child Development, XXXV (March-December, 1964), pp. 461-467.

The data were organized in two different ways. The only conclusive evidence gathered as a result of the first organization was that success in reading was linked to an improvement in the self-concept as to competence.

In the second ordering of data fourteen subgroup correlations were obtained between second grade reading test scores and quantified self-concept (competence) measures, ten were positive, two at the .05 level. For the quantified self-concept (good-bad) the comparable figures showed that of fourteen correlations, eleven were positive with three at the .05 level and an additional one at the .01 level.

The overall findings as a result of this study were as follows:

1. In general, measures of self-concept and ego-strength taken at kindergarten were predictive of reading achievement two and one half years later.

2. Even as early as kindergarten self-concept phenomena are antecedent to and predictive of reading accomplishment at least.

Brookover[6] is perhaps the most renowned researcher in the area of self-concept and school achievement. His study differs from other studies in the same field in that it considers self-concept of ability. His findings are that there is a significant positive correlation between self-concept of ability and performance in the academic role. Another finding was that self-concept is significantly

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[6]Wilbur B. Brookover, "Self-Concepts of Ability and School Achievement," Sociology and Education, XXXVII (Spring, 1964), pp. 271-279.

and positively correlated with perceived evaluations that significant others hold of the students. Brookover also found that while students who report low self-concepts rarely perform at above average levels, a significant proportion of those who profess high self-concepts of ability, surprisingly do not perform at comparable levels. Brookover hypothesized therefore that confidence in one's academic ability is a necessary but not sufficient factor in determining scholastic success.

Most contemporary research then continues to show a relationship between the student's personal evaluation and variables related to success or failure in school. In view of such research it seems reasonable to assume that a child's self-concept can be a hindrance or a help to his scholastic endeavours depending on whether it is high or low, positively or negatively oriented. It would appear important, then, that factors which relate to the academic self-concept be investigated and determined with the underlying motive that once a knowledge of those factors is available, those children with negative self-concepts may be helped to value their ability more highly than they are presently doing.

II. THE PRUPOSE OF THIS STUDY

The major purpose of this investigation is to study factors which the writer feels are significantly related to academic self-concept. More precisely, the present study investigates the relationship between the following:

1. Academic self-concept and intelligence.
2. Academic self-concept and social class.
3. Academic self-concept and parent-child relationship.
4. Academic self-concept and peer-relationship.
5. Academic self-concept and teacher-child relationship.

An analysis of the data should show which of the above factors are significantly related to the academic self-concept. Also, it is hoped that this analysis will indicate which of the variables in this particular study are most significantly related to the academic self-concept the child has and thus will indicate where emphasis should be placed in programs initiated for the purpose of changing this academic self-concept.

III. IMPORTANCE OF THIS STUDY

The overall aim of schooling may be stated as helping each child realistically develop his potential, in such a way that the child becomes a well-adjusted individual capable of meeting the demands of everyday life satisfactorily, both now and in the future. This aim stresses achievement as well as emotional well-being. Both of these factors are interrelated to such a degree that it is difficult to determine which is the cause and which is the result or indeed if one can be considered the cause and the other the result.

Certainly one major factor contributing to a child's emotional well-being is how he feels about himself, where he places

himself on the continuum from inferior to superior in intellectual ability.

Kinch[7] presents a circular view of the theory concerning self-concept. He postulates that the self-concept the individual holds is based on his perceptions of the way others are responding to him. He stresses that the actual responses of others toward the individual will determine the way this individual sees himself and will effect his behaviour. In turn, the behaviour the individual manifests influences the actual responses of others toward the individual. In actual practice the following may result: a child feels that others in his class, and perhaps his teacher as well, consider him to be a slow pupil. The child's actual performance fulfills the expectations of these people. The result is that other people's perceptions of him remain unchanged.

Snyder[8] takes the position that a child's self-concept within a situation emerges as a result of his interaction with "significant others", such as teacher, peers, parents.

Implications of the views of Kinch and Snyder, for the child's self-concept development, would seem to be that the child's personal evaluation is the result of his interaction with

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[7]John W. Kinch, "A Formalized Theory of the Self-Concept", The American Journal of Sociology, LXVIII (January, 1963), pp. 481-486.

[8]Eldon E. Snyder, "Self-Concept Theory, An Approach to Understanding the Behaviour of the Disadvantaged," Clearing House, XL (December, 1965), p. 243.

others and that the major responsibility for the development of the self-concept rests with the "significant others" of the child.

It would seem from statistical data[9] concerning such problems as drop-outs, underachievement, retention and reading disability, that there are many children in our schools who have met failure and perhaps as a result have tended to place themselves at the bottom of the continuum with regard to intellectual ability. It is with those children especially that this study is concerned.

If factors related to academic self-concept can be identified and if we can obtain a reliable measure of the child's academic self-concept, then steps can be taken to remediate the damage already done by others to those children who now consider their academic ability to be lower than it actually is.

An important part of any counselor's job is program development. This extends beyond the field of academic programs and is concerned as well with establishing programs whereby parents especially, but others also, become involved in trying to find better ways of meeting children's needs.

Thomas[10] carried out an experiment to enhance self-concept of ability and thus hopefully raise school achievement among low-achieving ninth grade students. Of the three approaches he employed, use of an expert to present material designed to enhance

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[9] News Letter, Department of Education, St. John's, Vol. 15, No. 2 (October, 1963), and Vol. 15, No. 9 (May, 1964).

[10] Shailer Thomas, "An Experiment to Enhance Self-Concept of Ability and Raise School Achievement Among Low-Achieving Ninth Grade Students," Dissertation Abstracts, XXVI (1966), p. 4870.

self-concept, counseling low-achievers and involving parents of low-achieving students in a series of meetings about low-achievement, only the last was a significant means of raising self-concept and achievement among low-achievers. This is an indication that "significant others" can be used to change the child's academic self-concept.

This particular study is not directly concerned with the development of any particular program. However, it endeavours to determine if parent-child relationship, teacher-child relationship, peer relationship, intelligence and social class of the child's family are related to the academic self-concept the child has. If significant correlations can be found between academic self-concept and any or all of those variables under study, counselors will have a guideline to follow in establishing programs for those children who have negative or low academic self-concepts. Such information would also be influential in obtaining encouragement and support from school boards in the development of such programs aimed at helping students replace the negative or low academic self-concept they now have with a higher more positive one.

Hopefully an improved academic self-concept will indirectly lead to improved academic performance.

It is also hoped that instruments devised for use in this study can be used for repeated studies with other groups.

IV. HYPOTHESES

A number of hypotheses have been formulated as the result of consideration of the relationship between the factors involved in this study — parent-child relationship, peer relationship, teacher-child relationship, intelligence and social class — and the present academic self-concept the child holds. These hypotheses may be stated as follows:

Hypothesis 1 - There will be a positive relationship between the academic self-concept of the child and parent-child relationship.

Hypothesis 2 - There will be a positive relationship between academic self-concept of the child and teacher-child relationship.

Hypothesis 3 - There will be a positive relationship between academic self-concept of the child and peer relationship.

Hypothesis 4 - There will be a positive relationship between academic self-concept of the child and his intelligence.

Hypothesis 5 - There will be a positive relationship between academic self-concept of the child and his social class.

V. PROCEDURE

The subjects in this study were Grade VIII students from one large parochial elementary girls' school in St. John's.

When Blishen Occupational Class Scale is applied the parents of those girls are fairly evenly concentrated in all seven classes which Blishen specifies. This would seem to indicate that this school is not dominantly high, middle or lower class, but has representatives of all three classes.

Two samples were used. The first sample consisted of eighty-eight students who were present at the time the questionnaires were administered. Three characteristics — intelligence, peer relationship and teacher-child relationship — and their relation to academic self-concept were statistically analyzed in this sample.

The second sample consisted of only eighteen students chosen on the basis of their answers to an academic self-concept questionnaire[11] and Brookover's Self-Concept of Ability Questionnaire.[12] Each child's academic self-concept score was determined by summing the scores on both questionnaires administered. Nine students were then randomly selected from those whose scores fell one standard deviation below the mean and nine more were selected randomly from those whose scores fell one standard deviation above the mean.

The sample of eighteen considers the same variables as are considered in the sample of eighty-eight, as well as two others — parent-child relationship and social class. The smaller sample was employed particularly because home visitation was required and the length of time involved in interviewing eighty-eight parents

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[11] See Appendix A.

[12] See Appendix B.

was too great. This sample may also be said to contain those pupils whose self-concepts were more definitely high or low.

VI. LIMITATIONS OF THE STUDY

This study focused on the relationship between academic self-concept and five variables — intelligence, peer relationship, social class, teacher-child relationship and parent-child relationship — in grade VIII girls. The number of "significant others" is limited to parents, peers and teachers. The relationship between each of the "significant others" and the child is further limited in that the relationship in each of the above is investigated only with regard to academic work, ability and progress of the child as seen from the viewpoint of the "significant other". This study is limited to some degree by the validity and reliability of the different questionnaires devised by the writer for use in this particular study.

VII. EXPLANATION OF TERMS

Academic self-concept. One's feeling about oneself with regard to the following: ability to cope with academic work, placement in a class with regard to general overall ability and acceptability of work.

Low academic self-concept. For the purpose of this study this will mean a feeling of inferiority with regard to academic work, a feeling of inability to cope with academic work, considering oneself not as good as the average in ability and not doing acceptable work. Those would be the students who fall below one standard deviation of the mean when the score on the Brookover Self-Concept of Ability Scale and the score on the Academic Self-Concept Questionnaire are combined.

High academic self-concept. For the purpose of this study this will be defined as feeling capable of coping with academic work, considering oneself average or above average in ability and doing acceptable work. Those would be the students who lie above one standard deviation of the mean when the score on the Brookover Self-Concept of Ability Scale and the score on the Academic Self-Concept Questionnaire are combined.

Intelligence. Intelligence for the purpose of this study is defined as the derived I.Q. score on the verbal and non-verbal batteries of the Lorge-Thorndike Test, Level E. The Lorge Thorndike Intelligence Tests are a series of tests of abstract intelligence. Abstract intelligence is defined as the ability to work with ideas and the relationships among ideas.

Significant others. For the purpose of this study "significant others" are those who presumably exert greatest influence on the child — parents, peers, teachers.

Parent-child relationship. This is limited to the relationship that exists between the parent and the child concerning the child's academic work, ability and progress.

Peer Relationship. This is concerned with how the child is viewed by his peers in academic work, ability and progress.

Teacher-child relationship. This is limited to the relationship that exists between the teacher and child concerning the child's academic work, ability and progress.

Global self-concept. The general overall concept the child has of himself.

Social class. For purposes of this study the social class of the family is based on the occupational level of the father. The occupational level of the father is determined by the use of the Blishen Occupational Class Scale.

VIII. ORGANIZATION OF THE THESIS

A review of the literature and related studies follows in Chapter II. Chapter III is concerned with design of the study. Chapter IV gives a report of the statistical treatment of the data collected. Chapter V contains a discussion of the findings and Chapter VI the summary, conclusions and recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this chapter is to summarize some of the theoretical background and research findings which relate self-concept of the child with intelligence, social class of the family, parent-child relationship, teacher-child relationship and peer relationship.

The material presented here pertains particularly to the child's overall self-concept or global self-concept. The study with which this thesis is concerned, however, deals with only one facet of this global self-concept, namely academic self-concept.

The writer justifies the use of this literature on the following basis:

1. It is assumed by the writer that academic self-concept is part of the global self-concept and what applies in one may also apply in the other.
2. There is a lack of reported research dealing with a specific academic self-concept and the variables under study in this particular thesis.

I. THEORETICAL BACKGROUND

The words "self-concept" have come into common use to refer to the self as the individual who is known to himself.[1]

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[1] Ruth Wylie, The Self-Concept (Lincoln: University of Nebraska Press, 1961), p. 1.

The theory behind the idea of self-concept is known as self-theory. Among the most recognized advocates of this theory would be found William James, Herbert Mead, Charles Cooley, Kuhn and Rogers. Although all are adherents to self-theory their viewpoints and philosophies differ on various points concerning self-concept, its origin and development.

In Kuhn's self-theory we find the following definition of self or self-concept. "It is the individual's attitudes toward his own mind and body, viewed as an object", or similarly, "the individual as viewed by the individual, a social object among objects."[2] Two propositions can be directly derived from the general statement of Kuhn's theory and a third indirectly. First, a person's self is based on the behaviour of his "orientational others" toward him. Second, the self serves as the basis from which a person's behaviours are directed toward other objects. Third, the behaviours of "orientational others", that are directed toward a person determine his behaviour regarding all objects including himself. These propositions stress the importance of "orientational others" in the development of the self. The orientational others refers to the others to whom the individual is most broadly and basically committed, psychologically and emotionally. It refers to the others who have provided him with his general vocabulary, including his most basic and crucial concepts and categories. It refers to the others who have provided and

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[2]Charles W. Tucker, "Some Methodological Problems of Kuhn's Self-Theory," Sociological Quarterly, VII (Summer, 1966), pp. 345-358.

continue to provide him with his categories of self and other and with meaningful roles to which such assignments refer. It refers to the others with whom, in communication, the individual's self-conception is basically sustained or changed. This includes parents, peers and teachers.

John W. Kinch[3] considers the self-concept as the organization of qualities that the individual attributes to himself. The basic postulates of his theory are:

1. The individual's self-concept is based on his preception of the way others are responding to him.
2. The individual's self-concept functions to direct his behaviour.
3. The individual's perception of the responses of others toward him reflects the actual responses of others toward him.
4. The way the individual perceives the responses of others toward him will influence his behaviour.
5. The actual responses of others toward the individual will determine the way he sees himself.
6. The actual responses of others toward the individual will affect the behaviour of the individual.
7. The behaviour that the individual manifests influences the actual responses of others toward the individual.

Elden Snyder[4] postulated the following:

1. A child's behaviour is guided by his self-concept.
2. The self-concept within a situation emerges as a result of interaction with significant others.

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[3]John W. Kinch, "A Formalized Theory of The Self-Concept," The American Journal of Sociology, LXVIII (January, 1963), pp. 481-486.

[4]Elden E. Snyder, "Self-Concept Theory, An Approach to Understanding the Behaviour of Disadvantaged Pupils," Clearing House, XL (December, 1965), p. 246.

3. The self-concept is continually emerging as a result of changing expectations and perceived expectations of others in varying situations.

What a child perceives himself to be can be altered, then, if the child perceives that significant others have different expectations of him now than they did on a previous occasion in a different situation. If this is the case, then a knowledge of the child's self-concept and the factors related to this self-concept would be very beneficial, not only in working directly with the child, but also for working indirectly through parents and teachers.

Mead[5] theorizes that the self is something which has a development; it is not initially there at birth but arises in the process of social experience and activity, that is, develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process. The importance of the social group in the development of the individual's self is emphasized. The individual experiences himself as such, not directly, but only indirectly, from the particular standpoints of other individual members of the same social group or from the generalized standpoint of the social group as a whole to which he belongs. The individual enters his own experiences as a self or individual, not directly or immediately, not by becoming a subject to himself, but only insofar as he first becomes an object to himself just as other individuals are objects to him or are in his experience: and he

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[5]Anselm Strauss, George Herbert Mead on Social Psychology (Chicago and London: University of Chicago Press, 1964), pp. 199-203.

becomes an object to himself only by taking the attitudes of other individuals toward himself with a social environment or content of experience or behaviour in which both he and they are involved.

Phenomenal field, phenomenal self and self-concept are terms employed by Snygg and Combs.[6] The phenomenal field is simply the universe of naive experience in which each individual lives, the everyday situation of self and surroundings which each individual takes to be a reality. The phenomenal self includes all those parts of the phenomenal field which the individual experiences as part or characteristic of himself. Snygg and Combs define self-concept in terms of phenomenal self and phenomenal field. Self-concept to them is an abstraction from the phenomenal self. It includes those parts of the phenomenal field which the individual has differentiated as definite and fairly stable characteristics. They stress the importance of the cultural effects on the development of the phenomenal self and therefore on the self-concept. They consider the culture into which the child is born, as a far more potent factor in the development of the phenomenal self than are the child's reactions to his physical surroundings.

> Out of the interaction of the child with the world about him, the individual comes to differentiate more and more clearly his phenomenal self.[7]

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[6]Donald Snygg and Arthur W. Combs, Individual Behaviour (New York: Harper and Brothers, Publishers, 1949), pp. 3-113.

[7]As quoted in: Snygg and Combs, op cit., p. 83.

This concept can only be a function of the way he is treated by those who surround him. As he is loved or rejected, praised or punished, fails or is able to compete, he comes gradually to regard himself as important or unimportant, adequate or inadequate, handsome or ugly, honest or dishonest and even to describe himself in terms of those who surround him. The child can only see himself in terms of his experience and in terms of the treatment he receives from those responsible for his development. He is likely therefore to be strongly affected by the labels which are applied to him by other people. He may have no other choice but to regard himself in terms of such symbols. If the reactions of those who surround him, label him a liar, a thief, a delinquent or a 'dummy' he may eventually come to see himself in the same light. He can only react in terms of what he regards as the truth about himself. Since his phenomenal self is the result of his experience, his behaviour can only be an outgrowth of the meaning of that experience and he must necessarily become in truth what he has been labelled by the community which surrounds him. Parents, peers and teachers are three types of people in the social community surrounding each child.

Snygg and Combs[8] in discussing the implications of their theory for education stress the role of the teacher. They see the teacher as fulfilling his responsibility when he does the following:

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[8]Snygg and Combs, op. cit., pp. 226-244.

1. Provides each child with the experiences and physical resources which will make it possible for him to discover realistic and effective solutions to his present problems.

2. Provides an atmosphere of acceptance in which each student is free to explore his environment and to move toward the satisfaction of need without fear of humiliation.

3. Acts as a friendly representative of the socially responsible adult society which the child will eventually be expected to join.

If the above are provided by the teacher the result would in most cases be a teacher-child relationship conducive to the development of high self-esteem or positive self-concept in the child.

Cooley[9] does not overlook the influence of others on the individual's perception of himself, although his philosophy of self tends to be different. To him the self-idea of a social self has three principal elements:

1. the imagination of our appearance to the other person;

2. the imagination of his judgement of that appearance; and

3. some sort of self feeling, such as pride or mortification.

The important point is that the thing that moves us to pride or shame is not the mere mechanical reflection of ourselves but an imputed sentiment, the imagined effect of this reflection upon another's mind. The degree and type of feeling is determined by the character and weight of the other.

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[9]Charles Horton Cooley, Human Nature and the Social Order (New York: Schocken Books, 1967), p. 184.

One of the propositions put forth by Carl Rogers[10] in his theory of personality and behaviour relevant to this particular study is this:

> As a result of interaction with the environment and particularly as a result of evaluational interaction with others, the structure of the self is formed — an organized, fluid but consistent conceptual pattern of perceptions of characteristics and relationships of the 'I' or 'ME' together with the values attached to those concepts.

Rogers stresses not mere interaction but evaluational interaction with others. In the writer's opinion it is completely true to say that children during school years are being continually evaluated. It is during those formative years that this evaluation can enhance or destroy a child's self-esteem and therefore help him develop a negative or positive, high or low opinion of himself. During this period also it is the parents, teachers and peers of the child who control considerably the evaluations that are given either directly or subtly.

A common trend seems to run through the various propositions put forth by the different theorists mentioned above. This trend is that others with whom people interact are the most important basis for the development of the self-concept in an individual. In the writer's opinion this theoretical background provides support for the first three hypotheses with which this study is concerned:

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[10]Carl R. Rogers, Client-Centered Therapy (Boston: Houghton-Mifflin Company, 1951), p. 498.

Hypothesis 1 - There will be a positive relationship between the academic self-concept of the child and parent-child relationship.

Hypothesis 2 - There will be a positive relationship between academic self-concept of the child and teacher-child relationship.

Hypothesis 3 - There will be a positive relationship between academic self-concept of the child and peer relationship.

II. RESEARCH FINDINGS

Parent-Child Relationship and Self-Concept

Perhaps the most extensive study of parent-child relationships and its effect on the child's self-concept was that which was carried out by Coopersmith.[11] His work consisted of a series of studies which attempted to clarify the antecedents and consequences of self-esteem. As briefly summarized as possible his findings:

1. A common characteristic of mothers of children of high self-esteem is their acceptance of their child. Mothers of children with high self-esteem are more loving. They have a closer relationship with their children than do mothers of those with less self-esteem. Mothers of children with medium self-esteem tend to respond in a fashion that is generally similar to mothers of children with high self-esteem

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[11] Stanley Coopersmith, The Antecedents of Self-Esteem (San Francisco and London: W.H. Freeman and Company, 1967), pp. 164-235.

with both groups markedly different from the mothers of those with low self-esteem.

2. Conditions that exist within families of children with high self-esteem are notable for the demands the parents make and the firmness and care with which they enforce those demands. Reward is the preferred mode of affecting behaviour but where punishment is required it is geared to managing undesired responses rather than to harsh treatment or loss of love. The amount of punishment administered in these families is no less than in others but it is different in its expression and is perceived as justifiable by high self-esteem subjects.

3. Conditions that exist within the families of children with low self-esteem would focus upon lack of parental guidance and relatively harsh and disrespectful treatment. These parents either do not know how or do not care to establish and enforce guidelines for their children. They are apt to employ punishment rather than reward and the procedures they do employ lay stress on force and loss of love. There is an inconsistent and somewhat emotional component in the regulatory behaviours of these parents. They are less concerned on one hand and inclined to employ more drastic procedures on the other.

4. Families of children with high self-esteem not only establish the closest and most extensive of rules, but are also the most zealous in enforcing them. Parental treatment within these limits is noncoercive and recognizes the rights and opinions

of the child. His views are sought, his opinions are respected and concessions are granted to him if differences exist. The child is permitted to enter into discussion as a significant participant and to gain the benefit of self-assertion.

5. The pattern for low self-esteem children in this study consists of few and poorly defined limits and harsh and autocratic methods of control. Their parents do not provide the external standards from which inner controls are formed. Within the limits these parents are controlling, dictatorial, rejecting and uncompromising. These parents appear to demand absolute compliance without providing the guiding limits that would indicate what sorts of behaviour they value and desire. The lack of standards and the accompanying disrespectful treatment that prevail in these families cause these children to feel uncertain of whether and when they have succeeded and to feel insignificant and powerless.

