

SELF-CONCEPT AND HOME ENVIRONMENT AS THEY  
RELATE TO ACADEMIC ACHIEVEMENT OF FIFTH  
GRADE STUDENTS IN ST. JOHN'S, NEWFOUNDLAND

CENTRE FOR NEWFOUNDLAND STUDIES

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**SELF-CONCEPT AND HOME ENVIRONMENT  
AS THEY RELATE TO ACADEMIC ACHIEVEMENT  
OF FIFTH GRADE STUDENTS IN ST. JOHN'S, NEWFOUNDLAND**

by

©John Edward Murrin, B.Sc., B.Ed.

**A Thesis Submitted to the School of Graduate Studies  
in Partial Fulfillment of the Requirements for the Degree  
of Master of Education**

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## ABSTRACT

This study was concerned with the identification and examination of two out-of-school variables, self-concept and home environment, that relate to academic achievement, a topic of much debate in the province of Newfoundland.

Self-concept was considered to be multifaceted and hierarchical for the purpose of this study, and was measured by the Self-Description Questionnaire (SDQ). The home environment was considered in terms of the educational environment that exists there, and was measured by an interview schedule modified from that first presented by Dave (1963). Academic achievement was determined by the standardized scores derived from end-of-year teacher-made tests in language arts and mathematics.

A total of 44 grade V students who attended an elementary school in St John's during the 1986-87 school year were involved in the study. The corresponding teacher and parent(s) also completed the SDQ. They were instructed to complete this questionnaire as if they were the child in question. Parent(s) were also interviewed to provide information about the educational environment that existed in the home.

A total of seven hypotheses and six questions were examined in this study. Six of the hypotheses were supported by the findings presented.

The Index of Educational Environment (I.E.E.), which was defined as a measure of the educational environment that exists in the home, was correlated with academic achievement, explaining anywhere from 50 to 57 percent of the variance. Dave's (1963) study suggested that approximately 64 per cent of the variance in academic achievement could be explained by the educational environment in the home. Correlations between academic achievement and the

I.E.E. were found to be lower than those between academic achievement and each of Social Class, combined parent's occupation, and combined parent's education. This finding, opposite to that hypothesized, indicates that sociological status characteristics were more important in determining students' academic achievement than was I.E.E. Using multiple regression analysis, the second hypothesis was accepted as the results showed that academic achievement would be predicted to a greater extent when I.E.E. was combined with sociological status characteristics. The third hypothesis was also supported and clearly showed that students' total academic achievement correlated significantly higher with students' academic self-concept than with nonacademic self-concept. Hypothesis four was only partially supported since the correlation of nonacademic self-concept with achievement was raised significantly when I.E.E. was added, however, addition of the I.E.E. did not significantly increase the already high correlation between academic self-concept and achievement. Correlations calculated between achievement in language arts and mathematics and self-concepts in these subjects supported Hypothesis five as the correlations, for both boys and girls, were significantly greater than zero at the 0.01 level. The testing of Hypotheses six and seven, which received only partial support, demonstrated that teachers and parents were able to infer quite well with the self-concepts of students in language arts, in mathematics, and in all school subjects. However, they were less able to predict students' self-concepts in nonacademic areas which suggested that self-concept is derived from objective reality. Thus, self-concept is the result rather than the cause of achievement.

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## CHAPTER 1

### INTRODUCTION

#### Statement of the Problem

Much of the criticism surrounding education in the province of Newfoundland has centered around the inability of schools to provide students with the skills deemed necessary for either remunerative employment or post-secondary education. A large percentage of students leave school before graduation, some obtaining only minimal skills before they drop out. For those students who do not drop out, overall achievement (at least at the elementary level using standardized tests) is said to be low when compared to Canada as a whole (Fagan, 1985). In general, most critics of the Newfoundland school system sketch the view that a large percentage of students underachieve, compared to their Canadian counterparts.

The most recent criticism of the educational system in Newfoundland comes from the Royal Commission on Employment and Unemployment (1986). One of the background studies for this Commission focused on education and was titled Education for Self-Reliance (1986). Here, it was pointed out that "Newfoundland's poor educational attainment levels reflect in part the failure of the school system to entice students to stay in school" (p. 63). This statement is supported by data presented regarding the rate of graduation and the level of education of the population.