6. These persons of both high and low self-esteem have both been given the latitude to explore, to move outside the family circle and to develop private worlds of their own: both have been able to free themselves from reliance upon others and given this detachment have reached certain conclusions. The detachment of the child with high self-esteem has been accompanied by experiences of success and acceptance and a favourable independence is achieved. The

child with low self-esteem has been given the same opportunity but lacking competence and support has reached generally negative conclusions. The person with high self-esteem has had a series of personally achieved successes, while the person with low self-esteem has had a series of failures, which cannot be readily or wholly attributed to other persons.

Sterling Ellsworth,[12] consulting psychologist, Eugene, Oregan, states that emotional problems in a person are always accompanied by negative feelings. He specifies three very common causes of these negative feelings to be overportection, neglect or domination of parents. He has drawn his conclusions from empirical data obtained by working with many different clinical cases. While he considers a negative self-concept as developing from overprotection, neglect or domination on the part of parents, he maintains that treating children with love with the broader meaning of respect, trust, confidence, admiration and understanding helps to develop positive self-concepts in children.

The conclusion that can be drawn as a result of the work of both Coopersmith and Ellsworth is that parents are directly responsible for the self-concept the child has of himself. More specifically the parents' relationship with the child is perhaps the major determinant of the overall value the child places on himself.

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[12]Sterling G. Ellsworth, "Building the Child's Self-Concept", N.E.A. Journal, LVI (February, 1967), pp. 54-56.

Teacher-Child Relationship and Self-Concept

A major portion of the child's day is spent in the presence of one or more teachers after he reaches his fifth birthday. It is only reasonable to assume that those teachers play an important role in nourishing or destroying the child's self-concept. The influence of teachers is evident from a study in which Davidson and Lang[13] investigated the relationship between children's perceptions of their teacher's feelings toward them and their own self-perceptions. A check list of adjectives was administered under two conditions: "My teacher thinks I am" and "I think I am". A high positive correlation (.82) was found between children's perceptions of their teacher's feelings toward them and the children's perceptions of themselves. This study seems to show that children are not only aware of the way their teachers feel about them but they tend to see themselves in the same way the teacher does.

In most cases it is the child's intellectual ability and achievement that is the center of emphasis for the teacher. The manner in which he presents to the child his intellectual ability including limitations, either subtly or bluntly, with or without acceptance, and understanding will determine how that child sees himself in the future with regard to academic ability.

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[13]Helen H. Davidson and Gerhard Lang, "Children's Perceptions of Their Teacher's Feelings Toward Them Related to Self-Perception, School Achievement and Behaviour," Journal of Experimental Education, XXIX (December, 1960), pp. 107-118.

Snygg and Combs[14] stress the importance of the teacher in the development of the phenomenal self. While they consider training in skill and techniques of teaching an important asset they say that in the last analysis the techniques used by a teacher will be determined by his concept of himself, of his duties and of his students. These authors believe that the teacher must be a cultured person adequately able to represent and interpret the society in which his pupils are attempting to find places. He must have a genuine respect for the potentialities and personal worth of each student and a corresponding interest in and sympathy with his strivings for self-maintenance and self-enhancement. The effective teacher is a particular kind of person; a happy, intelligent, adequate personality. If he is this there will be little chance of his failing to develop a relationship with each child that will result in enhancement of the child's self-concept rather than deterioration.

Peer Relationship and Self-Concept

Peers begin to be influential even before a child starts school. This influence gradually increases and is particularly strong during adolesence.

In 1955 Melvin Manis[15] executed a study designed to explore several suggestions put forth earlier by Charles Cooley (1902) and George Mead (1934). He started with the assumption that one's

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[14]Snygg and Combs, op. cit., pp. 243-244.

[15]Melvin Manis, "Social Interaction and the Self-Concept," Journal of Abnormal and Social Psychology, LI (November, 1955), pp. 362-370.

social interactions with others provides the basis for his perception of self. Manis' investigation provided direct evidence that the individual's concept of self is influenced by the way others perceive him. At the same time there was no evidence that the individual's concept of himself appreciably influenced the way others perceive him. Mead's proposal that both the "generalized other" (the collective influence of others) and "significant others" (particularly significant associates such as close friends), influenced the self-concept is corrobated.

Manis' findings add two specific generalizations about social influence on the self-concept. First, that one is more influenced to revise his concept of self in a favourable than in an unfavourable direction, and, second, that one's self is more influenced by friends than by non-friends. This study was done on freshmen prior to and after a period of close interaction with a set of new acquaintances.

This study lends support to the hypothesis that peer relationship is positively related to academic self-concept. A child may come to feel he has low academic ability because his friends have interpreted various situations erroneously. However, the child may be so influenced by those friends so as to accept their verdict without question.

Self-Concept and Intelligence

In view of the controversy over intelligence, I.Q. and I.Q. testing, that exists today, the writer considered that it would be both useful and interesting to see if any relationship existed here.

Several studies have been done in this field and the results often show positive correlations between self-concept and intelligence, although this correlation ranges from low to moderate to high.

In a study by Joseph C. Bledsoe[16] four groups of children were used as subjects. These subjects were fourth and sixth grade girls and fourth and sixth grade boys. The purpose of the study was to investigate the relationship between self-concept of those children and their intelligence, academic achievement, interests and manifest anxiety. For the four groups correlations between the self-concept and intelligence were from low to moderately positive. While correlations for girls were nonsignificant, for boys correlations were significant and positive.

An important point here seems to be that although correlations were significant and positive for boys, for girls they were nonsignificant.

Piers and Harris[17] in a study which attempted to determine correlates of self-concept in children, found a significant positive relationship between self-concept and intelligence in Grade VI students; however, a nonsignificant correlation was found between similar variables in children in Grade III.

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[16]Joseph Bledsoe, "Self-Concepts of Children, Their Intelligence, Achievement, Interests and Anxiety," Childhood Education, LXIII (March, 1969), p. 436.

[17]Ellen V. Piers and Dale B. Harris, "Age and Other Correlates of Self-Concept in Children," Journal of Educational Psychology, XXXV (April, 1964), pp. 91-95.

Bowman[18] puts forth the indication based on the results of his study, that maturation is an important factor affecting self-concepts and intelligence of elementary and junior high school pupils. He found positive and significant correlations between self-concept and intelligence for Grade VIII boys and girls. However, with his sample from a lower grade, Grade VI, he found positive but nonsignificant results.

In both studies above positive and significant correlations were found for the older group in comparison with nonsignificant correlations for the younger group. As students employed in this last study were from junior high, and in view of other available literature, the writer decided that a positive relationship would be found between academic self-concept and intelligence.

Social Class and Self-Concept

In the area of social class and self-concept results of studies are contradictory. Clark,[19] Deutsch and others point out the devasting effects of social deprivation on building positive self-esteem. Gordon[20] believes that if the larger society conceives of the child as not worthwhile and demonstrates consistently to him that it so judges him, it is difficult for that child to value himself. These children for a variety of reasons and by a variety of

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[18]Daniel Bowman, "A Longitudinal Study of Selected Facets of Children's Self-Concepts as Related to Achievement, Intelligence and Interest," Dissertation Abstracts, XXIV (1964), pp. 4536-37.

[19]As quoted in Ira J. Gordon, "The Beginnings of the Self," Phi Delta Kappan, L (1968-69), p. 378.

[20]Ira J. Gordon, Ibid.

people, including significant others, are told that they are not good enough, smart enough or handsome enough. As a result they tend to devalue themselves.

Gordon's beliefs are borne out by Wylie.[21] In her study she attempted to explore children's estimates of their ability to do schoolwork. One of the results of her study showed that children from low socioeconomic levels made more modest estimates of their ability than did children of higher socioeconomic levels.

Perhaps Wylie found this result because she considered a more restricted area of self-concept, which was actually self-concept of ability. It may well be that in this restricted area children from lower socioeconomic levels may have lower self-concepts. However, when general self-concept is considered this is not always the case.

Coopersmith[22] in his study based social position largely on occupation and income. Extremes of the distribution were eliminated and results are available only for the intervening range of the distribution. A weak nonsignificant relationship was found between self-esteem and social class. Trends were: children in the upper middle class are more likely to have high esteem and those in the lower middle class, low or medium esteem. The results suggested that children in different social classes do not experience as much difference in prestige and success as may popularly be imagined.

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[21]Ruth C. Wylie, "Children's Estimates of Their Schoolwork Ability as a Function of Sex, Race, Socioeconomic Level," Journal of Personality, XXXI (March-December, 1963), pp. 203-224.

[22]Coopersmith, op. cit., pp. 82-84.

A study by Soares and Soares[23] was formulated for the express purpose of determining the direction and intensity of self-perceptions of disadvantaged children and comparing them with children who are not disadvantaged. Children in Grades IV-VIII in a New England city elementary school system were included. The major conclusion from this study was that disadvantaged children do not necessarily reflect negative self-perceptions of lower self-esteem than do advantaged children. However, a limitation here is that all children involved attended neighbourhood schools. All disadvantaged children attended a school in a disadvantaged area, whereas the advantaged children attended a school in a more advantaged area. Those disadvantaged children were perhaps exposed only to other disadvantaged people in school as well as at home and in the neighbourhood. These writers explain the results of the study in the following way: since these children from the disadvantaged area are functioning according to the expectations of parents and teachers they are satisfied with themselves — hence a positive self-concept and reflected self. On the other hand, the advantaged children may be more pressured than they should be by their parents and other adults. If they do not measure up to these expectations the results may be lower self-esteem and lower self-perceptions.

It is difficult to draw a definite conclusion in this particular area. The writer, in view of the following, states the alternate hypothesis:

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[23]A.T. Soarses and L.M. Soarses, "Self-Perceptions of Culturally Disadvantaged Children," American Educational Research Journal, VI (January, 1969), pp. 31-45.

1. Studies which show little or no relationship between these two variables have usually considered a global self-concept, while this study is concerned with academic self-concept.

2. Definitions in this study, such as academic self-concept, are more closely related to those in Wylie's study, in which a positive relationship was found between the two variables under study.

CHAPTER III

DESIGN OF THE STUDY

This chapter briefly describes the type of study which has been carried out. It also presents the rationale behind the selection of school and grade level used in this study. A detailed description of the procedures involved in the following is also presented:

Samples
  selection of samples used

Questionnaires
  the devising of questionnaires and the establishing of their validity and reliability

Administration
  administration and scoring of intelligence test and questionnaires

Data Treatment
  types of analyses used and the purpose for which each was employed

I. TYPE OF STUDY

This study is an ex post facto type of research. The variables under study have already occurred. The writer is not attempting to determine if one variable is the cause of the other, but rather hopes to determine if one variable, academic self-concept, is related to the other variables under study, namely, intelligence, teacher-child relationship, peer relationship and social class of the child's family.

II. SELECTION OF SCHOOL

The writer hoped that a study concentrated in one school would be more beneficial in organizing programs, based on results obtained, than if the time and energy expended were spread over a wider area and number of schools. For this reason only one school was selected.

The school selected, Our Lady of Mercy, seemed to be a good choice. It has a fairly even sampling of students from families where parents are employed in a variety of occupations ranging from Class I to Class VII on the Blishen Occupational Class Scale. Another favourable attribute of the students in this school was the lack of mobility among them. The majority of the students now in Grade VIII have attended this school since kindergarten.

Although not a specific aspect of this study, the writer was somewhat influenced by a particular procedure in this school in making her selection. The children in this school have been streamed and placed in classes depending on whether they are high, low or average in intelligence. Although this grouping procedure will not be statistically analyzed in any way, it will be examined critically and its relationship, if any, to the results of the statistical analysis will be discussed by the writer.

Finally, this is an all-girl predominantly Roman Catholic school. However, it is believed by the writer than this will not in any way influence the conclusions to be drawn as conclusions drawn are limited to this particular school and therefore limited with regard to religion and sex.

The school administration was also very cooperative and eager to have the study done here.

III. REASONS FOR SELECTING THIS GRADE LEVEL

The writer has selected this particular grade level primarily because it is with pupils of this age that she is most familiar and in whom she is particularly interested.

It is also believed by the writer that students of this age level estimate their own ability in terms of the expectations of significant others. At a later point in their school life they may put more dependence in their own estimation and may even be sophisticated enough to completely disregard the views of others with regard to their intellectual ability. However, the writer feels that very few, if any, students in Grade VIII are capable of giving an estimate of their intellectual ability, which is uninfluenced by evaluation, opinions, judgement, given either directly or indirectly by others.

These students have spent eight years or more in a particular group in this particular school. The writer believed that by Grade VIII the significant contributions of the home and the school have been established more so than they would be at a lower level. For this reason Grade VIII and not a lower grade was selected.

It is also believed by the writer than Grade VIII students are still childlike enough to answer the questions truthfully, more so than an older group and more reliably than a younger group.

IV. SELECTION OF SAMPLES

Pupil Samples

Two samples were utilized in this study. One sample contained eighty-eight students and a smaller sample contained eighteen students. Originally it was planned to have all 105 Grade VIII students in the school take part in the study. However, due to absences when the two preliminary questionnaires were administered, academic self-concept and self-concept of ability scale, only eighty-nine could be utilized since the combined scores on these questionnaires was used as the academic self-concept score. This number was further reduced to eighty-eight, as one child who did complete the preliminary questionnaires did not complete the intelligence test or peer relationship questionnaire. The subjects contained in the sample then completed the academic self-concept questionnaire, peer relationship questionnaire and Brookover's Self-Concept of Ability Questionnaire. They also completed the Lorge-Thorndike Intelligence Test.

The writer wished to interview parents of those students in an attempt to determine parent-child relationship as well as social class of the child's family. This could possibly have been done through the students involved, but the writer believed that through home visitation and interviews, information obtained would be more reliable and valid. It was also thought by the school administration that asking students questions concerning parent-child relationship and occupation of parents would cause some controversy and poor relations between school and parents may result. For those reasons the writer

decided that home visitation and interviews were the best way to get the information required. However, it would be impossible to interview all those parents in the depth required in the short period available and as a result it was decided to use a smaller sample to study the two variables — parent-child relationship and social class of the child's family.

Since the writer is primarily interested in those who have high and low academic self-concepts, it was thought that those students could be best identified by selecting randomly from the extreme scores in the larger sample, rather than by picking nine subjects above and nine subjects below one particular cut-off point in the range of scores.

The writer decided that the sample would be selected in the following way: nine students would be selected randomly from those students whose scores were one standard deviation below the mean and nine students would be selected from those students whose scores were one standard deviation above the mean.

At first it was thought possible that the smaller sample could be selected using the scores on either of the questionnaires, academic self-concept or Brookover's Self-Concept of Ability Scale. However, when each questionnaire was used singularly the following was found: with Brookover's Self-Concept of Ability Scale, the majority of scores were concentrated around the mean with only eight of the total number one standard deviation below the mean and thirteen of the number one standard deviation above the mean; with the academic self-concept questionnaire, scores when placed on the normal curve were skewed to the right and again only eight were one

standard deviation below the mean, but seventeen were one standard deviation above the mean. It was decided, therefore, to combine both the score on the Brookover Self-Concept of Ability Scale and the score on the academic self-concept scale. This gave what seemed to be a more normal, symmetrical curve and this time twelve of the scores fell one standard deviation below the mean and ten of the scores were one standard deviation above the mean. This seemed to be the best distribution of the three, so it was from the combined scores that the smaller sample was selected. Nine were selected from the group of scores one standard deviation above the mean of 51.56 and nine were selected from the group one standard deviation below that mean. When scores on both questionnaires were correlated a correlation of .64 was obtained; this would imply that although both questionnaires were not measuring exactly the same thing, a fair number of the aspects measured by one were also being measured by the other. If the combined scores were used, the aspects measured separately by each of the questionnaires would be considered, as well as the aspects common to both questionnaires. Results from the combined scores also gave a much wider range than did either of the questionnaires used individually.

The distribution of scores obtained by use of the academic self-concept scale is graphically presented in Figure I, page 40. The distribution of scores obtained by use of Brookover's self-concept of ability scale is presented graphically in Figure II, page 41. The distribution of scores obtained when scores on individual questionnaires was combined is presented in Figure III, page 42.

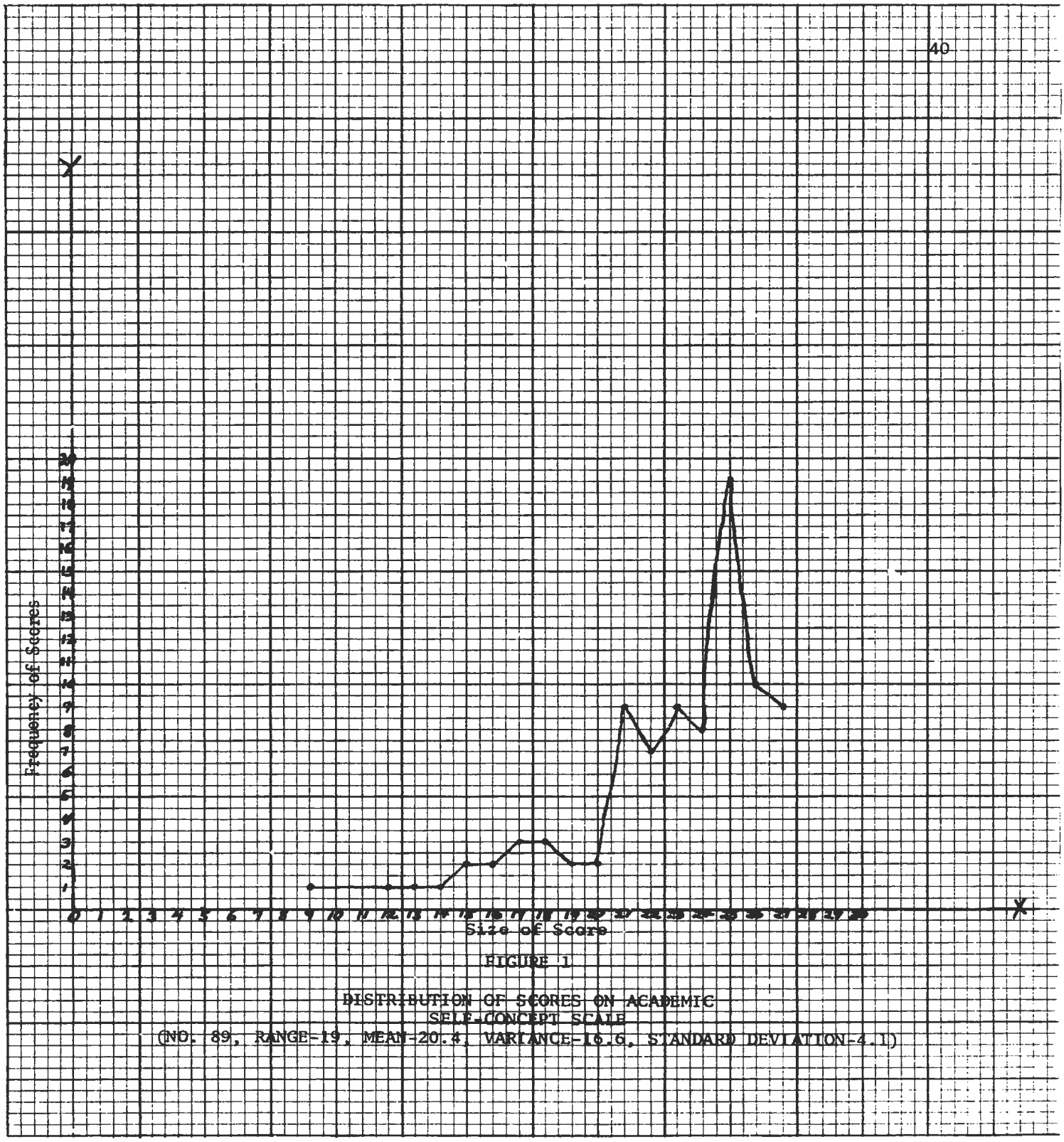

FIGURE 1

DISTRIBUTION OF SCORES ON ACADEMIC SELF-CONCEPT SCALE
(NO. 89, RANGE-19, MEAN-20.4, VARIANCE-16.6, STANDARD DEVIATION-4.1)

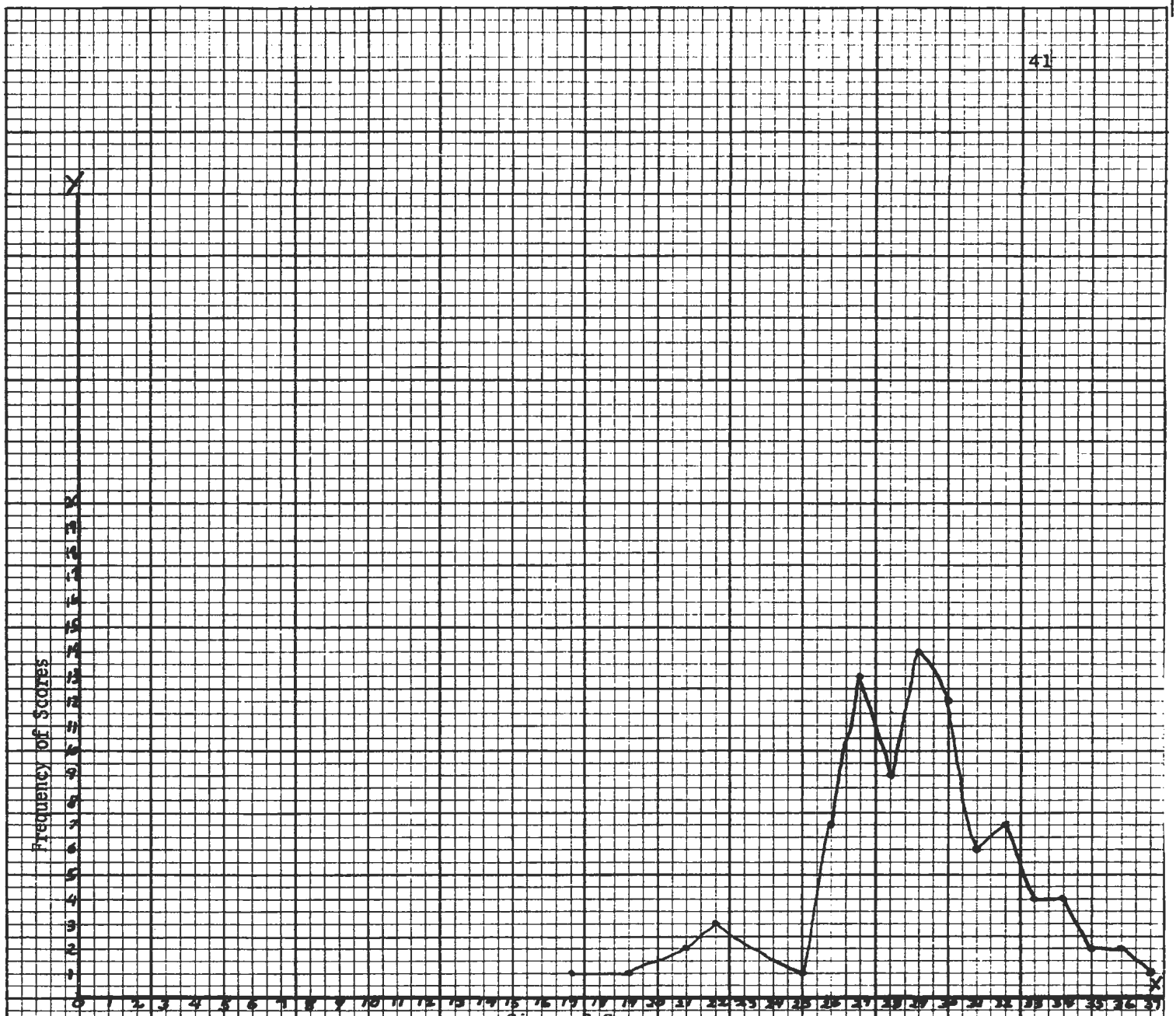

FIGURE 2

DISTRIBUTION OF SCORES ON BROOKOVER'S
SELF-CONCEPT OF ABILITY SCALE
(NO. 89, RANGE-21, MEAN-28.9, VARIANCE-13.1, STANDARD DEVIATION-3.6)

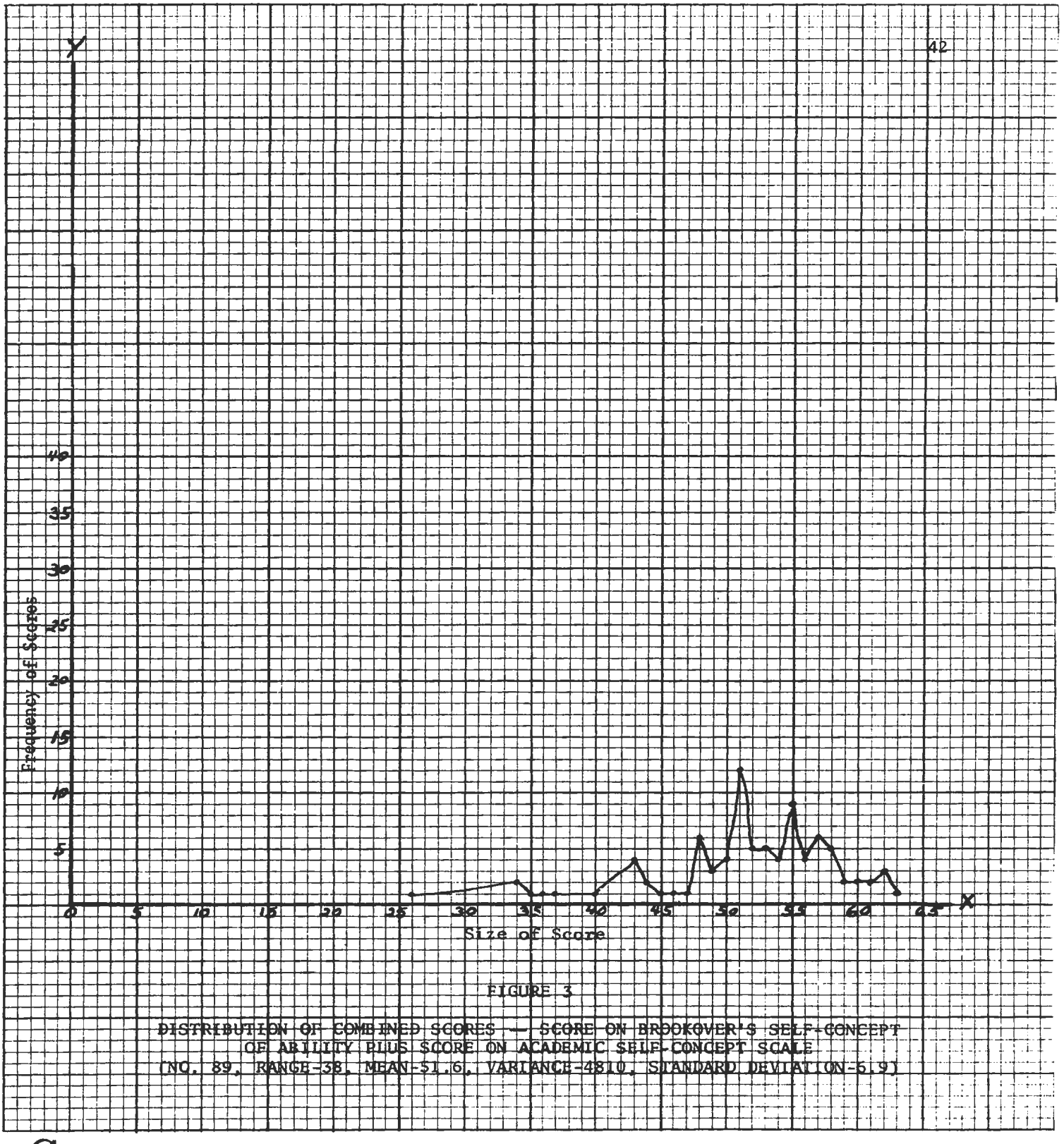

FIGURE 3

DISTRIBUTION OF COMBINED SCORES — SCORE ON BROOKOVER'S SELF-CONCEPT OF ABILITY PLUS SCORE ON ACADEMIC SELF-CONCEPT SCALE
(NO. 89, RANGE-38, MEAN-51.6, VARIANCE-4810, STANDARD DEVIATION-6.9)

Parent Sample

The parent sample consisted of the parents of those students in the smaller sample of eighteen. It was hoped at first that both parents could be interviewed. However, in the final analysis only the responses of mothers are considered. Attempts were made to interview fathers, but due to such problems as father working, or his not wishing to take part, the original plan had to be abandoned and only mothers were involved.

Teacher Sample

Only the home-room teachers are involved here. The teacher completed the teacher-child relationship questionnaire for each student in the class for which she is primarily responsible. Although there is subject teaching at this level, in this particular school, the idea of having only the home-room teachers complete questionnaires concerning the students in their classroom was still thought to be the best procedure, as this home-room teacher spent the majority of her time, up to seventy-five percent, with her own class.

V. INSTRUMENTS

The following instruments were used in this study for the purpose of obtaining and classifying the information needed: Lorge-Thorndike Intelligence Test, Brookover's Self-Concept of Ability

Scale, Academic Self-Concept Questionnaire, Peer Relationship Questionnaire, Teacher-Child Relationship Questionnaire, and Blishen Occupational Class Scale.

Lorge-Thorndike Intelligence Tests

The Lorge-Thorndike Intelligence Test, Level E, Form I, verbal and non-verbal batteries, was used in this study. The Lorge-Thorndike Intelligence Tests are a series of tests of abstract intelligence. Abstract intelligence is defined as the ability to work with ideas and the relationships among ideas.[1]

One reviewer made the following comments concerning this test:

> On the whole the Lorge-Thorndike series is among the sounder instruments available, from the point of view of psychological insights, shown in selecting and developing the materials and from the point of view of statistical analysis of the standardization data.[2]

Another reviewer states the following:

> The Lorge-Thorndike tests should be accorded a place among the best of our group intelligence tests. They are well designed easily administered and scored and, what is especially noteworthy, the uses recommended for them are reasonable and defensible.[3]

Another reviewer supports both of the above by his statement:

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[1]Irving Lorge, Robert L. Thorndike, and Elizabeth Hagen, Canadian Lorge-Throndike Intelligence Tests, Manual for Administration (Canada: Thomas Nelson and Sons Limited, 1967), p. 1.

[2]Oscar K. Buros (ed.), The Fifth Mental Measurements Yearbook (New Jersey: The Grypton Press, 1960), pp. 479-484.

[3]Ibid., pp. 481-482.

> It should be made clear that in this reviewer's opinion, this is an excellent series of tests, well designed and constructed, admirably printed and presented and equipped with highly satisfactory norms. It can also be said that the tests provide reliable measures of verbal reasoning and nonverbal reasoning.[4]

The reliability coefficients of a test tell one how accurate a score on that test really is. Odd-even reliability data for the Canadian Lorge-Thorndike Intelligence Tests has been determined, based on representative single grade samples from the standardization program. For the Level E, used by the writer, the reliability coefficient is .87 for the verbal battery and .91 for the nonverbal battery, while correlation between verbal and nonverbal is estimated at .61.[5]

Various methods can be employed to determine the validity of a test. One of the types of validity that can be obtained is construct validity, which tells the approximate degree to which processes involved in the test correspond with the construct or concept the test is designed to measure. Lorge and Thorndike do state mental processes which they believe to be descriptive of intelligent behaviour. In formulating their ideas of what they consider intelligent behaviour they have used the views and theories of the late distinguished psychologists, Lewis M. Terman and C. Spearmen. Coefficients of construct validity have been obtained by correlating the scores on various items

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[4] Ibid., pp. 482-484.

[5] Lorge, Thorndike and Hagen, op. cit., pp. 28-29.

on the test with the score on the subtest of which it is a part. Coefficients thus obtained range from 143 to .70.

Data on functional validity for the Lorge-Thorndike also exists. This time the estimate if .67, a correlation coefficient obtained by correlating scores on these tests administered at the beginning of Grade IX and the average achievement at the end of the year.

Concurrent validity for those tests was obtained by correlating scores on these intelligence tests with standard grade equivalents in reading and arithmetic. For the former the correlation obtained was .87 and for the latter .76. when 171 sixth grade pupils were involved.

Congruent validity has also been determined. Scores on this test correlate fairly highly with scores on other intelligence tests. Correlations except in a few cases were .60 or higher.

In view of the comments of the above reviewers and after consideration of the reliability and validity of the Lorge-Thorndike tests, the writer considers them to be one of the better group intelligence tests and appropriate for use in this particular study.

Brookover's Self-Concept of Ability Scale

This scale of eight multiple choice items was developed under the United States Office of Education Cooperative Research Project Number 84. Each item is scored from five to one, with the higher self-concept alternatives receiving higher values. Each item

asks the student to compare himself with others in his social system on the dimension of academic competency.

Hoyt's Analysis of Variance reliability coefficients are available for this general self-concept of ability scale from grades VII-XII inclusive, male and female. For Grade VIII, female, the coefficient obtained was .872.

Test re-test coefficients of stability for this self-concept of ability scale was obtained by use of the Pearson Product Moment Correlation Formula. The correlation obtained in this way was .724.[6]

Blishen Occupational Class Scale

The Blishen Occupational Class Scale[7] is an occupational class scale with occupations ranked and grouped according to combined standard scores for income and years of schooling. The data used to construct this occupational scale was taken from the decennial census of 1951, which classifies occupations according to a variety of characteristics, including income and years of schooling. This scale has been used in previous studies in Newfoundland by researchers for the purpose of classifying parents' occupations. Pollard[8] did not find it a very good discriminatory tool, particularly because it

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[6]Wilbur B. Brookover, Edsel L. Erickson and Lee M. Joiner, "Self-Concept of Ability and School Achievement III," Third Report on the Study of the Relationship of Self-Concept and Achievement and Final Report on Cooperative Research Project No. 2831, entitled "Relationship of Self-Concept to Achievement in High School" (Michigan State University: Educational Publication Services, College of Education, 1967), pp. 59-60.

[7]Bernard R. Blishen, "The Construction and Use of an Occupational Class Scale," Canadian Journal of Economics and Political Science, XXIV (November, 1958), pp. 519-531.

[8]Hector A. Pollard, "Socioeconomic versus Educational Inputs as Related to Grade VI Reading Achievement in Rural Newfoundland," Unpublished Master's thesis, Memorial University of Newfoundland, 1970.

did not distinguish between different types of fishermen. However, his study was conducted in rural Newfoundland. Roe[9] has used the scale satisfactorily in an urban setting in Newfoundland. Since this study takes place in an urban setting the writer feels that this scale is appropriate for her use.

In this particular study the standard score of each occupation was not used. A more generalized method was employed, chiefly because it was difficult to determine standard scores fitted to occupations not mentioned at all in the scale. It was thought that by determining the class into which each occupation fitted and assigning a score to that class as a whole a more accurate picture would be given. This then was the procedure followed.

Validity and Reliability of Questionnaires Devised by the Writer

Since the writer devised the next four instruments to be discussed and since the same procedure was followed in establishing reliability and validity for each of these questionnaires, it was thought that it would be best if at first a general overview of the procedure, as well as results obtained, were presented, followed by a brief description of each particular instrument.

The type of validity of primary concern in each of these questionnaires is content validity. The writer hoped to determine if the questions composing each questionnaire had a logical and theoretical

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[9]Geraldine Roe, "Socioeconomic versus Educational Inputs as related to Reading Achievement Among Boys in St. John's, Newfoundland". (Unpublished Master's thesis, Memorial University of Newfoundland, 1971).

relationship to the behaviour which the writer is trying to measure. This content validity was determined on the basis of the judges' ratings. These judges were selected mainly from the Faculty of Education at Memorial University, and each of them is considered an expert in his field. Most of those judges rated questions on only two questionnaires. However, some rated questions on three of the questionnaires, while others were concerned with only one of the questionnaires. A small number of graduate students were also involved in rating questions. In each case, each student rated questions on only one questionnaire.

These judges rated the questions according to a continuum ranging from high to low ratings. A high rating on a question meant that the judge had decided that this question was a good measure of the variable concerned in terms of how it had been defined for use in this study. When ratings received were low the questions were modified to the extent thought necessary by each particular judge and then those questions were once more submitted to all three judges to obtain new ratings. This procedure continued until most of the questions received high ratings by all judges concerned.

The ratings given by judges then is an indication of the degree to which those experts felt that the content of the questionnaire was pertinent and therefore valid.

The writer, in attempting to establish some degree of reliability, also had recourse to the judges' ratings. Reliability coefficients could not be established by use of alternate forms

because the writer did not have two forms for each questionnaire. Test re-test method was also rejected because one would have to assume stability over long periods of the characteristic measured by each questionnaire. This is untenable because of the nature of the measures. If the test re-test method were used and the test was administered twice with only a short time lapse in between, the assumption of non-memory influence would have to be made. This assumption is also untenable.

The writer hoped then that by good item writing, clarity of questions and use of English concurrent with student's mental development, reliability could be established. The judges were asked to rate the form of the questions as well as the content, and to keep in mind such factors as construction, answer-ability, lack of ambiguity. The ratings given by judges then would be some indication of whether or not the questions presented to them for judgement would produce reliable responses in the subjects.

Conclusions to be drawn in this study are about groups. Group statistics would tend to be less variable than individual scores. Several authors have noted that, when the conclusions to be drawn are about groups lower instrument reliability is acceptable.

Ahmann and Glock[10] support the above and state that there is no single minimum size a coefficient of reliability must reach since the minimum changes with the purpose for which test scores are to be used.

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[10]J. Stanley Ahmann and Marian D. Glock, Evaluating Pupil Growth (Boston: Allyn and Bacon, Inc., 1967), p. 328.

Kelly,[11] when discussing reliability coefficients, established .50 as the lowest correlation necessary if the level of group accomplishment was to be evaluated, but .94 as the minimum reliability coefficient if the level of individual accomplishment was to be evaluated.

Both of those writers agree that lower instrument reliability is acceptable if conclusions drawn concern groups and not individuals.

The writer feels, therefore, that since conclusions in this study are about groups and the group's self-concept, the methods employed for establishing reliability are satisfactory.

The mean ratings for each question on each questionnaire are presented as further support for the validity and reliability of these questionnaires. If those mean ratings are close to, or the same as, the highest rating possible for each question, it would be further indication of both validity and reliability of each particular instrument.

The range of ratings is also presented. When this range is low it is indicative of the fact that all judges were consistent in their ratings. High mean ratings and low or narrow range would tend to further support the writer's claim that these instruments have a sufficient degree of reliability and validity to warrant their use in this particular study.

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[11] As quoted in Ibid.

Academic Self-Concept Questionnaire

The questions of which this questionnaire is composed were devised with the purpose of trying to find an estimate of how the child viewed himself with regard to academic work, ability and progress. The final ratings given by judges for individual questions are presented in Table I, page 53. These final ratings were all excellent or very good. This indicates that the reliability and validity of this questionnaire are satisfactory. The mean rating and range of the ratings are presented in Table II, page 54. Again the mean rating is very close to the highest rating possible and the range is very narrow. This shows that the judges were consistent and therefore can be considered as further evidence that the reliability and validity of this questionnaire are satisfactory. Reliability on this questionnaire was further increased by means of a try-out in which students, comparable to those used in the study, completed this questionnaire. This increased reliability since ambiguities that may have existed were now pinpointed as a result of the students' questions concerning items on the questionnaire. Such items were modified as a result, so that they could be more clearly understood by students in the future.

Parent-Child Relationship Questionnaire

This questionnaire was devised after an examination of Coopersmith's[12] findings concerning the antecedents of self-esteem.

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[12]Stanley Coopersmith, The Antecedents of Self-Esteem (San Francisco and London: W.H. Freeman and Company, 1967), pp. 164-235.

TABLE I

FINAL RATINGS GIVEN BY JUDGES TO INDIVIDUAL QUESTIONS ON THE ACADEMIC SELF-CONCEPT QUESTIONNAIRE

Question	Judge 1	Judge 2	Judge 3
1	5	5	4
2	5	5	4
3	5	4	5
4	5	5	5
5	5	5	5
6	5	4	5
7	5	5	4
8	5	4	4
9	5	4	5
10	5	4	4
11	5	4	4
12	5	4	4
13	5	4	4
14	5	4	5
15	5	5	5
16	5	4	5
17	5	4	5
18	5	4	5
19	5	4	5
20	5	4	5
21	5	4	4
22	5	5	4
23	5	5	4
24	5	5	4
25	5	5	4
26	5	5	4
27	5	5	5

Explanation of Ratings:

Rating 5 ... Excellent
Rating 4 ... Very Good
Rating 3 ... Good
Rating 2 ... Fair
Rating 1 ... Poor

TABLE II

THE MEAN AND RANGE OF JUDGES' RATINGS ON INDIVIDUAL QUESTIONS IN THE ACADEMIC SELF-CONCEPT QUESTIONNAIRE

Question	Mean Rating	Range
1	4.66	1
2	4.66	1
3	4.66	1
4	5.00	0
5	5.00	0
6	4.66	1
7	4.66	1
8	4.33	1
9	4.66	1
10	4.33	1
11	4.33	1
12	4.33	1
13	4.33	1
14	4.66	1
15	5.00	0
16	4.66	1
17	4.66	1
18	4.66	1
19	4.66	1
20	4.66	1
21	4.33	1
22	4.66	1
23	4.66	1
24	4.66	1
25	4.66	1
26	4.66	1
27	5.00	0

Highest possible rating ... 5

Widest possible range ... 5

He found the following to be among the factors common to the relationship between parents and those children who show high self-esteem: acceptance of the child by parents, demands enforced by the parents with firmness and care, reward was the preferred mode of affecting behaviour, lack of harsh treatment and loss of love, zealousness in enforcing close and extensive rules, recognition of rights and opinions of the child, noncoercion, respect for opinions of the child, concessions granted by parents if differences in opinions exist.

Keeping these factors in mind, the writer has tried to devise a questionnaire concerned only with the relationship that exists between parent and child with respect to the child's academic work, ability and progress. Twenty questions were devised, each containing three possible answers. One of these answers was designed so that a permissive parent would answer it, another was designed so that an authoritarian parent would answer it, and the third was designed so that a democratic parent would answer it. For purposes of simplest classification, authoritarian parents were those who made the rules and enforced them with little regard for anything the child may wish to say concerning these rules. A permissive parent, for the most part, did not make rules, or if she did, left the responsibility for complying with them to the child, with no reward or punishment applied by parents if they were or were not obeyed. Finally, the democratic parent made the rules, but rights and opinions of the child were taken into consideration in establishing or enforcing these rules or in their modification.

This questionnaire was also submitted to judges for the purpose of trying to determine if these questions appeared to be measuring a democratic, permissive or authoritarian relationship between parent and child with regard to academic work, ability and progress.

The final ratings given by judges for individual questions are presented in Table III, page 57. These final ratings were all excellent or very good and this indicates at least satisfactory reliability and validity.

The mean ratings and range of the ratings for each individual question is presented in column 1, Table IV, page 58. It can be seen that the mean ratings for most questions is very close to, or the same as, the highest possible rating. The range too is very narrow except for two of the questions. These mean ratings and narrow range are further indication of the reliability and validity of this questionnaire.