Education for Self-Reliance presents 1985 data pointing out that 30 per cent of the labour force had less than grade nine education. This compares to the Canadian average of 19 per cent (p. 48). The Commission labelled this portion

of the population functionally illiterate.

The second measure used by the Royal Commission to demonstrate the low levels of education obtained by Newfoundland students was the dropout rate. They present two sets of data. The Leaving Early study (1984, p. 5) put the dropout rate at 33 per cent for the cohort born in 1963 (43 per cent, if students who left with an incomplete grade eleven or who transferred to another educational agency are included). The Commission cites also comparable data from the provincial Department of Education indicating that the number of students graduating from grade twelve in 1985 was 54 per cent of the number starting grade one in 1973 (Education for Self-Reliance, 1986, p. 64). Even though these dropout rates are still relatively large (relative to other Canadian Provinces), they have shown a favorable and somewhat modest improvement over previous years. The retention rate, however, seems to have levelled off over the past few years. On a somewhat more positive note, there is a decline in the per cent of the population termed functionally illiterate. However, the Royal Commission points out that the rate of improvement is only the same as Canada as a whole. In other words, "the gap between Newfoundland and the rest of Canada has remained constant" (Education for Self-Reliance, 1986, p. 48).

The implications for such underachievement are far reaching. At the macro level, poor education levels are said to hinder economic development (p. 44), while at the micro level, specifically at the school board level, as long as students decide to leave school early, school boards will become increasingly hard-pressed for financial support.

While this is not a study on dropouts, much can be learned from those who have dropped out. Invariably, studies on dropouts have identified the major reason for dropping out as academic failure.

Bloom (1976) points out that the ability to learn a given task depends upon the success in learning the previous, related task. He gives overwhelming evidence that achievement, particularly in the early years, gives one the prerequisite skills, along with the accompanying motivation, to master subsequent learning.

Educators must keep a careful eye on the achievement of all their students. Failure and underachievement should serve as indicators and prompt educators to look for the source of the problem. This study will examine two factors that may help educators explain why some students underachieve. More specifically, this study is an attempt to examine the effects of the home environment and self-concept upon achievement. Although these variables have explained a large proportion of the variance in achievement in the past, there is no school board in this province that systematically examines the home environment of students. Furthermore, as far as the researcher is aware, only one school board in Newfoundland has utilized previous studies regarding self-concept and have implemented self-concept enhancing classes in some of its schools.

### **Purpose of the Study**

Most of the literature on self-concept and academic achievement attempts to define the relation between the two variables. Hansford and Hattie (1982, p. 138) in a meta-analysis studying the relationship between self-concept and achievement have demonstrated rather diverse findings and found correlations ranging between -0.77 and 0.96. The typical value was in the area of 0.20 to 0.26. The amount of variance in common between self-concept and academic achievement was between 0.04 and 0.07.

Recent researchers believe that there are other variables that could strengthen the relation between self-concept and achievement. Shavelson and Bolus (1982) and Marjoribanks (1979) claim that environmental variables would strengthen the relation between self-concept and achievement. This will be tested in Hypothesis Four.

The environmental variables used in this study are those relating to the home, as proposed by Dave (1963). In this study, the home environment was seen as being composed of the family structure, sociological status characteristics, and the educational environment in the home. Dave viewed the latter as being the most important of the three.

While the hypotheses presented later will define more specifically the exact relationships this study explores, the purpose is to examine the relations that exist among self-concept, the educational environment in the home, and academic achievement. The work by Dave, as mentioned in the preceding paragraph, provides the conceptual framework for the educational environment of the home, while previous work conducted by Marsh (1984), Shavelson and Bolus (1982), and others, is used to develop the conceptual framework for self-concept.

### Assumptions

The main assumptions of this investigation are the following:

1. The educational environment in the home is one component of the total environment.
2. The home is a major influence on the development of the child.
3. The child interacts with the educational environment in the home.
4. Self-concept is multidimensional in nature.

5. The dimensions of self-concept are hierarchically arranged.
6. Teachers know their students, and parents know their children well enough to rate their self-concept using the Self-Description Questionnaire.

#### **Delimitations**

The main delimitations of this study are as follows:

1. It dealt with only grade five students.
2. All pupils attended a Roman Catholic School.
3. All students attended the same school.
4. Information on Language Arts and Mathematics was obtained from the students' final mark (i.e., the June mark) in each subject, not from standardized tests.