Following the above procedure the finalized item in each question were submitted to three different judges to try and determine the amount of threat involved for parents who would be answering one of the three possible choices for each question. If those judges gave a rating which implied that too much threat was involved, the question was reworded to try and eliminate, as much as possible, the amount of threat involved. The final ratings of those judges is presented in Table V, page 59. These ratings show that most questions had little or no threat while some did have a small amount of threat. This is further indication of the reliability

TABLE III

FINAL RATINGS GIVEN BY JUDGES TO INDIVIDUAL QUESTIONS ON THE PARENT-CHILD RELATIONSHIP QUESTIONNAIRE

Question	Judge 1	Judge 2	Judge 3
1	5	4	5
2	5	5	4
3	5	4	4
4	5	5	4
5	5	5	5
6	5	5	5
7	5	4	5
8	5	5	5
9	5	4	5
10	5	4	5
11	5	4	5
12	5	4	4
13	5	4	4
14	5	4	2
15	5	5	4
16	5	5	5
17	5	5	5
18	5	4	5
19	5	4	5
20	5	3	5

Explanation of Ratings:

Rating 5 ... Excellent
Rating 4 ... Very Good
Rating 3 ... Good
Rating 2 ... Fair
Rating 1 ... Poor

TABLE IV

THE MEAN AND RANGE OF JUDGES' RATINGS ON
INDIVIDUAL QUESTIONS IN
THE PARENT-CHILD RELATIONSHIP QUESTIONNAIRE
THE TEACHER-CHILD RELATIONSHIP QUESTIONNAIRE
THE PEER RELATIONSHIP QUESTIONNAIRE

Question	Parent-Child Relationship Questionnaire (1)		Teacher-Child Relationship Questionnaire (2)		Peer Relationship Questionnaire (3)	
Question	M.R.	R	M.R.	R	M.R.	R
1	4.66	1	4.33	1	5.00	0
2	4.66	1	4.66	1	4.66	1
3	4.33	1	4.66	1	5.00	0
4	4.66	1	4.66	1	5.00	0
5	5.00	0	4.33	1	5.00	0
6	5.00	0	4.66	1	5.00	0
7	4.66	1	4.33	1	4.66	1
8	5.00	0	4.33	1	5.00	0
9	4.66	1	4.66	1	5.00	0
10	4.66	1	5.00	0	5.00	0
11	4.66	1	4.00	0	5.00	0
12	4.33	1	4.00	2	5.00	0
13	4.33	1	4.66	1	4.66	1
14	3.66	3	4.00	0	4.66	1
15	4,66	1	4.00	0	4.66	1
16	5.00	0	4.00	0	4.66	1
17	5.00	0	3.66	3	4.66	1
18	4.66	1	5.00	0	4.66	1
19	4.66	1	4.33	1	3.00	3
20	4.33	2	4.33	1	3.33	4

Highest possible rating ... 5

Widest possible range ... 5

TABLE V

JUDGES' RATINGS CONCERNING THE AMOUNT OF THREAT IN INDIVIDUAL QUESTIONS OF THE PARENT-CHILD RELATIONSHIP QUESTIONNAIRE

Question	Judge 1	Judge 2	Judge 3
1	3	3	3
2	3	2	3
3	3	2	3
4	3	2	3
5	3	2	2
6	3	3	3
7	3	3	3
8	3	3	3
9	3	2	2
10	3	3	3
11	3	2	2
12	3	3	3
13	2	2	3
14	3	3	3
15	2	2	3
16	3	3	3
17	2	2	2
18	3	2	3
19	3	2	3
20	3	3	3
21	3	3	3
22	3	2	3
23	3	3	2
24	2	2	2
25	3	2	2
26	3	3	3
27	3	2	3
28	3	3	3
29	2	3	3
30	3	2	2
31	3	2	3
32	3	2	2
33	3	3	3
34	3	2	3
35	3	2	3
36	3	3	3
37	3	3	3
38	3	2	2
39	3	3	3
40	3	2	2
41	3	3	2
42	3	3	3
43	3	2	3

TABLE V (con't)

Question	Judge 1	Judge 2	Judge 3
44	2	2	3
45	3	3	3
46	3	2	3
47	3	3	3
48	2	3	2
49	2	3	3
50	2	2	3
51	2	2	3
52	2	3	2
53	3	3	3
54	3	3	2
55	3	3	3
56	3	3	3
57	3	3	3
58	3	3	3
59	3	2	2
60	2	3	3

Explanation of Ratings:

Rating 3 ... Little or No Threat
Rating 2 ... Some Threat
Rating 1 ... Very Much Threat

of this questionnaire. Finally, the mean ratings presented in Table VI, page 62 are very close to the highest possible rating and the range, presented also in this same table, is very narrow. This shows that the judges were consistent in their estimations and can therefore be considered further support for the reliability of this questionnaire.

The reliability of this questionnaire may be said to have been increased by the fact that the interviewer explained questions and cleared up misunderstandings that arose concerning questions at the time they were being completed by parents.

Peer Relationship Questionnaire

This questionnaire was devised in a way similar to the other questionnaires already mentioned. Twenty questions were compiled, and for each question each student selected the names of four students from her class. These questions endeavoured to determine how each individual student was viewed by her classmates with regard to academic work, ability and progress. Such influences as close friendships, dislike, prejudice, may be the basis from which some students selected some of their choices. However, the writer hoped to negate such influences by the number of choices and the variety of questions. Each child was permitted to select four students from her class whom she believed best fitted the category described in each individual question.

As with the other questionnaires, the questions on this instrument were also rated by three judges. Their final ratings

TABLE VI

THE MEAN AND RANGE OF JUDGES' RATINGS ON INDIVIDUAL QUESTIONS IN PARENT-CHILD RELATIONSHIP QUESTIONNAIRE WHEN AMOUNT OF THREAT WAS CONSIDERED

Question	Mean Rating	Range	Question	Mean Rating	Range
1	3.00	0	31	2.66	1
2	2.66	1	32	2.33	1
3	2.66	1	33	3.00	0
4	2.66	1	34	2.66	1
5	2.33	1	35	2.66	1
6	3.00	0	36	3.00	0
7	3.00	0	37	3.00	0
8	3.00	0	38	2.33	1
9	2.33	1	39	3.00	0
10	3.00	0	40	2.33	1
11	2.33	1	41	2.66	1
12	3.00	0	42	3.00	0
13	2.33	1	43	2.66	1
14	3.00	0	44	2.33	1
15	2.33	1	45	3.00	0
16	3.00	0	46	2.66	1
17	2.00	0	47	3.00	0
18	2.66	1	48	2.33	1
19	2.66	1	49	2.66	1
20	3.00	0	50	2.33	1
21	3.00	0	51	2.33	1
22	2.66	1	52	2.33	1
23	2.66	1	53	3.00	0
24	2.00	0	54	2.66	1
25	2.33	1	55	3.00	0
26	3.00	1	56	3.00	0
27	2.66	1	57	3.00	0
28	3.00	0	58	3.00	0
29	2.66	1	59	2.33	1
30	2.33	1	60	2.66	1

Highest possible rating ... 3

Widest possible range ... 3

are presented in Table VII, page 64. These ratings with the exception of two given by one judge are exceptionally high, and therefore support the writer's claim that the instrument is reliable and valid. Further support for the reliability and validity of this instrument can be found by examining column 3, Table IV, page 58 which shows the mean ratings and range for each question. These mean ratings in the majority of cases are very close to or the same as the highest possible ratings that could be given. The range in the majority of cases is very narrow. These mean ratings and narrow ranges suggest that all three judges consistently rated the questions highly and therefore is further indication that this questionnaire is reliable and valid.

Reliability on this questionnaire was further increased by means of a try-out, in which students comparable to those used in this study completed this questionnaire. This increased reliability since ambiguities that may have existed were now pinpointed as a result of students' questions concerning items on the questionnaire. Such items were modified as a result so that they could be more clearly understood by students in the future.

Teacher-Child Relationship Questionnaire

This questionnaire was devised for the purpose of determining the relationship that existed between teacher and child with regard to academic ability, academic work and progress.

Rosenthal and Jacobson[13] conducted a study to determine if students do what is expected of them. Teachers were given the

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[13]R. Rosenthal and L. Jacobson, "Teacher Expectations For the Disadvantaged," Scientific America, CCXVIII (April, 1968), pp. 19-23.

TABLE VII

FINAL RATINGS GIVEN BY JUDGES TO INDIVIDUAL QUESTIONS ON THE PEER RELATIONSHIP QUESTIONNAIRE

Question	Judge 1	Judge 2	Judge 3
1	5	5	5
2	5	5	4
3	5	5	5
4	5	5	5
5	5	5	5
6	5	5	5
7	5	5	4
8	5	5	5
9	5	5	5
10	5	5	5
11	5	5	5
12	5	5	5
13	4	5	5
14	4	5	5
15	4	5	5
16	4	5	5
17	4	5	5
18	4	5	5
19	4	5	2
20	4	5	1

Explanation of Ratings:

Rating 5 ... Excellent
Rating 4 ... Very Good
Rating 3 ... Good
Rating 2 ... Fair
Rating 1 ... Poor

names of particular students and were told they were high potential students, although in fact those names had been chosen at random by the experimenters. Their teachers later described those children as happier, more curious, more interesting and as having a better chance of future success than other children. The conclusion drawn by the experimenter is that the teacher, through his facial expression, postures and touch, through what, how and when he spoke, subtly helped those children learn. It is on this conclusion basically that this questionnaire is devised. The writer decided that the relationship existing was portrayed, not merely by speaking, but by expression, tone, reactions, and influenced as well by the atmosphere the teacher created.

The questionnaire consisted of twenty questions aimed at determining the existing relationship by having the teacher decide on a response to those questions each of which considered a factor thought by the writer to be important in developing a teacher-child relationship conducive to growth and maintainence of a positive academic self-concept.

Three judges rated each individual question. Their final ratings are given in Table VIII, page 66. The ratings given by judges in most cases are excellent or very good and therefore support the writer's claim that this instrument is reliable and valid. The mean ratings and range are presented in column 2, Table IV, page 58. Those mean ratings are in all cases very close to the highest possible rating of five. The range, too, is very narrow except in two questions. The mean ratings and narrow ranges are accepted by the writer as support for the claim that this instrument is reliable and valid.

TABLE VIII

FINAL RATINGS GIVEN BY JUDGES TO INDIVIDUAL QUESTIONS ON THE TEACHER-CHILD RELATIONSHIP QUESTIONNAIRE

Question	Judge 1	Judge 2	Judge 3
1	4	5	4
2	5	5	4
3	5	5	4
4	5	5	4
5	5	4	4
6	5	5	4
7	5	4	4
8	4	5	4
9	4	5	5
10	5	5	5
11	4	4	4
12	5	3	4
13	5	5	4
14	4	4	4
15	4	4	4
16	4	4	4
17	5	4	2
18	5	5	5
19	4	5	4
20	5	4	4

Explanation of Ratings:

Rating 5 ... Excellent
Rating 4 ... Very Good
Rating 3 ... Good
Rating 2 ... Fair
Rating 1 ... Poor

Reliability was further increased by the fact that the writer explained, carefully, a sample of the questions on the questionnaire to the teachers concerned and explained to them the implications or the three possible answers. The writer also answered any questions and cleared up any misunderstandings that may have existed concerning the items on the questionnaire.

All the instruments described in this previous section, with the exception of the Lorge-Thorndike Intelligence Test, can be found in the appendices at the end of this study.

VI. ADMINISTRATION AND SCORING OF TEST AND QUESTIONNAIRES

All questionnaires with the exception of the parent-child relationship were administered during the first week of June, 1971. The test was administered during the first week of June 1971. This test was administered and scored according to the regulations laid down in the manual.[14] The questionnaires, namely, Academic Self-Concept, Brookover's Self-Concept of Ability Scale, Peer Relationship Questionnaire, were administered over a period of two days to the eighty-eight students involved.

Students completed the questionnaires in their classrooms, as facilities were not available at this time to accommodate

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[14]Lorge, Thorndike and Hagen, op. cit., pp. 5-26.

one large group. Students were permitted to take, however, as much time as they wished to complete all the questionnaires.

The highest score that could be obtained on the Brookover Self-Concept of Ability Scale was forty. The highest number of points available for each question was five, which would be obtained by a student who selected the response (a); four, for those who selected (b); and so on down to (e), for which one point was obtained by those who selected this as the answer to any particular statement.

The highest score possible on the academic self-concept questionnaire was 27. Each question was answered by 'yes' or 'no'. Students received one point for each of the following items to which they answered 'yes', or a score of 0 if these items had been answered by 'no': 1, 4, 6, 20, 21, 22, 23, 24, 25, 26. Students received one point for each of the following items to which they answered 'no', or a score of 0 if these items were answered with 'yes': 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 27.

For the Peer Relationship questionnaire there is no definite highest and lowest score. The score each child receives depends on the number of times she is selected by the others in her class. However, each score, when compared with the others, gives an indication of how each particular child is viewed by the majority of her class with regard to academic work, ability and progress. Each time a child is selected she is given a certain number of points depending on the value of the question for which she was selected. If a student was selected by her classmate for questions 1, 3, 5, 14,

17, 19, she would receive three points each time she was chosen. If the student was chosen for questions 2, 4, 6, 15, 18, 20, then she would receive a score of -3 each time she was selected. Students selected for questions 7, 11, 12 and 16, received two points for each time they were chosen. Similarily, students selected for question 13 received -2 points each time they were selected. Those selected for questions 8 and 9 received one point each time, while those students chosen in question 10 received -1 point each time they were selected in this particular question.

All questionnaires were scored and re-scored according to the above procedures by the writer.

The teacher-child relationship questionnaire was given to the teacher, also during the first week in June. One copy was completed by the classroom teacher for each child in the classroom for which she is primarily responsible.

Three possible answers could be given to each of the questions. Questions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 18, 19, 20, were scored in the following way: an answer of 'yes, often' or 'yes, most of the time' received two points; the answer 'sometimes' received one point; and the answer 'never' received a score of 0. In questions 11, 12, 15, 16, 17, an answer of 'yes, often' received 0 points, an answer of 'sometimes' received a score of one point, and the answer 'never' received a score of two points. The highest possible score that could be obtained on the questionnaire was forty. The higher scores are indicative of good teacher-child relationship.

The parent-child relationship questionnaire was completed by the mothers of those students selected for the smaller sample involved in the study. The writer interviewed each parent. Interviews were carried out during July, August and September of 1971. Each question was explained by the interviewer to the parent until the parent felt confident that she could complete the questionnaire on her own and the interviewer was satisfied that the parent understood what was expected of her. Three possible choices were provided for each question. The democratic response each time selected received a score of three points; the authoritarian response received a score of two points each time selected; and the permissive response received a score of one point each time it was selected. The highest possible score was sixty. This score, as well as other high scores, would be indicative of a highly democratic relationship between parent and child. The lowest score, twenty, was indicative of a dominantly permissive relationship on the part of the parent with the child.

VII. TREATMENT OF DATA

The following types of analyses will be reported; namely, Pearson-Product Moment Correlations, t-test of significance for correlations obtained, t-test on the difference between means and stepwise regression analysis.

Pearson Product Moment Correlation

Pearson Product Moment Correlation was determined between each of the following in sample I: Academic Self-Concept and Intelligence; Academic Self-Concept and Teacher-Child Relationship; Academic Self-Concept and Peer Relationship.

Pearson Product Moment Correlation was determined between each of the following in sample II: Academic-Self-Concept and Intelligence; Academic Self-Concept and Peer Relationship; Academic Self-Concept and Teacher-Child Relationship; Academic Self-Concept and Parent-Child Relationship; Academic Self-Concept and Social Class of the Child's Parents.

T-Test of Significance for Correlations

The t-test of significance given in Appendix I was carried out on each of the above correlations to determine if they were statistically significant and the level at which these correlations were significant.

T-Test of the Difference Between Means

This t-test given in Appendix G was carried out to determine if significant differences existed between the means of the two groups of nine which composed the smaller sample of eighteen. This test was carried out for each of the variables under study

Stepwise Regression Analysis

Stepwise Regression was used to determine the order of importance of each of the variables under study.

Predictors were added in the order in which they contributed to the predictability. Predictors were deleted once they ceased to contribute significantly to the prediction of a step. The probability level for deleting a variable was .05.

The regression weights which are part of the output of this program were used by the writer to determine the order of importance of the predictor variables which were found to be significant at the .01 or .05 level.

Tables IX and X give a sample of the data for the sample of eighty-eight and the sample of eighteen used in this study.

TABLE IX

TABULATION OF SAMPLE DATA FROM TEST AND QUESTIONNAIRES FOR SAMPLE OF 18

Pupil's Computer Number	Academic Self-Concept Score	Intelligence I.Q.	Teacher-Child Relationship Score	Peer Relationship Score	Social Class	Parent-Child Relationship Score
001	62	117	33	16	4	51
009	60	96	24	53	3	54
018	44	87	23	2	2	59

TABLE X

TABULATION OF SAMPLE DATA FROM TEST AND QUESTIONNAIRES FOR SAMPLE OF 88

Pupil's Computer Number	Academic Self-Concept Score	Intelligence I.Q.	Peer Relationship Score	Teacher-Child Relationship Score
007	51	113	160	27
142	48	98	- 31	34
078	51	83	- 14	17
088	53	106	358	31

CHAPTER IV

STATISTICAL ANALYSIS

This chapter is divided into two sections. Part I tests the hypotheses of the study established in Chapter II. Each hypothesis is considered independently of the others. By use of correlations, difference between means and graphic analysis, the writer hopes to show whether or not a relationship exists between the criterion variable — academic self-concept, and each of the predictor variables — intelligence, peer relationship, teacher-child relationship, parent-child relationship and social class of the child's family.

In Part II the writer hopes to determine the order of importance of each of the predictor variables, found in Part I to be significantly related to academic self-concept.

PART I

This section presents statistical analysis of the data obtained for each of the five hypotheses. In testing significance two-tailed tests were used. It was determined if the correlations were significant at either the .01 or the .05 level. The significance of the difference between means was determined in the same way and at the same levels. The writer employed the following procedure in studying each hypothesis:

1. The mean score (on each variable) of the nine students considered as having high academic self-concept was compared with the mean score of the nine students considered to have low academic self-concept, by use of the t-test. Those two groups of nine students actually compose the smaller sample of eighteen. If those mean scores were found to be significantly different, then this information would be valuable in the final analysis of whether or not a relationship does exist between the two variables under study in each hypothesis.

2. Correlations were obtained between the two variables under study in each hypothesis. Two correlation coefficients were obtained for each of hypotheses 2, 3 and 4, with one correlation coefficient obtained for each of hypotheses 1 and 5. It was then determined by use of t-test if those correlations were significant at the .01 or the .05 level. Correlations were also obtained between the two variables under study in hypotheses 2, 3 and 4, for the group of students which remained when the extreme scores, those below one standard deviation of the mean and those above one standard deviation of the mean, were removed from the sample of eighty-eight. This group contained sixty-six students.

3. Scatter diagrams were drawn for the data obtained for each hypothesis. The writer hoped that by examining those scatter diagrams it could be determined if there was a relationship and whether or not this relationship was uniform throughout, less variable at one end than at the other, or perhaps more concentrated at the center but more variable on both ends.

Hypothesis 1

There will be a positive relationship between academic self-concept of the child and parent-child relationship. The t-test of the difference between means performed on the two groups which composed the sample of eighteen, nine with low academic self-concept and nine with high academic self-concept, showed that while these two groups were significantly different with regard to academic self-concept they were not significantly different with regard to parent-child relationships. Results are reported in Table XI, page 78. Academic self-concept scores were correlated with parent-child relationship scores by use of Pearson Product Moment Correlation Formula. Correlations, reported in Table XII, page 79, show that the correlation coefficient obtained between the two sets of scores under study was, although positive, very low and nonsignificant.

Finally, the scores of academic self-concept and parent-child relationship are presented graphically by use of a scatter diagram. From this graphic presentation given on page 80 it can be seen that little or no relationship evidently exists between these two variables.

Hypothesis 2

There will be a positive relationship between academic self-concept and teacher-child relationship.

Again the two groups which composed the sample of eighteen were compared. The mean score of the group of nine students with low academic self-concept was found to be significantly less than the mean score of the group of nine students with high academic self-

TABLE XI

A COMPARISON OF MEANS OF CRITERION AND PREDICTORS FOR EIGHTEEN GIRLS — NINE WITH LOW ACADEMIC SELF-CONCEPT AND NINE WITH HIGH ACADEMIC SELF-CONCEPT

Variables	Low Academic Self-Concept	High Academic Self-Concept	t[a]	Level of Significance
Criterion				
Academic Self-Concept Scores	60.77 sd(1.39)[c]	39.55 sd(4.09)	29.44	.01[b]
Predictors				
Intelligence	109.22 sd(11.65)	92.00 sd(11.51)	6.19	.01
Teacher-Child Relationship	31.00 sd(4.33)	24.33 sd(6.06)	5.40	.01
Peer Relationship	245.11 sd(245.38)	-77.00 sd(76.17)	7.52	.01
Social Class	4.00 sd(1.22)	3.00 sd(1.80)	2.75	.05[d]
Parent-Child Relationship	53.88 sd(2.15)	54.77 sd(5.11)	-0.98	N.S.

[a]T-test used to determine the the difference between means is reproduced in Appendix G.

[b]Significance at .01 level, when a two-tailed test is used, requires a t equal to or greater than 2.921 or equal to or less than -2.921 when the degrees of freedom is 16.

[c]sd = standard deviation.

[d]Significance at .05 level, when a two-tailed test is used, requires a t equal to or greater than 2.120 or equal to or less than -2.120, when the degrees of freedom is 16.

TABLE XII

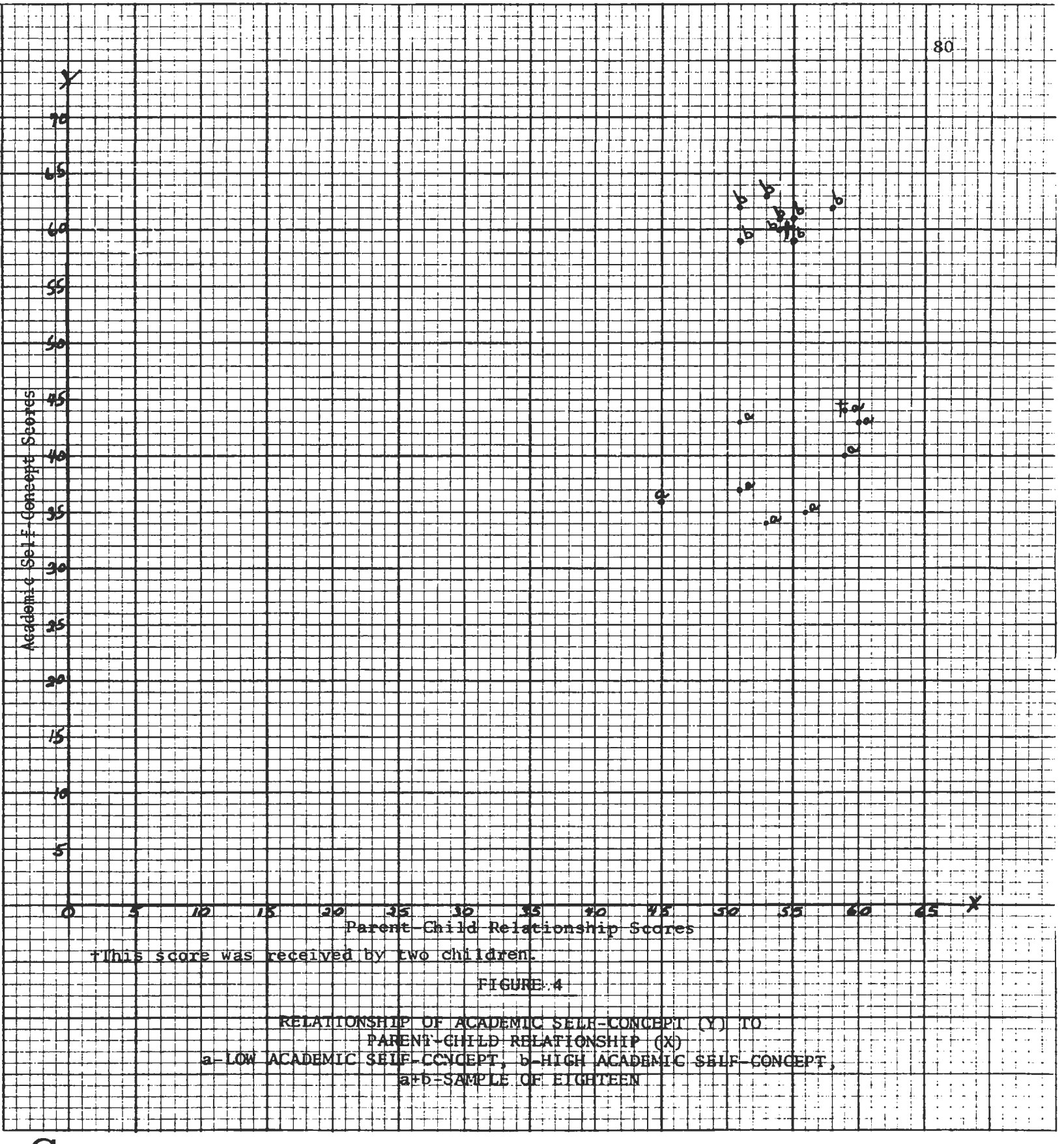
CORRELATIONS BETWEEN ACADEMIC SELF-CONCEPT AND THE FOLLOWING VARIABLES: INTELLIGENCE, PEER RELATIONSHIP, TEACHER-CHILD RELATIONSHIP, SOCIAL CLASS PEER RELATIONSHIP

Sex	Number	Variable	Correlation[a]	t[b]	Level of Significance
Girls	18	Intelligence	.62	3.16	.01[c]
Girls	18	Peer Relationship	.68	3.70	.01
Girls	18	Teacher-Child Relationship	.61	3.08	.01
Girls	18	Social Class of Child's Family	.20	0.83	N.S.
Girls	18	Parent-Child Relationship	.01	0.06	N.S.

[a]Pearson Product Moment Computational Formula used to calculate correlations is reproduced in Appendix H.

[b]T-test used to determine the level of significance of the above correlations is reproduced in Appendix I.

[c]Significance at the .01 level when a two-tailed test is used required a t equal to or greater than 2.921 or equal to or less than -2.921, when the degrees of freedom is 16.



†This score was received by two children.

FIGURE 4

RELATIONSHIP OF ACADEMIC SELF-CONCEPT (Y) TO PARENT-CHILD RELATIONSHIP (X)
a-LOW ACADEMIC SELF-CONCEPT, b-HIGH ACADEMIC SELF-CONCEPT,
a+b=SAMPLE OF EIGHTEEN

concept. The result of the t-test used to determine whether or not those means were significantly different, is reported together with the means in Table XI, page 78.

Since teacher-child relationship scores are reported for both the sample of eighteen and the sample of eighty-eight, three correlation coefficients could be obtained: a correlation coefficient for the sample of eighteen; a correlation coefficient for the sample of eighty-eight; and a correlation coefficient for the group of sixty-six students, which was the number that remained when the extreme scores, those one standard deviation below or those one standard deviation about the mean, were removed from the sample of eighty-eight. For the sample of eighteen, the correlation coefficient reported in Table XII was found to be positive and significant at the .01 level. For the sample of eighty-eight, the correlation coefficient reported in Table XIII was also found to be positive and significant at the .01 level. The correlation coefficient for the group of sixty-six is reported in Table XIV. The correlation coefficient obtained for the sample of sixty-six is lower than the correlation coefficient obtained for the sample of eighty-eight, and considerably lower than the correlation coefficient obtained on these two variables in the sample of eighteen. It is also nonsignificant at the .01 and .05 level. This seems to indicate that it is the extremes which cause the correlation coefficient to be as high as it is in the sample of eighty-eight.

Finally, the relationship between those two variables, academic self-concept and teacher-child relationship, when graphically

TABLE XIII

CORRELATIONS BETWEEN ACADEMIC SELF-CONCEPT AND THE FOLLOWING: INTELLIGENCE, PEER RELATIONSHIP, TEACHER-CHILD RELATIONSHIP

Sex	Number	Variable	Correlation[a]	t[b]	Level of Significance
Girls	88	Intelligence	.58	6.58	.01[c]
Girls	88	Peer Relationship	.49	5.21	.01
Girls	88	Teacher-Child Relationship	.36	3.58	.01

[a]Pearson Produce Moment Computational Formula used to calculate correlations is reproduced in Appendix H.

[b]T-test used to determine the level of significance of the above correlations is reproduced in Appendix I.

[c]Significance at the .01 level when a two-tailed test is used requires a t equal to or greater than 2.921 or equal to or less than -2.921, when the degrees of freedom is 86.

TABLE XIV

CORRELATION MATRIX FOR CRITERION VARIABLE AND PREDICTOR VARIABLES IN THE GROUP OF SIXTY-SIX

Criterion Variable 1 - Academic Self-Concept
Predictor Variable 2 - Intelligence
Predictor Variable 3 - Teacher-Child Relationship
Predictor Variable 4 - Peer Relationship

	1	2	3	4
1	1.000	0.524	0.175	0.208
2	0.524	1.000	0.073	0.192
3	0.175	0.073	1.000	0.356
4	0.208	0.192	0.356	1.000

Correlation	t	Level of Significance
..524	4.90	.01
.175	1.38	N.S. at the .01 and .05 level
.208	1.62	N.S. at the .01 and .05 level
.192	1.56	N.S. at the .01 and .05 level
.356	4.90	.01
.073	0.06	NS at the .01 and .05 level

Critical value of t at .01 level is equal to or below -2.652, or equal to or above +2.657.

Critical value of t at .05 level is equal to or below -1.999 or equal to or above +1.999.

presented in a scatter diagram shows a fairly high positive relationship between these two variables. This relationship becomes greater as academic self-concept increases. Scores in this scatter diagram are much more variable at the lower extreme and much more concentrated at the higher extreme. This scatter diagram is presented on page 85,

Hypothesis 3

There will be a positive relationship between academic self-concept and peer relationship.

The mean score obtained for the group of nine students with low academic self-concept was found to be significantly less than the mean score of the group of nine students with high self-concept. The mean scores, together with the results of the t-test, are reported in Table XI, page 78. The level of significance is also presented in this table.

Three correlation coefficients were obtained for those two variables. Correlations obtained for both the sample of eighteen and the sample of eighty-eight were found to be positive and significant at the .01 level. The correlation obtained in the smaller sample was higher than that obtained in the larger sample. These correlation coefficients obtained for the sample of eighteen and the sample of eighty-eight are reported in Tables XII, page 79, and XIII, page 82 respectively. A correlation coefficient was also obtained for the group of sixty-six students. This correlation is reported in Table XIV, page 83. This correlation coefficient is much lower than the correlation coefficient obtained between the same two variables in

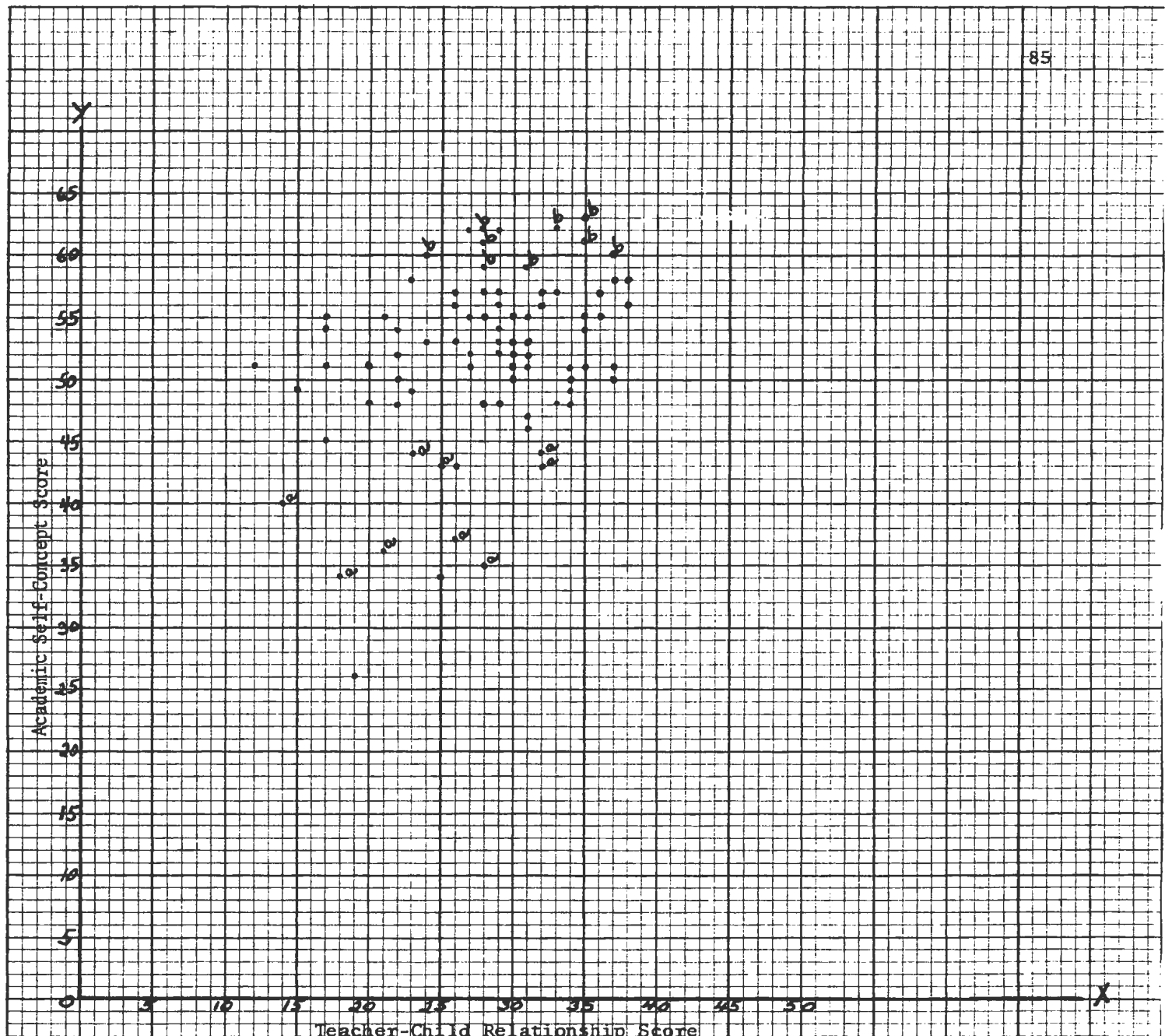


FIGURE 5

RELATIONSHIP OF ACADEMIC SELF-CONCEPT (Y) TO
TEACHER-CHILD RELATIONSHIP (X)
a-LOW ACADEMIC SELF-CONCEPT, b-HIGH ACADEMIC SELF-CONCEPT,
a+b-SAMPLE OF EIGHTEEN

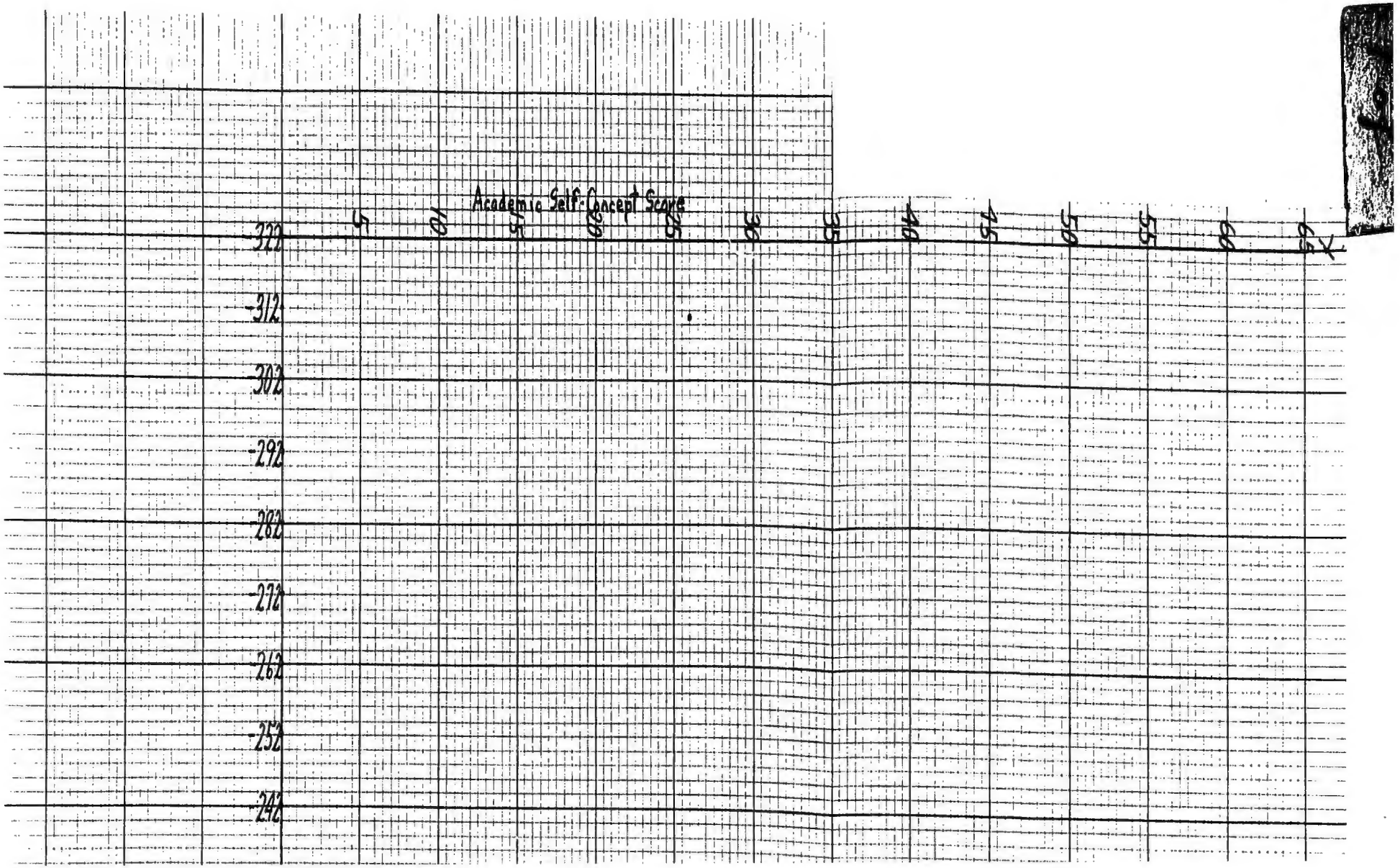
the sample of eighty-eight, and considerably lower than the correlation coefficient obtained between the same variables in the sample of eighteen. It is also nonsignificant at both .01 and .05 level. This seems to indicate that it is with the extremes, the sample of eighteen, that the greater realtionship exists and it seems possible that the extremes cause the correlation coefficient in the sample of eighty-eight to be as high as what it is. When results are graphically portrayed by use of a scatter diagram a moderately high relationship between these two variables is depicted. This relationship seems strongest in the middle range of scores. However, a relationship can definitely be seen at the upper extreme, although scores are more variable at this extreme. This scatter diagram is presented on page 87.

Hypothesis 4

There will be a positive relationship between academic self-concept of the child and his score on an intelligence test.

The t-test on difference between means again showed that the mean score of the nine students with low academic self-concepts was significantly less than the mean score of the group of nine students with high academic self-concept. The results are reported in Table XI, page 78.

Correlation between academic self-concept and intelligence in both samples were positive and significant at the .01 level. The correlations reported in Table XII, page 79, for the sample of eighteen and in Table XIII, page 82, for the sample of eighty-eight shows a higher correlation exists between these two variables in the


Academic Self-Concept Score
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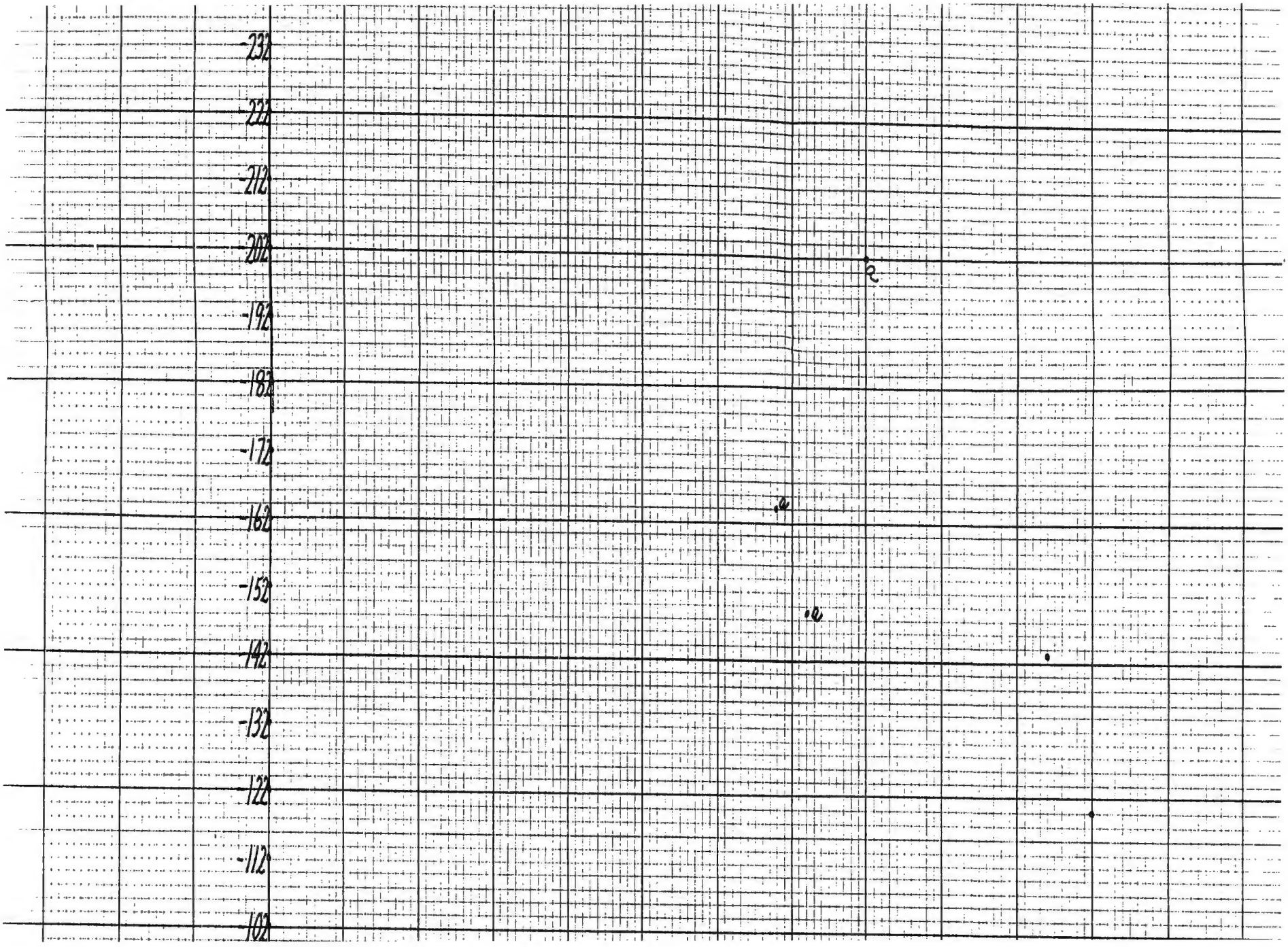
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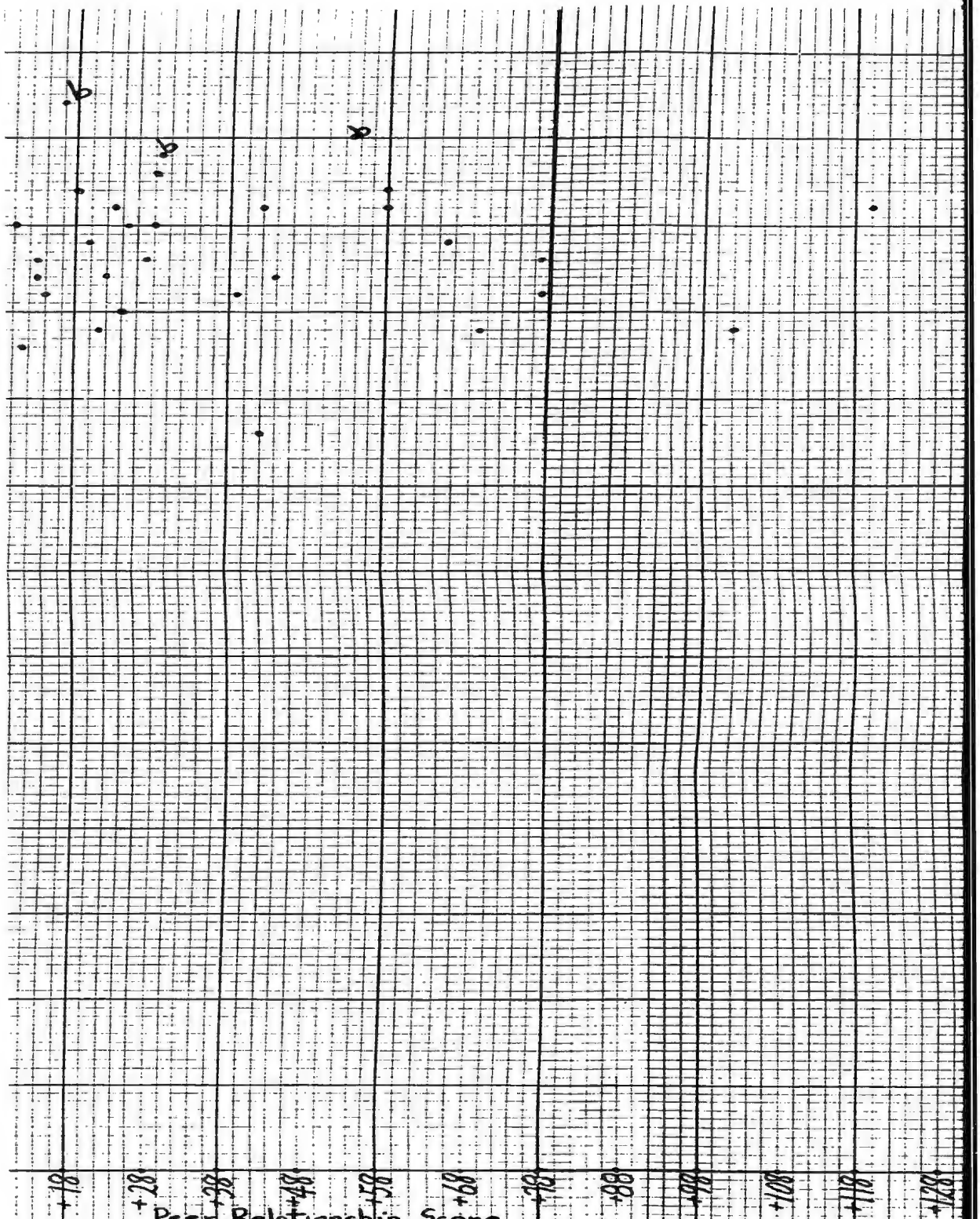