#### **Limitations**

1. There exists the possibility of rating bias by the students, teachers, and parents in completing the Self-Description Questionnaire as there is a natural tendency to complete the items of the questionnaire using very low scores or very high scores.
2. This study is limited in that parents may have had difficulty in answering some of the personal questions in the interview schedule.

#### **Operational Definition of Terms**

##### **Total Nonacademic Self-Concept**

Total nonacademic self-concept is defined numerically by the sum of the four scores for self-concept in (a) physical abilities/sports, (b) physical appearance,

(c) relationship with peers, and (d) relationship with parents. There are eight questions on the Self-Description Questionnaire (Appendix E) to represent each of the four dimensions of total nonacademic self-concept. Since each question is rated on a five-point scale (see Chapter 3), each of the four dimensions can range from 8 to 40, and total nonacademic self-concept from a low of 32 to a high of 160.

#### Physical Abilities/Sports

Students rate their ability and enjoyment of physical activity, sports, and games. Self-concept in this area is obtained from the sum of the responses to questions 3, 10, 22, 28, 35, 42, 48, and 55 in the Self-Description Questionnaire (see Appendix E).

#### Physical Appearance

Students rate their own attractiveness, how their appearance compares with others, and how they think they look. A single score for physical appearance is obtained from the sum of the responses to questions 1, 8, 14, 20, 33, 40, 46, and 53 in the Self-Description Questionnaire.

#### Relationship with Peers

Students rate how easy they make friends, their popularity, and whether others want them as a friend. Self-concept in this area is obtained from a sum of the responses to questions 7, 13, 19, 26, 32, 39, 52, and 59 in the Self-Description Questionnaire.



### Relationship with Parents

Students rate how well they get along with their parents, whether parents are easy to talk to, and whether they like their parents. A single score for self-concept in this nonacademic area is obtained from the sum of the responses to questions 5, 17, 24, 30, 37, 44, 50, and 57.

### Total Academic Self-Concept

Total academic self-concept is defined as the score of the three scores for self-concept in (a) language arts, (b) mathematics, and (c) school subjects. There are ten questions on the Self-Description Questionnaire (Appendix E) to represent each of the three dimensions of total academic self-concept. Since each question is rated on a five-point scale (see Chapter 3), each of the three dimensions can range from 10 to 50, and total academic self-concept from a low of 30 to a high of 150.

### Language Arts

Students rate their ability and enjoyment/interest in language arts as represented by questions 4, 11, 16, 23, 29, 36, 43, 49, 56, and 61 in the Self-Description Questionnaire.

### Mathematics

Students rate their ability and their enjoyment/interest in mathematics. A single score for self-concept in mathematics is obtained by the sum of the responses to questions 6, 12, 18, 25, 31, 38, 45, 51, 58, and 62 in the Self-Description Questionnaire.

### School Subjects

Students rate their ability and enjoyment/interest in all school subjects in grade V. A single indicator for this broader dimension of academic self-concept is obtained by the sum of the responses for questions 2, 9, 15, 21, 27, 34, 41, 47, 54 and 60 in the Self-Description Questionnaire.

### Total Self-Concept

Total self-concept is the sum of the responses given for total nonacademic and academic self-concept. This numerical value can range from 62 to 310.

### Home Environment

Home environment is regarded as a subset of the total or global environment to which a child is exposed. The three dimensions of the home environment, as defined by Dave (1963), are family structure, sociological status characteristics, and the educational environment in the home.

### Educational Environment in the Home

Educational environment in the home is regarded as a specific component of the total home environment. It is composed of a specific subset of conditions and processes (see Table 1) that are related to the educational achievement of the child, out of the total set of conditions and processes that constitute the home environment (Dave, 1963, p. 16).

### Index of Educational Environment (I.E.E.)

Index of Educational Environment is a single indicator of the educational environment in the home. Responses to the questions to measure the educational

environment in the home are rated according to a nine-point scale (see Appendix D). The sum of these nine-point ratings constitute the Index of Educational Environment which can range from 11 to 99.

#### Family Structure

This is defined by the birth order of a child in his or her family and the number of brothers and/or sisters living at home. This data is obtained from questions 2(b) and 4 in the Information Blank (Appendix F).