FIGURE 6

TIONSHIP OF ACADEMIC SELF-CONCEPT (Y)
TO PEER RELATIONSHIP (X)

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a+b- SAMPLE OF EIGHTEEN

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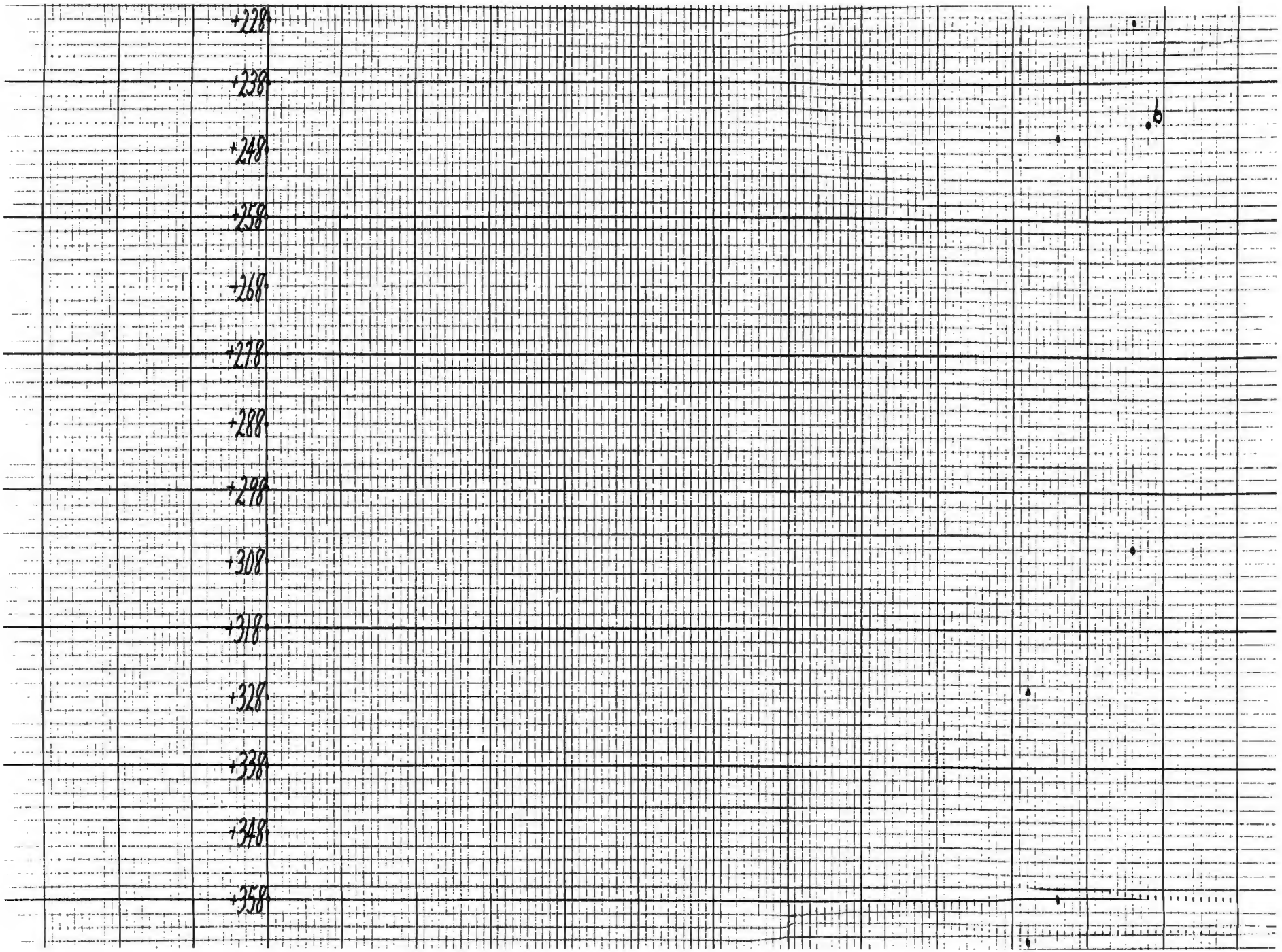
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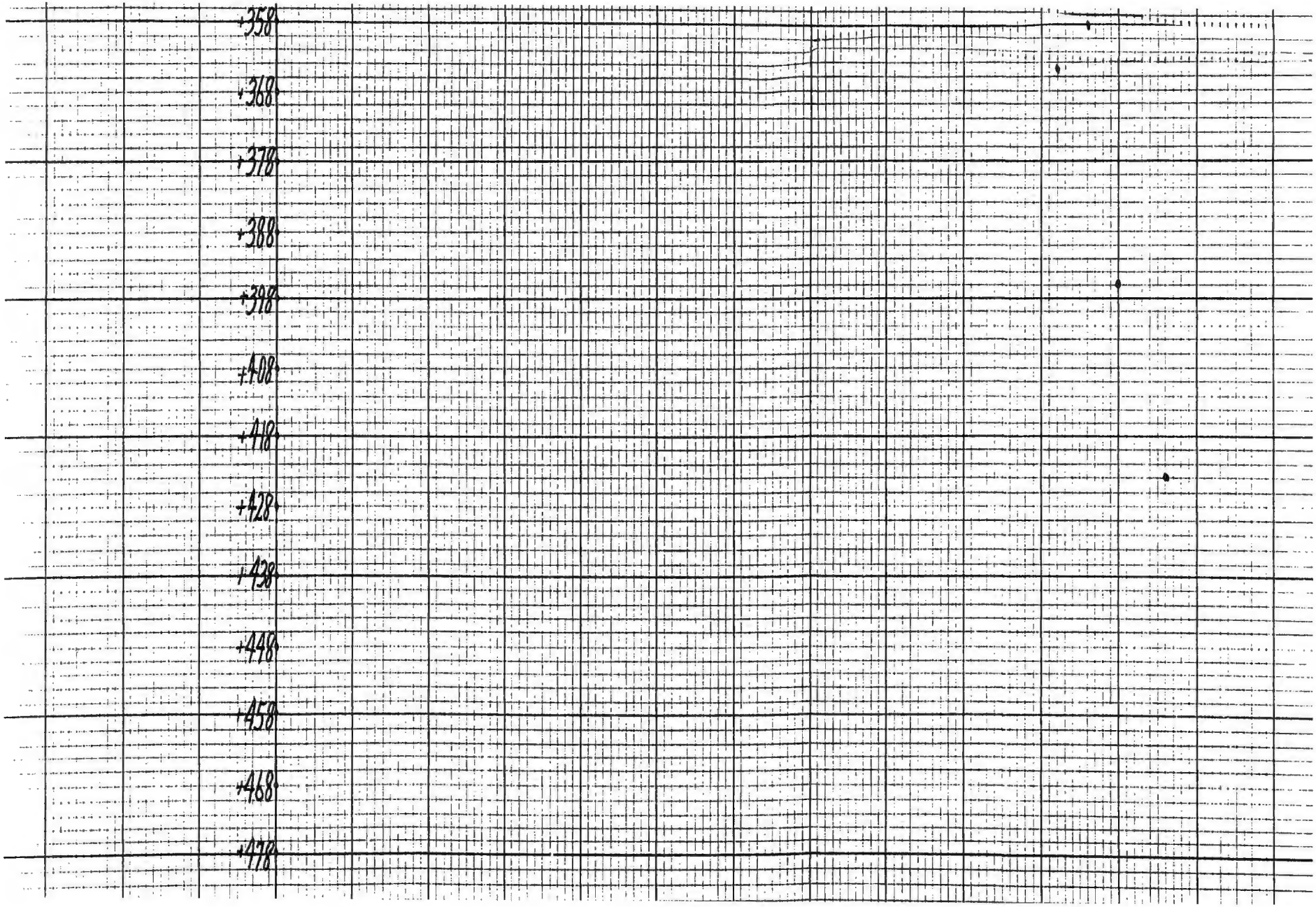
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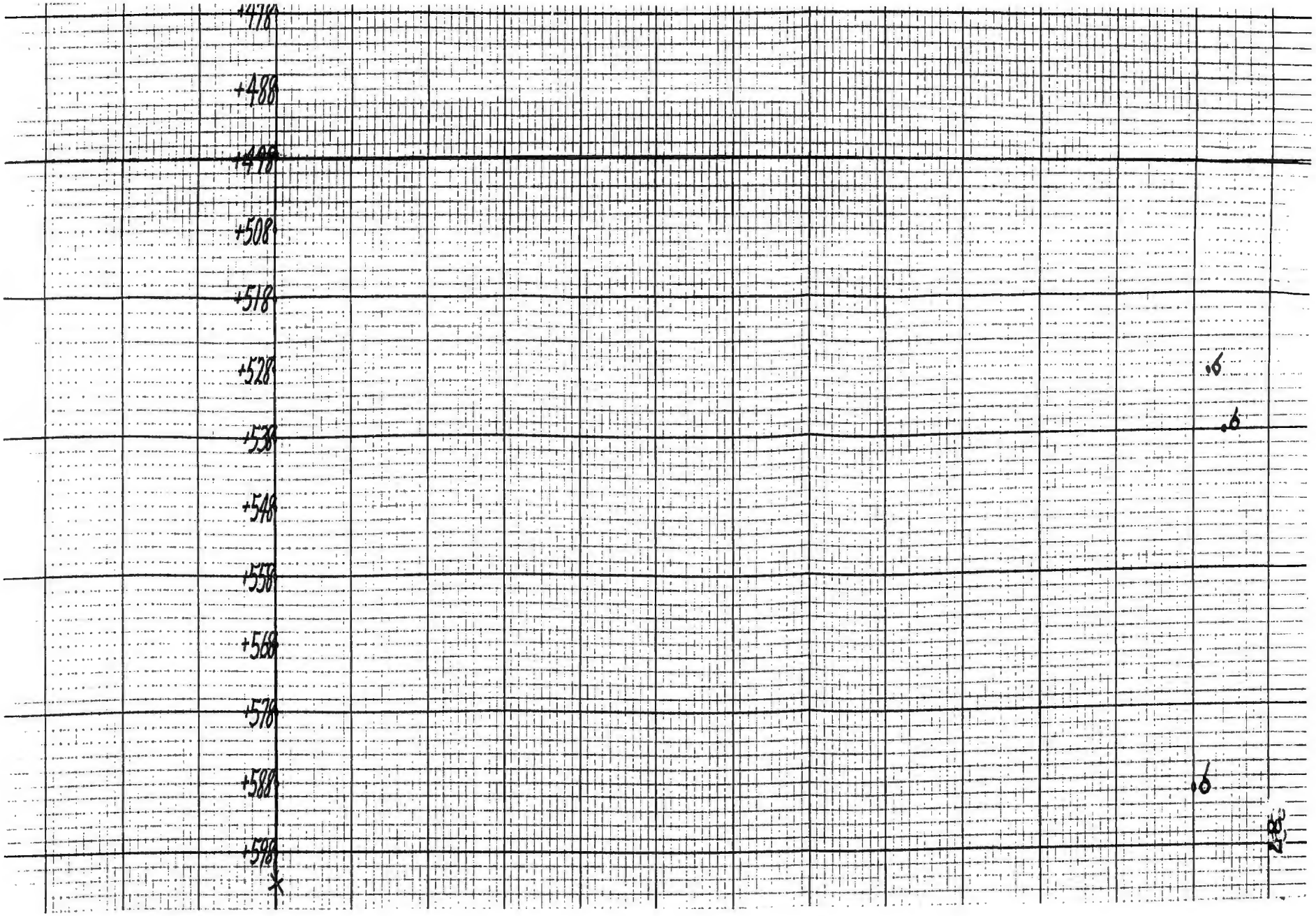
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smaller sample than in the larger one. The correlation coefficient obtained for the group of sixty-six students in reported in Table XIV, page 83. The correlation coefficient obtained in the group of sixty-six is lower than the correlation coefficient of .58 obtained in the group of eighty-eight, and is also lower than the correlation coefficient of .62 obtained in the sample of eighteen. However, the correlation coefficient of .524 obtained in the group of sixty-six is significant at the .01 level.

A scatter diagram given on page 89 further supports the hypothesis that a positive relationship exists between those two variables. This relationship appears to be greater as academic self-concept increases.

Hypothesis 5

There will be a positive relationship between academic self-concept of the child and the social class of her family.

The t-test on the difference between the means of the group of nine low and nine high academic self-concept showed that the mean score of the group of pupils with low academic self-concept is significantly less than the mean of the group with high academic self-concepts, at the .05 level. This is reported in Table XI, page 78.

However, the correlation coefficient obtained by use of the smaller sample, which contains the nine low and nine high academic self-concept, is positive but nonsignificant at both the .01 and .05 level. Correlation coefficients are reported in Table XII, page 79.

When results are portrayed on a scatter diagram very low relationship can be seen between the two variables. This scatter diagram is presented on page 90.

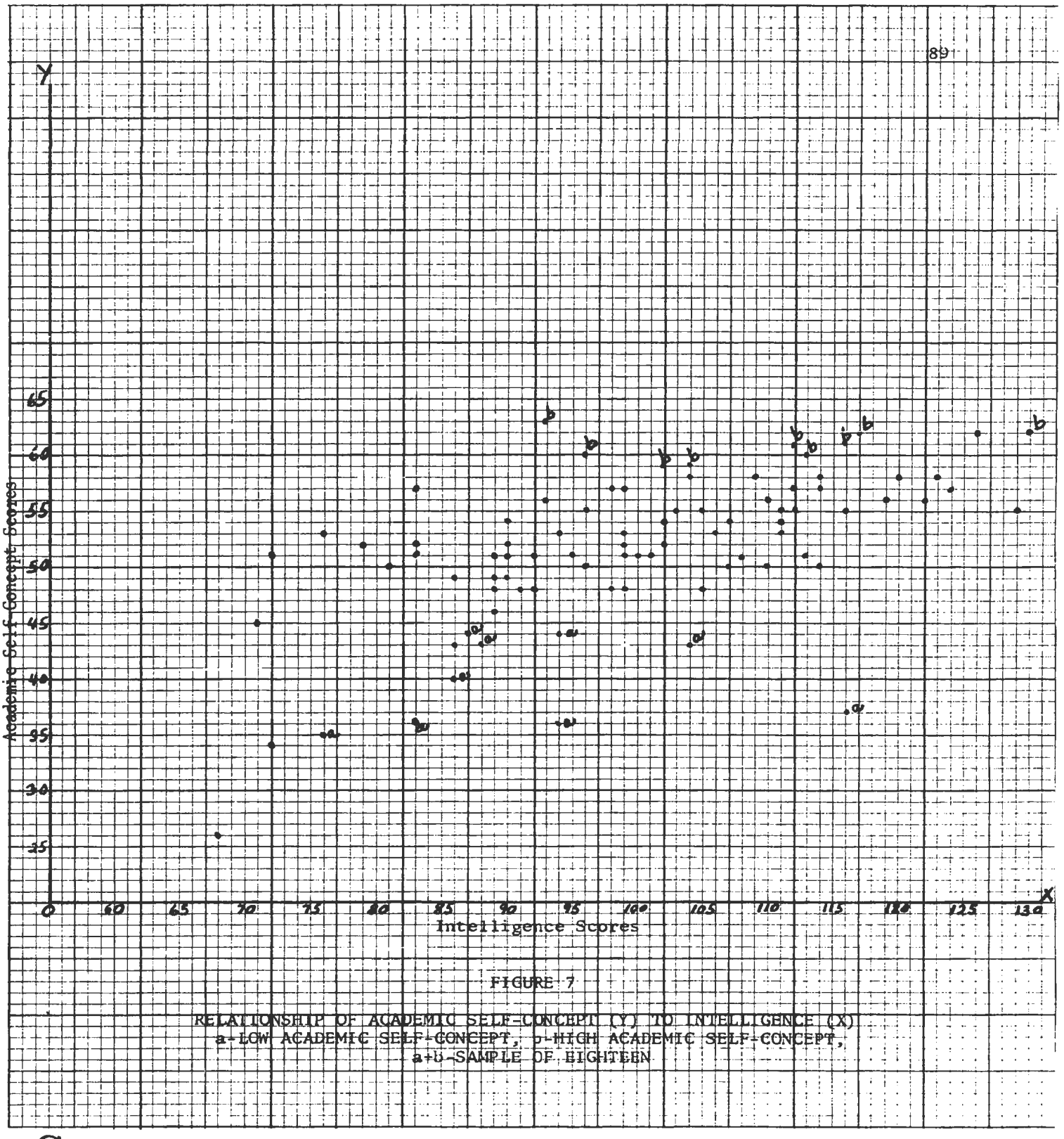
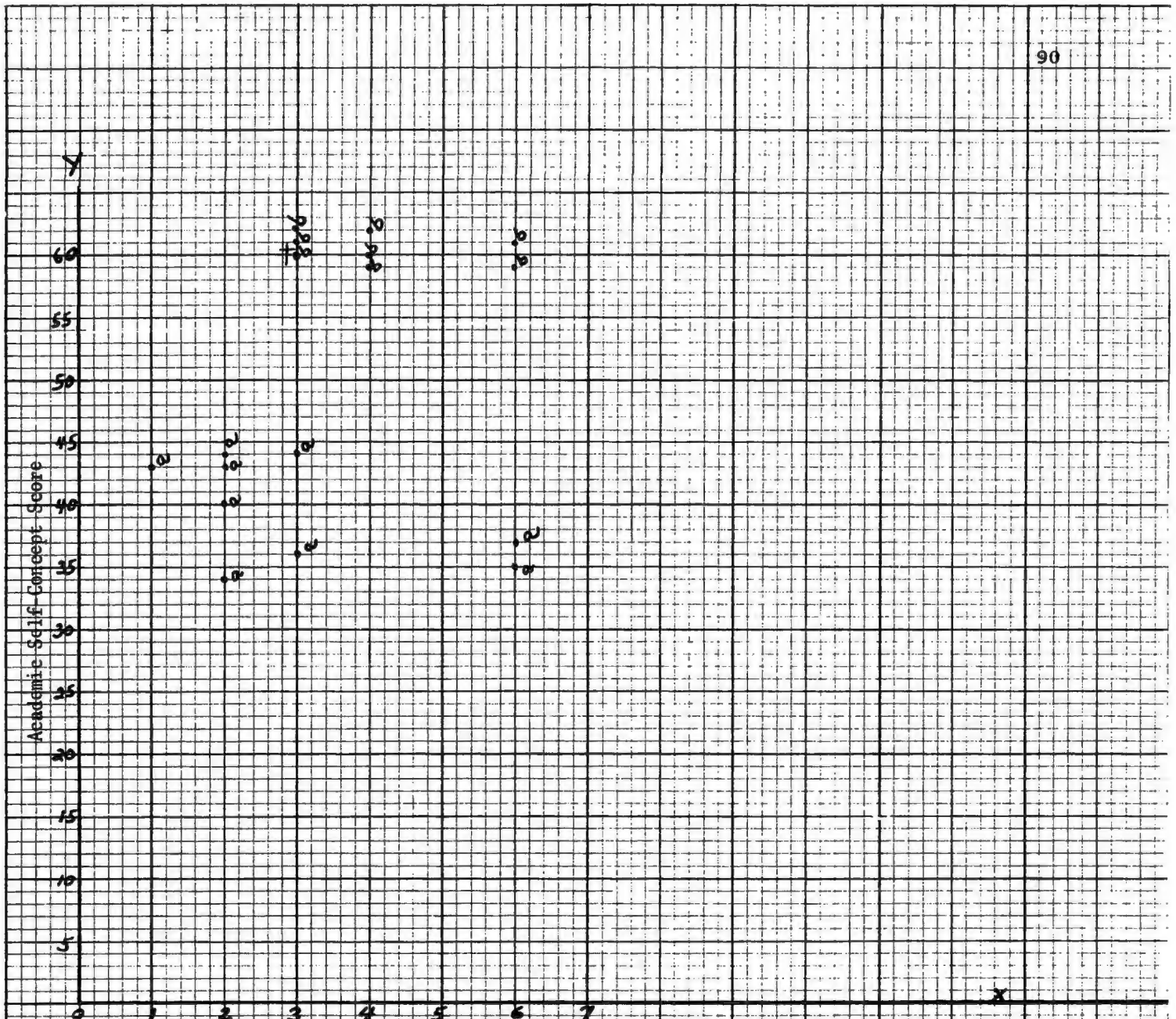


FIGURE 7

RELATIONSHIP OF ACADEMIC SELF-CONCEPT (Y) TO INTELLIGENCE (X)
a-LOW ACADEMIC SELF-CONCEPT, b-HIGH ACADEMIC SELF-CONCEPT,
a+b-SAMPLE OF EIGHTEEN



†This score was received by two children.

FIGURE 8

RELATIONSHIP OF ACADEMIC SELF-CONCEPT (Y) TO SOCIAL CLASS (X)
a-LOW ACADEMIC SELF-CONCEPT, b-HIGH ACADEMIC SELF-CONCEPT,
a-b-SAMPLE OF EIGHTEEN

PART II

By use of stepwise regression, the standard weights of the different variables under study were obtained. These standard weights were then used to determine the order of importance of the predictor variables.

The standard weights, together with the percent of variance accounted for by each of those predictor variables, is presented in Table XV, page 92, for the sample of eighty-eight, and in Table XVI, page 93, for the sample of eighteen.

Table XV, page 92 shows that intelligence is the most significantly related to academic self-concept in this sample of eighty-eight, with peer relationship second and teacher-child relationship third. However, with the smaller sample, composed of the extreme scores, a similar pattern emerges. Here intelligence is again most significantly related to academic self-concept, with peer relationship second and teacher-child relationship third.

When one considers the percent of variance accounted for by each of the predictor variables, a great contrast can be seen between the two samples. In the sample of eighty-eight, intelligence accounts for the major portion of the variance, and peer relationship and teacher-child relationship account for a much smaller part by comparison. However, in the sample of eighteen there is very little difference in the amount of variance that is accounted for by each variable.

TABLE XV

BETA COEFFICIENTS AND PERCENTAGE OF VARIANCE ACCOUNTED FOR BY EACH OF THE PREDICTOR VARIABLES IN THE SAMPLE OF EIGHTY-EIGHT

	Standard Weight = b	b^2	% of Variance Accounted For	Order of Imp.
Variable 1 - Intelligence	.466	.217	66	1st
Variable 2 - Peer Relationship	.307	.094	20	2nd
Variable 3 - Teacher-Child Relationship	.098	.010	3	3rd

TABLE XVI

BETA COEFFICIENTS AND PERCENTAGE OF VARIANCE ACCOUNTED FOR BY THE THREE SIGNIFICANT PREDICTOR VARIABLES IN THE SAMPLE OF EIGHTEEN

	Standard Weight - b	b^2	% of Variance Accounted For	Order of Imp.
Variable 1 - Intelligence	.333	.111	39	1st
Variable 2 - Teacher-Child Relationship	.283	.080	28	3rd
Variable 3 - Peer Relationship	.304	.092	33	2nd

SUMMARY

In this chapter the writer has presented the statistical data in support of the hypotheses. It was found that this data when analyzed, supported strongly three of the hypotheses under study.

The order of importance of the significant variables was also presented.

CHAPTER V

DISCUSSION OF THE FINDINGS

This chapter presents a brief discussion of the findings concerning each of the hypotheses under study. A brief general overview of the results of statistical analysis concerning the sample of eighteen and the sample of eighty-eight is also given. Finally, the possible relationship between the practice of grouping and statistical findings is also discussed.

Hypothesis 1, which stated that there would be a positive relationship between academic self-concept of the child and parent-child relationships, was rejected. Although research evidence presented in Chapter II strongly supports the importance of parent-child relationships with the child's academic self-concept, this study does not support this position.

One important point must be kept in mind, however, when consideration is given to this finding. The group involved here is a sample of eighteen students. These eighteen students were selected from the extreme scores on academic self-concept and therefore can be considered the extremes in comparison to the remainder of the class. It is possible that factors other than parent-child relationship are more important when relation to academic self-concept is considered with extreme cases.

Another important point to be kept in mind is that while parent-child relationship has been found to be important in relation to self-concept in other studies reported in Chapter II, the self-concept concerned in those studies has been a global self-concept, whereas here only academic self-concept is considered. It could be that while global self-concept is related to parent-child relationships, academic self-concept is not.

The parent-child relationship in question was limited to the relationship that exists concerning the child's academic work, ability and progress. Perhaps a more general parent-child relationship might have been found to be related to academic self-concept.

Hypothesis 2, which stated that there would be a positive relationship between academic self-concept and teacher-child relationship was accepted. When the scatter diagram on page 85. is examined, it can be seen that scores on the lower extreme are much more differentiated than are those at the middle or upper extreme. One possible meaning for this is that teachers tend to differentiate more among those with whom they have a poorer relationship than they do among those with whom they have a good relationship. This could be further interpreted to mean that teachers do not treat all students. with whom they have a poor relationship the same way. However, the tendency to do so with all children with whom they have a good relationship seems to be a possible explanation of the concentration of scores at the upper extreme of the scatter diagram.

When the correlation coefficient for the sample of eighteen is compared with the correlation coefficient found in the

sample of eighty-eight, it is found to be much higher. This could mean that teacher-child relationship is much more important in relation to academic self-concept with the extremes than it is with the group as a whole. This could also be an indication that it is only with the extremes that teacher-child relationship is truly important since when extreme scores are removed from the sample of eighty-eight, and the correlation coefficient is obtained for the group of sixty-six students who remain, this correlation coefficient is insignificant at both the .01 and the .05 level. Other factors, possibly achievement, are more important in relation to academic self-concept for the non-extremes than is teacher-child relationship.

Hypothesis 3, which stated that there would be a positive relationship between academic self-concept and peer relationship was accepted.

When the scatter diagram is examined on page 87 it can be seen that scores at the upper extreme are more variable, while scores at the lower extreme are more concentrated. A possible explanation for this is that when students are seen as being poor in one area of academic work they are viewed as being poor students by their peers. All poor students are considered equally poor. There is little differentiation and all are viewed as being at approximately the same level on the lower end of the continuum. The variability at the upper extreme seems to suggest that peers differentiate more among students at this end of the continuum.

When the scatter diagrams on pages 85 and 87 are examined together, another possible explanation arises concerning the

extremes: with those students on the lower end of the continuum there is more differentiation among them by their teacher than by their peers, while the opposite is true for students at the upper end of the continuum. At the upper end there is less differentiation by the teacher and more by peers.

When correlation coefficients are compared for both the sample of eighteen and the sample of eighty-eight, it is found that the correlation coefficient in the sample of eighteen is higher than the correlation coefficient in the sample of eighty-eight. Again this suggests that peer relationship is more important in relation to academic self-concept, where the extremes (those with high and low self-concept) are concerned. This is further indicated by the fact that a much lower correlation coefficient, insignificant at both the .01 and .05 level, is obtained for the group of sixty-six students.

Hypothesis 4, which stated that there would be a positive relationship between academic self-concept and the score on an intelligence test was accepted.

That such a relationship exists is strongly supported by the scatter diagram on page 89.. The lower extreme of this scatter diagram is more variable indicating less relationship perhaps between academic self-concept and intelligence at this lower level.

When correlation coefficients are compared it seems that they are very close and there is little difference between the two samples. However, the correlation coefficient in the smaller sample may have been lowered by those nine students with low academic self-concept and could, therefore, possibly mean that factors other

than intelligence are more important in relation to academic self-concept with those students possessing a low self-concept.

When the correlation coefficient is obtained for the group of sixty-six students, it is found to be fairly close to that obtained in both the samples of eighteen and eighty-eight. This indicates that intelligence is an important factor in relation to academic self-concept, not only with the extremes but with the group as a whole.

Hypothesis 5, which stated that there would be a positive relationship between academic self-concept and social class was accepted. It must be kept in mind that only the extremes — the smaller sample of eighteen — were involved. Perhaps if it had been possible to use the larger sample a significant relationship might have been found between the two variables.

The scatter diagram shows that although a relationship exists it is very low. The correlation coefficient obtained is also very low and significant at the .05 level.

Social class of the child's family does not seem to be of any major importance in relation to academic self-concept with the sample of eighteen students

When the relative importance of all variables was considered, intelligence was determined as the most important of the variables in predicting academic self-concept. However, other important relationships can be seen by examination of Tables XIV, XVII and XVIII. The correlation between Peer Relationship and

Teacher-Child Relationship is fairly high, indicating that what the teacher thinks of the child is a good predictor of what the class as a whole think of the child. This seems to indicate that the way peers, who are in this study classmates, relate to the low and high academic self-concept group is very similar to the way the teacher relates to this group. It would seem then that the teacher can be very influential in bringing about any change on the part of peers toward this group.

With this extreme group also, it seems that intelligence and peer relationship are more highly correlated than are intelligence and teacher-child relationship, although this correlation is now low. This means that the child's intelligence for the extremes at least is a fairly good predictor of his academic status with his peers and also with his teacher.

Although the same trend is seen in the larger sample, the correlations that do exist may be considerably influenced by bythe extremes which are also included in the sample of eighty-eight. This seems to be the case since correlations on the above variables in the group of sixty-six students are lower than correlations between the same variables in the sample of eighty-eight students.

As mentioned previously, however, this study is concerned with relationships and not with causality. There are many ways the correlations reported can be interpreted.

The fact that intelligence has been found to be the variable most significantly related to academic self-concept could have been greatly influenced by the practice of grouping which as

TABLE XVII

CORRELATION MATRIX FOR CRITERION VARIABLE AND PREDICTOR VARIABLES IN THE SAMPLE OF EIGHTY-EIGHT

	Academic Self-Concept (CV)	Intelligence (PV)	Peer Relationship (PV)	Teacher-Child Relationship (PV)
Academic Self-Concept (CV)	1.000	0.583[a]	0.488[a]	0.362[a]
Intelligence (PV)	0.583[a]	1.000	0.293[a]	0.271[b]
Peer Relationship (PV)	0.488[a]	0.293	1.000	0.449[a]
Teacher-Child Relationship (PV)	0.362[a]	0.271	0.449[a]	1.000

Correlation	t[c]	Level of Significance
.583	6.65	.01[a]
.488	5.19	.01
.362	3.48	.01
.293	2.84	.05[b]
.271	2.63	.05
.449	4.67	.01

[a]Significance at the .01 level when a two-tailed test is used requires a t equal to or greater than 2.921 or equal to or less than -2.921 when the degrees of freedom is 86.

[b]Significance at the .05 level when a two-tailed test is used requires a t equal to or greater than 1.992 or equal to or less than -1.992.

[c]T-test used to determine the level of significance of above correlations is reproduced in Appendix.

TABLE XVIII

CORRELATION MATRIX FOR CRITERION VARIABLE AND PREDICTOR VARIABLES IN THE SAMPLE OF EIGHTEEN

	Academic Self-Concept (CV)	Intelligence (PV)	Teacher-Child Relationship (PV)	Peer Relationship (PV)	Social Class (PV)	Parent-Child Relationship (PV)
A.S.C. (CV)	1.000	0.626[a]	0.613[a]	0.686[a]	0.202	0.014
Intel. (PV)	0.626	1.000	0.395	0.592[a]	0.222	0.207
T-C Rel. (PV)	0.613	0.395	1.000	0.648[a]	0.278	0.012
Peer Rel. (PV)	0.686	0.592	0.648	1.000	0.024	0.064
Social Cl. (PV)	0.202	0.222	0.278	0.024	1.000	-0.155
P-C Rel. (PV)	0.014	-0.207	0.012	0.064	-0.155	1.000

Correlation	t[b]	Level of Significance	Correlation	t[b]	Level of Significance
.626	3.22	.01[a]	-.207	0.91	N.S.
.613	3.11	.01	.648	3.41	.01
.686	3.79	.01	.278	1.15	N.S.
.202	0.82	N.S.	.012	0.04	N.S.
.014	0.05	N.S.	.024	0.24	N.S.
.395	1.72	N.S.	.064	0.25	N.S.
.592	2.94	.01	-.155	-0.63	N.S.
.222	0.91	N.S.			

[a]Significance at .01 level when a two-tailed test is used requires a t equal or or greater than 2.921 or equal to or less than -2.921 when the degrees of freedom is 16.

[b]T-test used to determine the level of significance of above correlations is reproduced in Appendix.

previously has gone on in this school for some time. The children are well aware of the title attached to each group: 'bright', 'average', 'slow'.

This grouping could certainly be a possible explanation for the relationship between intelligence and peer relationship as well as between intelligence and teacher-child relationship. It is also very likely that students who find themselves in the 'slow' class view themselves as being less bright academically and therefore this grouping could be of major importance in determining the child's academic self-concept. Nine of the twelve pupils with low academic self-concept scores come from the slow class, while six of the ten with high academic self-concept scores come from the 'bright' class. This further suggests that grouping is perhaps more detrimental to the students with low academic self-concept.

CHAPTER VI

SUMMARY, CONCLUSIONS, IMPLICATIONS FOR EDUCATION AND RECOMMENDATIONS FOR FURTHER RESEARCH

I. SUMMARY OF THE STUDY

The Problem

This study tested the hypothesized relationship between academic self-concept and each of the following variables: intelligence, peer relationship, teacher-child relationship, parent-child relationship and socio-economic status. The order of importance of the variables found to be significantly related to academic self-concept was then determined.

The Sample

Two samples were employed in this study. The first sample consisted of eighty-eight students and the second sample was selected from the first. The second sample was randomly selected from scores one standard deviation above and below the mean of the distribution of academic self-concept scores. Therefore, these scores are the extreme scores of the sample.

Instrumentation

The academic self-concept score was obtained by combining the score on the Academic Self-Concept Questionnaire and the score on Brookover's Self-Concept of Ability Scale. Information

on the teacher-child relationship, parent-child relationship and peer relationship was determined by use of the respective questionnaires found in the appendices of this study.

The Intelligence score was the derived I.Q. obtained by administering both the verbal and non-verbal battery of the Lorge-Thorndike Intelligence Test.

Blishen Occupational Class Scale was used to classify parents on the socio-economic status variable.

All computations except those obtained through Stepwise Regression were completed by the writer.

Conclusions

1. Of the variables under study, three — intelligence, peer relationship and teacher-child relationship — were found to be strongly related to academic self-concept. Of the two remaining variables, parent-child relationship and social class of child's family, only the latter was found to be related to academic self-concept, and in the writer's opinion, this relationship was very weak.

2. Of the predictor variables involved in this study, it seems that the intelligence score is the best overall predictor of academic self-concept for both the larger and smaller groups.

3. When the larger sample of eighty-eight is considered the intelligence test score is by far more important than all other variables combined, as a predictor of academic self-concept.

4. When the smaller sample of eighteen, the sample containing the extremes of this group, is considered a different trend emerges.

While intelligence is still more important than any other predictor variable in relation to academic self-concept, it can be seem that peer relationship and teacher-child relationship are very close to intelligence and therefore all three can be considered as good predictors of academic self-concept for a group comparable to this sample.

II. IMPLICATIONS FOR EDUCATION

The final results of this study point to intelligence as the most important single predictor of academic self-concept for any group comparable to this sample of eighty-eight used in this study. This means that to have a high academic self-concept high intelligence is needed. Already, one explanation, that of grouping, has been provided as a possible explanation for the results obtained. This study indicates that the best predictor of academic self-concept is intelligence as measured by an intelligence test. If this is the case, intelligence testing in our schools should be reconsidered and not thrown out entirely as is desired by so many people. Although people wish to be rid of I.Q. testing on social grounds, it seems evident here that it could be an asset if used properly in an overall evaluation program.

Another important point also seems clear. This is that teachers with assistance from specialists or even on their own initiative could be influential in raising the child's low academic self-concept by working through classmates.

Finally, although grouping was not statistically analyzed, it does seem a very possible explanation as to why intelligence in this study was so important in relation to academic self-concept. Perhaps school personnel would be making a wise move by introducing gradually a non-graded program or a non-graded program together with ability grouping in one or two subjects. An investigation of such a program may well show that in the long run it is more feasible and meritorious than is the present graded system, with or without grouping.

III. SUGGESTIONS FOR FURTHER RESEARCH

1. A study involving academic self-concept and parent-child relationship with a larger sample and a much more general concept of parent-child relationship may show important relationships.

2. Similar studies, as this done by the writer, could be carried out at the same grade level with boys and with girls and boys combined to see if similar results are obtained.

3. Similar studies to this could be carried out in a school which does not stream children and place them in grades according to high, low or average intelligence.

4. A pilot project could be run to see if a well organized preschool program is influential in raising the intelligence of the children involved in such a program.

5. Similar studies at lower levels could show if the predictor variables used in this study are of more or less importance with a younger group.

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APPENDIX A

ACADEMIC SELF-CONCEPT

1. I do good work in school.
   Yes _____ No _____

2. I am slow at schoolwork.
   Yes _____ No _____

3. I want to quit school right now.
   Yes _____ No _____

4. I will get good marks if I try hard.
   Yes _____ No _____

5. I think I will get low marks no matter how hard I try.
   Yes _____ No _____

6. School is a lot of fun.
   Yes _____ No _____

7. I waste a lot of time in school.
   Yes _____ No _____

8. I hate working at Math.
   Yes _____ No _____

9. School is no fun at all.
   Yes _____ No _____

10. I hate working at English language.
    Yes _____ No _____

11. I hate working at history.
    Yes _____ No _____

12. I hate working at English literature.
Yes _____ No _____

13. I hate working at geography.
Yes _____ No _____

14. I do poorly in math.
Yes _____ No _____

15. I find schoolwork hard.
Yes _____ No _____

16. I feel I do English poorly.
Yes _____ No _____

17. I feel I do literature poorly.
Yes _____ No _____

18. I feel I do history poorly.
Yes _____ No _____

19. I feel I do geography poorly.
Yes _____ No _____

20. I think I will pass Grade VIII.
Yes _____ No _____

21. I think I will pass Grade XI.
Yes _____ No _____

22. In math I do as well as most pupils.
Yes _____ No _____

23. In literature I do as well as most pupils.
Yes _____ No _____

24. In English language I do as well as most pupils.
Yes _____ No _____

25. In history I do as well as most pupils.
Yes _____ No _____

26. In geography I do as well as most pupils.
Yes _____ No _____

27. I am backward in schoolwork.
Yes _____ No _____

APPENDIX B

SELF-CONCEPT OF ABILITY — GENERAL*
(FORM A)
Michigan State University
Bureau of Educational Research

Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

   a. I am the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am the poorest

2. How do you rate yourself in school ability compared with those in your class at school?

   a. I am among the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am among the poorest

3. Where do you think you would rank in your class in high school?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

4. Do you think you have the ability to complete college?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. probably not
   e. no

5. Where do you think you would rank in your class in college?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

6. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?

   a. very likely
   b. somewhat likely
   c. not sure either way
   d. unlikely
   e. most unlikely

7. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?

   a. my work is excellent
   b. my work is good
   c. my work is average
   d. my work is below average
   e. my work is much below average

8. What kind of grades do you think you are capable of getting?

   a. mostly A's
   b. mostly B's
   c. mostly C's
   d. mostly D's
   e. mostly E's

APPENDIX C

PEER RELATIONSHIP

1. Name four pupils in your class who you think are the smartest.
   a.
   b.
   c.
   d.

2. Name four pupils in your class who you think are not smart at all.
   a.
   b.
   c.
   d.

3. If you were the leader in a spelling match what four pupils would you select first for your side?
   a.
   b.
   c.
   d.

4. If you were the leader in a spelling match which four pupils would you never pick for your side?
   a.
   b.
   c.
   d.

5. If you were to pick a team to compete against another in your class in a math quiz, which four pupils would you like to select?
   a.
   b.
   c.
   d.

6. If you were to select a team from your class to compete against another team in your class in a math quiz, which four pupils would you never select?

   a.

   b.

   c.

   d.

7. If you did not have the chance to pick the four you wanted in number 5 for the math quiz, which four might you pick?

   a.

   b.

   c.

   d.

8. Name the four students who you think work the hardest in school.

   a.

   b.

   c.

   d.

9. Name four students who you think should get the most praise for good work.

   a.

   b.

   c.

   d.

10. Name four students who you think don't work at all.

    a.

    b.

    c.

    d.

11. Name four students who you think can do better work than they are doing.

    a.

    b.

    c.

    d.

12. Name four students in your class who often help others with a difficult problem.

    a.

    b.

    c.

    d.

13. Name four students in your class who you think ask for help more often than the others.

    a.

    b.

    c.

    d.

14. From the pupils in your class, write the names of four who you think could help most with a group project.

    a.

    b.

    c.

    d.

15. From the pupils in your class write the names of four who you think could help least with a group project.

    a.

    b.

    c.

    d.

16. Name four pupils who you think made the most progress this year.

a.

b.

c.

d.

17. Name four pupils about whom you have made a comment similar to 'You are smart'.

a.

b.

c.

d.

18. Name four pupils about whom you have made a comment similar to 'You are not very smart'.

a.

b.

c.

d.

19. If your teacher asked you to select the people from your class who might come first, second, third, and fourth, whom would you select?

a.

b.

c.

d.

20. If your teacher asked you to select the people from your class who you think might come last or almost last, whom do you think you would select?

a.

b.

c.

d.

APPENDIX D

TEACHER-CHILD RELATIONSHIP

1. Would you allow this student to challenge your opinion in history or any other academic subject?

   Yes, most of the time _____
   Sometimes _____
   Never _____

2. Would you allow this student to have any say with regard to planning, for example, activities that would comprise a unit of work in an academic subject such as science?