#### Sociological Status Characteristics

Sociological status characteristics include the following variables: father's occupation, mother's occupation, father's education, mother's education, source of income, house type, and dwelling area. These seven status characteristics are divided into three status measures: (a) Index of social class (I.S.C.), (b) combined rating of parents' occupation, and (c) combined rating of parents' education. A numerical value was assigned to each of the status measures by rating the responses (see Appendices G and H) given to questions 5, 6, and 7 on the Information Blank (Appendix F).

#### Academic Achievement in Mathematics

Academic Achievement in mathematics is derived from end-of-year teacher-made tests. While it is not the policy of the St. John's Roman Catholic School Board to release students' numerical grades in these tests, the researcher was provided with students' letter grades while protecting the identity of the students. Lists containing students' letter grades did not contain names.

For each of the three grade V classes, letter grades in mathematics were provided. Each letter grade corresponded to a range of values as defined by the co-operating school. The letter grade "A" corresponded to a numerical value between 90 and 100. Similarly, the letter grades of B+, B, C, and D ranged from 80 to 89, 70 to 79, 60 to 69, and 50 to 59 respectively. A "F" represented numerical scores below 50. The standard deviation and mean for each of the three grade V classes was calculated by assigning a numerical value to each letter grade. The researcher used 95, 85, 75, 65, 55, and 45 to represent A, B+, B, C, D, and F respectively. The researcher obtained a student's marks by asking the parents if he could see the child's report card at the time of the interview. These forty-four marks were then standardized (to have a mean of 0 and a standard deviation of 1.0) by using the mean and standard deviation of each child's particular class.

#### Academic Achievement in Language Arts

In the same manner in which standardized scores were obtained in mathematics, academic achievement in language arts was derived from end-of-year teacher made tests that were standardized to have a mean of 0 and a standard deviation of 1.0.

#### Total Academic Achievement

Academic achievement in mathematics is added to academic achievement in language arts to constitute each student's total academic achievement.

## Research Hypotheses and Questions

### Research Hypotheses

Based upon the information relating to self-concept and the home environment in Chapter 2, several hypotheses were tested.

1. Students' scores on the Index of Educational Environment will be more highly related to their academic achievement than will their sociological status characteristics.
2. Students' academic achievement can be predicted to a greater extent when the Index of Educational Environment is combined with their sociological status characteristics.
3. Students' total academic achievement will be more highly correlated with their academic self-concept than with their nonacademic self-concept.
4. Students' total academic achievement will be predicted to a greater extent when their self-concept is combined with their Index of Educational Environment.
5. Students' self-concept in a specific subject will be positively correlated with their achievement in that particular subject.
6. There will be positive student-teacher agreement on all the self-concept dimensions.
7. There will be positive student-parent agreement on all the self-concept dimensions.

### Research Questions

In addition to testing the hypotheses, this study attempts to find answers to the following questions.

1. How are the ratings on the environmental process variables related to specific-subject achievement in mathematics and language arts?
2. How are the ratings on the environmental process variables related to students' academic and nonacademic self-concept?
3. Is there any relationship between the family structure variables of birth order and number of brothers and sisters living at home, and the Index of Educational Environment and academic achievement?
4. Is there any relationship between the family structure variables of birth order and number of brothers and sisters living at home, and academic and nonacademic self-concept?

### **Organization of the Thesis**

This introductory chapter has provided the background to the study by stating the problem, and the general purpose of this project. In addition, the assumptions used and the limitations of the study were stated along with the definition of terms. Finally, the research hypotheses and questions gave specific directions of the study. In Chapter 2, the review of the related literature forms the basis of the conceptual framework for self-concept and the home environment. Also, in Chapter 2 is a model relating the variables to be used in this study.

Chapter 3 gives detail to the instruments used, how and from whom the data were collected, and how they were analyzed. The actual analysis of the data is carried out in the fourth chapter while Chapter 5 provides a summary, states the conclusions, and provides recommendations based upon the results.

## CHAPTER 2

### REVIEW OF RELATED LITERATURE

Literature pertaining to self-concept and home environment was reviewed for this study and is presented in the following manner.

Self-concept is first discussed by presenting the historical developments that have led to the proposed conceptual framework for self-concept. Self-concept is then discussed in terms of academic achievement, and finally, the proposed hypotheses relating to self-concept are presented along with previous research and findings.

Home environment is discussed in a somewhat similar fashion. Dave's theory and its antecedents are discussed. Then the research findings justifying the use of the related hypotheses are presented.