   Yes, most of the time _____
   Sometimes _____
   Never _____

3. Have you every commented favourably on something you know is important to this student?

   Yes, often _____
   Sometimes _____
   Never _____

4. Do you ever provide any success experiences for this child?

   Yes, often _____
   Sometimes _____
   Never _____

5. Do you praise the academic success of this child?

   Yes, most of the time _____
   Sometimes _____
   Never _____

6. Do you think there is too much unfair competition in this class for this student?

   Yes, often _____
   Sometimes _____
   Never _____

7. Would you allow this student to have any say in making rules as to how academic work is to be done?

   Yes, most of the time _____
   Sometimes _____
   Never _____

8. How often do you encourage this student to try harder with regard to schoolwork?

   Often _____
   Sometimes _____
   Never _____

9. Have you ever discussed with this student anything pertaining to his academic work, ability, or progress?

   Yes, often _____
   Sometimes _____
   Never _____

10. Is this child one whom you enjoy having in your class?

    Yes, most of the time _____
    Sometimes _____
    Never _____

11. Is this child one whom you tend to criticize with regard to schoolwork, more so than other children in your class?

    Yes, most of the time _____
    Sometimes _____
    Never _____

12. Do you find it necessary to punish this child because of inattentiveness, not having work done, or a similar reason?

    Yes, often _____
    Sometimes _____
    Never _____

13. Would you consider that the comments you make to this child regarding schoolwork are more often positive than negative?

    Yes, most of the time _____
    Sometimes _____
    Never _____

14. Do you find that you have to give more help to this child in academic work than to others in this classroom?

    Yes, most of the time _____
    Sometimes _____
    Never _____

15. Do you ever use sarcasm with this child with the hope that this will get him to do better?

Yes, often _____
Sometimes _____
Never _____

16. Do you ever use mild threats with this child with the hope of getting him to do better?

Yes, often _____
Sometimes _____
Never _____

17. Have you ever compared this child to his disadvantage with others in his class, with the hope of getting him to do better?

Yes, often _____
Sometimes _____
Never _____

18. Do you encourage this child to participate in class discussion?

Yes, often _____
Sometimes _____
Never _____

19. Would you say that you challenge this child within his range of ability with regard to schoolwork?

Yes, often _____
Sometimes _____
Never _____

20. Are you satisfied with this child's work?

Yes, most of the time _____
Sometimes _____
Never _____

APPENDIX E

PARENT-CHILD RELATIONSHIP

1. My child studies:
   (a) at the time I decide he should study each night. _____
   (b) for a certain length of time each night but he decides when and for how long. _____
   (c) when and if he feels like it. _____

2. If your child tells you about a problem he has in his schoolwork what would you most likely do:
   (a) leave him alone to work it out by himself. _____
   (b) work out the problem for him. _____
   (c) discuss with him how he might solve his problem but let him solve it himself. _____

3. If your child receives a poor mark on a school test which would you likely do:
   (a) try to find out by talking to him why he didn't get a better mark. _____
   (b) tell him he should have done better. _____
   (c) say nothing about it. _____

4. When your child seems to have lost all interest in school what would you most likely do:
   (a) bawl him out and force him to get at his books. _____
   (b) not bother about it at all. _____
   (c) talk to him and try to find out the reason for his lack of interest. _____

5. If your child does sloppy work (at home) to present to his teacher would you:
   (a) let him hand it in as it is. _____
   (b) order him to do it over again until it is presentable and then see that he does so. _____
   (c) try to get him to see that the work is not very tidy and that he is able to do much better. _____

6. If you were told by teacher or principal that your child is causing trouble in school what would you most likely do:

   (a) scold him and tell him to straighten out. _____

   (b) ignore the teacher's concern. _____

   (c) discuss what you have been told by the teacher with the child and see if you can find the cause of the problem. _____

7. If you were told by the teacher that your child could do much better if he paid more attention in school what would you most likely do:

   (a) forget about it. _____

   (b) order him to pay more attention or he will be punished. _____

   (c) try to find out why he is not paying attention and explain to him the need to do so. _____

8. If you were discussing some issue such as the importance of education and your child made a comment on the topic being discussed, would you:

   (a) forbid him to interrupt his parents. _____

   (b) encourage him to participate in the discussion. _____

   (c) pay no attention to his comments. _____

9. If your child finds it difficult to accept some school regulation such as wearing a school uniform, length of hair, et cetera, what would you most likely do:

   (a) discuss with him the need for regulations in the school. _____

   (b) order him to go along with the regulation _____

   (c) let him decide whether he will go along with the regulation or against it. _____

10. If you were aware that your child is faced with a decision to side with peers against the teacher or go along with the teacher which would you most likely do:

   (a) let him make up his own mind. _____

   (b) encourage the child to talk about the decision which he has to make. _____

   (c) order him to go along with the teacher. _____

11. If your child tells you he wants to drop a course in which he is doing badly what would you most likely do:

(a) force him to keep trying. _____

(b) leave the decision entirely to the child. _____

(c) talk it over with the child. _____

12. If your child receives a good mark on a school test what would you most likely do:

(a) make no comment. _____

(b) insist that he keep up the standard. _____

(c) praise him for the good results but encourage him to keep up the good work. _____

13. If your child's teacher tells you that your child is doing fine work in school which of these would you most likely to:

(a) let the child know that he is doing alright but that you intend to see he keeps trying. _____

(b) make no comment at all to the child. _____

(c) encourage the child to maintain this level. _____

14. If your child is complaining about too much homework what would you most likely to:

(a) tell him he can do it if he wishes. _____

(b) order him to stop complaining about his work and do it. _____

(c) discuss the problem with the child. _____

15. When your child seems upset because he can't cope with schoolwork, which would you most likely do:

(a) leave him alone to work it out by himself. _____

(b) try to find the cause of the upset and help him find the solution. _____

(c) tell him to stop the nonsense and get his work done. _____

16. When your child spends so much time on something other than schoolwork, such as a hobby, so that his academic standing suffers as a result, what would you most likely do:

(a) restrict considerably his outside activity until his academic work improves. _____

(b) let the teacher deal with it. _____

(c) discuss with the child how he can improve his academic standing and still enjoy other activities. _____

17. If your child continually talks about his inability to understand his teacher what would you most likely do:

(a) disucss the problem with the child. _____

(b) make the child go and ask the teacher for help. _____

(c) let the child handle it by himself. _____

18. If your child talks in a critical way about his teacher's reactions to him as a student which would you most likely do:

(a) tell him not to criticize his teacher. _____

(b) let him voice his opinion without your interference. _____

(c) discuss the problem with the child. _____

19. Although your child is passing his tests he is doing only a very minimum amount of schoolwork, what would you most likely do:

(a) demand that he do more work. _____

(b) allow the child to continue as he is going. _____

(c) discuss with him the idea that he should be putting more effort into his schoolwork. _____

20. If your child seems especially interested in some subject (art, music, et cetera) which he does not need for a Grade VIII diploma what would you most likely do:

(a) show him that you are interested in what he has to say. _____

(b) see to it that he spends more time on his necessary subjects. _____

(c) let him take whatever course of action he wishes. _____

APPENDIX F

BLISHEN OCCUPATIONAL CLASS SCALE[a]

Occupations Ranked and Grouped According to Combined Standard Scores for Income and Years of Schooling, by Sex, in Canada, 1951.

OCCUPTATION	SEX	SCORE[b]
Class 1		
Judges	M	90.0
Dentists	M	82.5
Physicians and Surgeons	M	81.2
Lawyers	M	78.8
Engineers - chemical	M	77.8
Actuaries	M	77.6
Engineers - mining	M	77.4
Engineers - electrical	M	75.2
Engineers - civil	M	75.0
Architects	M	73.2
Class 2		
Statisticians	F	72.9
Engineers - mechanical	M	72.6
Professors	M	72.0
Stock and Bond Brokers	M	70.9
Veterinarians	M	69.8
Business Service Officers	M	69.5
Statisticians	M	68.8
Mining Managers	M	67.9
Finance Managers	M.	67.7
Osteopaths and Chiropractors	M	67.3
Dietitians	F	67.0
Professors	F	66.7
Chemists and Metallurgists	M	65.8
Officers - armed forces	M	65.1
Air Pilots	M	65.0
Chemists and Metallurgists	F	64.8
Agricultural Professionals	M	64.8
Electricity - gas and water officials	M	64.7
Other Professions - hockey players	M	64.0
Construction Managers	M	63.8
Wholesale Trade Managers	M	63.5
Librarians	F	63.4
Authors, Editors and Journalists	M	63.4

OCCUPATION	SEX	SCORE
Manufacturing Managers	M	63.0
Community Service Workers	M	62.4
Social Welfare Workers	F	62.2
Osteopaths and Chiropractors	F	62.2
School Teachers	M	62.2
Librarians	M	62.0
Accountants and Auditors	M	61.8
Authors, Editors and Journalists	F	61.4
Clergymen	M	61.0
Designers - clothing	M	60.6
Government Service Officials	M	60.6
Transportation Managers	M	60.1
Farmers	F	59.4
Community Service Workers	F	59.1
Dispatchers - train	M	58.5
Designers - cloth	F	58.2
Insurance Agents	M	58.2
Foreman - communication	M	58.1
Advertising Agents	M	58.0
Managers - N.E.S.[c]	M	57.7
School Teachers	F	57.6
Artists and Teachers of Art	M	57.6
Nurses - graduate	F	57.4
Real Estate Agents and Dealers	M	57.0
Social Welfare Workers	M	57.0
Retail Trade Managers	M	57.0
Class 3		
Actors and Models	F	56.9
Commercial Travellers	M	56.7
Advertising Agents	F	56.6
Forestry Managers	M	56.5
Artists - commercial	F	56.4
Radio Announcers	M	56.4
Laboratory Technicians - N.E.S.[c]	F	56.0
Artists - commercial	M	56.0
Draughtsmen	M	56.0
Brokers, Agents and Appraisers	M	56.0
Inspectors - communication	M	55.0
Artists and Teachers of Art	F	55.0
Surveyors	M	55.0
Recreation Service Officers	M	54.8
Purchasing Agents	M	54.8
Agents - ticket station	M	54.3
Laboratory Technicians - N.E.S.[c]	M	54.2
Stenographers and Typists	F	54.1
Conductors - railway	M	54.1
Radio Operators	M	54.0
Locomotive Engineers	M	54.0

OCCUPATION	SEX	SCORE
Photo-engravers	M	54.0
Music Teachers	M	53.7
Teachers - N.E.S.[c]	F	53.6
Office Appliance Operators	F	53.4
Teachers - N.E.S.[c]	M	53.4
Retail Trade Managers	F	53.3
Telegraph Operators	F	52.9
Foreman - mining	M	52.8
Window Decorators	F	52.3
Nurses - graduate	M	52.2
Actors	M	52.1
Stenographers	M	52.0
Class 4		
Bookkeepers and Cashiers	F	51.9
Forewomen - communication	F	51.8
Foremen - manufacturing	M	51.8
Photographers	M	51.8
Inspectors - construction	M	51.7
Window Decorators	M	51.6
Telegraph Operators	M	51.6
Petroleum Refiners	M	51.6
Toolmakers	M	51.6
Engravers - except Photo-engravers	M	51.4
Undertakers	M	51.3
Office Clerks	F	51.2
Locomotive Firemen	M	51.2
Bookkeepers and Cashiers	M	51.2
Brakemen - railway	M	51.1
Power Station Operators	M	51.0
Office Appliance Operators	M	51.0
Doctor and Dentist Attendants	F	50.8
Motion Picture Projectionists	M	50.8
Radio Repairmen	M	50.8
Captains, Mates and Pilots	M	50.7
Foremen - transportation	M	50.7
Foremen - commercial	M	50.6
Personal Service Officers	M	50.5
Class 5		
Pattern Makers	M	50.4
Compositors	M	50.4
Inspectors - metal	M	50.4
Paper Makers	M	50.4
Photographers	F	50.2
Policemen	M	50.2
Office Clerks	M	50.2
Mechanics - airplane	M	50.1

OCCUPATION	SEX	SCORE
Inspectors - metal products	F	50.0
Music Teachers	F	50.0
Firemen - fire department	M	49.8
Pressmen and Plate Printers	M	49.8
Telephone Operators	F	49.6
Electricians	M	49.6
Machinists - metal	M	49.6
Linemen and Servicemen	M	49.4
Engineering Officers - on ships	M	49.4
Baggage Men	M	49.4
Transportation Inspectors	M	49.4
Rolling Millmen	M	49.4
Auctioneers	M	49.3
Inspectors and Graders	M	49.2
Farmers	M	49.2
Photographic Occupations - N.E.S.[c]	M	49.2
Collectors	M	49.1
Dental Mechanics	M	49.1
Sulphite Cookers	M	49.0
Wire Drawers	M	46.9
Other Ranks - armed forces	M/F	46.8
Electroplaters	M	46.8
Plumbers	M	46.8
Motormen	M	46.7
Quarriers	M	46.6
Machine Operators - metal	M	46.5
Paint Makers	M	46.4
Filers	M	46.4
Upholsterers	M	46.3
Knitters	M	46.3
Wood Inspectors	M	46.3
Barbers	F	46.2
Milliners	F	46.2
Tobacco Products Workers	F	46.2
Furnacemen	M	46.2
Furriers	M	46.2
Brothers - religious	M	46.1
Paper Box Makers	M	46.1
Other Bookbinding Workers - N.E.S.[c]	F	46.0
Coremakers	M	46.0
Vulcanizers	M	46.0
Liquor and Beverage Workers	M	46.0
Postmen	M	45.9
Meat Canners	F	45.9
Other Upholstering Workers - N.E.S.[c]	F	45.8
Bookbinders	F	45.8
Transportation, Storage, Communication Workers	F	45.8
Polishers - metal	M	45.8
Furriers	F	45.6
Structural Iron Workers	M	45.6
Mechanics - motor	M	45.6

OCCUPATION	SEX	SCORE
Textile Inspectors	M	45.6
Cabinet and Furniture Makers	M	45.5
Loom Fixers	M	45.5
Weavers - textile	F	45.4
Butchers	M	45.4
Miners	M	45.4
Assemblers - electrical equipment	F	48.9
Operators - electrical street railway	M	48.8
Stationary Engineers	M	48.7
Bookbinders	M	48.6
Tire and Tube Builders	F	48.4
Canvassers	M	48.2
Telephone Operators	M	48.2
Switchmen and Signalmen	M	48.2
Opticians	M	48.2
Jewellers and Watchmakers	M	48.2
Personal Service Workers	F	48.1
Assemblers - electrical equipment	M	48.1
Tire and Tube Builders	M	48.1
Millwrights - repairs machinery in mills	M	48.0
Religious Workers - N.E.S.[c]	M	48.0
Fitters - metal	F	47.9
Milliners	M	47.8
Construction Foremen	M	47.7
Opticians	F	47.6
Bus Drivers and Taxi	M	47.6
Heat Treaters	M	47.6
Religious Workers - N.E.S.[c]	F	47.5
Photographic Workers - N.E.S.[c]	F	47.4
Machine Operators - metal	F	47.4
Boilermakers	M	47.3
Jewellers and Watchmakers	F	47.2
Other Bookbinding Workers - N.E.S.[c]	M	47.2
Sales Clerks	M	47.2
Hoistmen - cranemen	M	47.2
Welders - general trade	M	47.2
Mechanics - N.E.S.[c]	M	47.2
Mechanics - railroad	M	47.2
Fitters - metal	M	47.2
Cutters - textile goods	M	47.2
Millmen	M	47.2
Wire Drawers	F	47.1
Core Makers	F	47.1
Riggers	M	47.1
Sheetmetal Workers	M	47.1
Shipping Clerks	M	47.0
Logging Foremen	M	45.4
Labellers	M	45.3
Nurses in training	F	45.2
Meat Canners	M	45.2
Farm Managers	M	45.2

OCCUPATION	SEX	SCORE
Plasterers	M	45.2
Textile Inspectors	M	45.1
Other Pulp and Paper Workers	F	45.1
Class 6		
Winders and Warpers	F	45.0
Carders and Drawing Frame Workers	F	45.0
Sales Clerks	F	45.0
Moulders - metal	M	45.0
Nurses - practical	M	45.0
Cutters - textile goods	F	44.9
Elevator Tenders	F	44.8
Tailoresses	F	44.8
Textile Inspectors	F	44.8
Potmen	M	44.8
Timbermen	M	44.7
Prospectors	M.	44.7
Oilers - power plant	M	44.7
Liquor and Beverage Workers	F	44.6
Paper Box Makers	F	44.6
Kiln Burners	M	44.6
Brick and Stone Masons	M	44.6
Construction Machine Operators	M	44.5
Canvassers	F	44.4
Service Station Attendants	M	44.4
Painters and Decorators	M	44.4
Hat and Cap Makers	M	44.4
Bleachers and Dyers	M	44.4
Spinners and Twisters	F	44.3
Rubber Shoe Makers	F	44.2
Porters	M	44.2
Tobacco Products Workers	M	44.2
Millers	M	44.2
Nurses - practical	F	44.1
Finishers - textile	F	44.0
Blacksmiths	M	44.0
Tailors	M	44.0
Bakers	M	43.8
Weavers	M	43.8
Rubber Shoe Makers	M	43.8
Labellers	F	43.7
Other Personal Service Workers	F	43.6
Barbers	M	43.6
Truck Drivers	M	43.6
Packers and Wrapers	M	43.6
Finishers - textile	M	43.6
Finishers - wood	M	43.6
Tanners	M	43.6
Hat and Cap Makers	F	43.5
Cutters - leather	M	43.5
Commercial Packers and Wrappers	F	43.4

OCCUPATION	SEX	SCORE
Teamsters	M	43.4
Stone Cutters	M	43.4
Riveters and Rivet Heaters	M	43.4
Butter and Cheese Makers	M	43.3
Chauffeurs	M	43.3
Boiler Firemen	M	43.3
Spinners	M	43.3
Inspectors - N.E.S.[c] graders	F	43.2
Postmen	F	43.2
Waiters	M	43.2
Carpenters	M	43.2
Sewers and Sewing Machine Operators	M	43.2
Forest Rangers	M	43.2
Lock Keepers - canalmen	M	43.1
Wood Turners	M	43.1
Labourers - mines and quarries	M	43.1
Sewers and Sewing Machine Operators	F	43.0
Brick and Stone Masons	M	43.0
Textile Inspectors	F	42.8
Machine Operators - boot and shoe	F	42.8
Knitters	F	42.8
Guards - commissionaires	M	42.8
Winders, Warpers, Reelers	M	42.8
Glove Makers	M	42.7
Cutters - leather	F	42.6
Elevator Tenders	M	42.5
Bakers	F	42.4
Machine Operators - boot and shoe	M	42.4
Launderers	M	42.4
Firemen - on ships	M	42.4
Cement and Concrete Finishers	M	42.4
Dressmakers and Seamstresses	F	42.3
Carders and Drawing Frame Tenders	M	42.3
Box and Basket Makers	F	42.2
Coopers	M	42.2
Sailors	M	42.1
Harness and Saddle Makers	M	42.0
Sisters - religious	F	41.8
Class 7		
Cooks	M	41.8
Janitors	M	41.6
Laundresses, Cleaners and Dryers	F	41.4
Sectionmen and Trackmen	M	41.4
Charworkers and Cleaners	M	41.3
Paper Box, Bag and Envelope Makers	M	41.3
Sawyers	M	41.2
Longshoremen	M	41.2
Waitresses	F	41.2

OCCUPATION	SEX	SCORE
Glove Makers	F	41.2
Labourers	M	40.8
Cooks	F	40.5
Messengers	M	40.2
Shoemakers	M	40.2
Ushers	M	40.1
Janitors	F	40.0
Hawkers	M	39.3
Housekeepers and Matrons	F	38.9
Hotel, Cafe and Household Workers	M	38.8
Newsboys	M	38.7
Guides	M	37.8
Hotel, Cafe and Household Workers	F	37.8
Farm Labourers	M	37.5
Lumbermen	M	37.4
Charworkers and Cleaners	F	37.4
Fishermen	M	36.9
Bootblacks	M	36.8
Fish Canners, Curers and Packers	M	36.2
Fish Canners, Curers and Packers	F	36.0
Hunters and Trappers	M	32.0

[a]Canada, Dominion Bureau of Statistics, Census of Canada, V, Table 21 and IV, Table 2 (Ottawa, 1953); Canada, Department of Internal Revenue and Taxation Statistics, 1951 (Ottawa, 1953); additional information supplied by D.B.S. Census Analysis Section.

[b]The mean of the scores is 50; the standard deviation is 10 calculated separately for each sex.

[c]N.E.S. — not elsewhere specified.

APPENDIX G

TEST OF DIFFERENCE BETWEEN MEANS
T-TEST

The formula used in testing the difference between the means of the criterion variable and the predictor variables for high and low academic self-concept subjects was the t-test for the significance of difference between the means of independent samples,

$$t = \frac{\bar{x}_{.1} - \bar{x}_{.2}}{\sqrt{\frac{(n_1 - 1)\hat{s}_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

where $\bar{x}_1$ and $\bar{x}_2$ are the means of the samples from population 1 and 2 respectively, s_1^2 and s_1^2 are the unbiased estimates from samples 1 and 2 of the common population variance (σ_x^2) and n_1 and n_2 are the sizes of samples 1 and 2.[1]

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[1] Gene V. Glass and Julian C. Stanley, Statistical Methods in Education and Psychology (New Jersey: Prentice-Hall, Inc., 1970), pp. 295-297.

APPENDIX H

COMPUTATIONAL FORMULA FOR CALCULATING CORRELATION COEFFICIENT

The formula used in calculating the correlation coefficient between the criterion variable and each of the predictor variables was the computation formula which gives the Pearson product moment correlation coefficient

$$r_{xy} = \frac{n\Sigma x_i y_1 - (\Sigma x_i)(\Sigma y_1)/n}{\sqrt{[\Sigma x_i^2 - (\Sigma x_i)2/n][\Sigma y_1^2 - (\Sigma y_1)2/n]}}$$

where n is the number of paired observations of x and y and x in each case is the criterion variable and y in each case is one of the predictor variables under study.[1]

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[1] Glass and Stanley, op. cit., pp. 113-114.

APPENDIX I

TEST OF SIGNIFICANCE OF CORRELATIONS
T-TEST

The formula used in testing the significance of the correlation obtained between the criterion variable and each of the predictor variables was the following t-test.

$$t = \frac{r_{xy}}{\sqrt{(1 - r_{xy}^2)/n - 2}}$$

where r_{xy} is the product-moment correlation coefficient between variables x and y, and n is the number of paired observations of the criterion variable x and the predictor variable y.[1]

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[1] Glass and Stanley, op. cit., pp. 308-310.