#### Self Concept

##### Historical Developments Leading to the Proposed

##### Conceptual Framework

One of the oldest areas of research in the social sciences is undoubtedly that of the study of self-concept. Work in this area dates back as far as the late 19th century. Early philosophers and psychologists of this era, Pierce (1868), James (1890), and Baldwin (1897), viewed self-concept from the "Symbolic Interactionism" point of view in their emphasis on the self as a product and reflection of social life. Like any concept with a long history, however, self-concept is apt to change, and today it is seen as a multifaceted, hierarchical structure. This view is held by Shavelson, Hubner, and Stanton (1976), Marsh (1984), Shavelson and Bolus (1982), and others. Self-concept has been described

from many points of view. Despite, however, the diversity of past approaches, the main strain in all those works on self-concept is its recognition as a valued outcome.

As stated in the foregoing, the first theory to explain self-concept is symbolic interactionism. If one were asked how he knows he possesses certain traits, a typical answer, from this standpoint, would be that he learned about them from other people. The analogy to this theory is the "looking glass self" as proposed by Cooley (1902), generally cited as the first interactionist. One's self-concept is a reflection of one's perceptions about how one appears to others. The self is seen as being inseparable from social life and necessarily involves some reference to others. This process of social reference results in the looking glass self.

A self idea of this sort seems to have three principal elements: the imagination of our appearance to the other person, the imagination of his judgement of that appearance, and some sort of self-feeling, such as pride or mortification. (Cooley, 1902, p. 152)

Our concepts of self, originating from early childhood, develop from seeing how others respond to us. Cooley (1902) states, "In the presence of one whom we feel to be of importance, there is a tendency to enter into and adopt, by sympathy, his judgement of ourself" (p. 133).

The major theorist of symbolic interactionism was Mead (1934). He expanded on the view held by Cooley of the self as a product of social interaction.

The individual experiences himself as such, not directly, but only indirectly, from the particular standpoints of other individuals of the same social group, or from the generalized standpoint of the social group as a whole to which he belongs. (p. 175)

Mead's looking glass self is reflective not only of significant others, as Cooley indicated, but of a generalized other, that is, one's whole sociocultural environment. Kinch (1963) summarized and systematized the symbolic



interactionist theory by noting that it involves an interrelation of four components: our self-concept, our perceptions of others' attitudes and responses to us, the actual attitudes and responses of others to us, and our behavior.

The looking glass concept, as being a reflection of significant others, focuses on the proposition that an individual's self-perceptions are highly congruent with the way that individual sees himself or herself as being perceived by others. Many studies have been conducted to find evidence for this and, overall, have shown modest to strong correlations between individuals' perceptions of themselves and the way others perceive them. Miyamoto and Dornbusch (1956) using personality traits as the assessment dimension, and peers and generalized others as significant others, found supporting results for the congruence between self and perceived others' evaluations. Quarantelli and Cooper (1966), and Reeder, Donahue, and Biblorz (1960) conducted studies with similar results.

In addition to assuming agreement between self-evaluation and the perceived evaluations of significant others, Mead proposed that self-concept is reflective of the perceived evaluation of a generalized other. There are relatively few studies that have examined this aspect of symbolic interactionism. Miyamoto and Dornbusch (1956), Quarantelli and Cooper (1966), and Reeder et al. (1960), did, however, show evidence that individuals' self-perceptions are similar to their perceptions of how they are viewed by others in general. The evidence, though, on whether self-perceptions are more strongly related to the perceived impressions of specific others, or to the perceived impressions of the generalized other, is contradictory.

The issue of accuracy in perceiving others' opinions has also been examined. This has been done by considering the relationship between individuals' perceptions of others' view of them and others' actual views. Studies performed

by Ausubel (1955), Fey (1950), and Kelman and Parloff (1957) have demonstrated no association between these two areas. Most of the studies that did show congruence involved judgments of highly evaluative characteristics such as liking by the other person. Hence, these studies show nothing more, according to Taguiri et al. (1953), than that people seem to be better able to predict who likes them best as opposed to who likes them least.

Much of the literature discussed thus far views one's self-concept as being highly correlated with the self-perception by significant others, which is one's view of the perception significant others hold for that individual. The symbolic interactionist perspective argues that the perceived perceptions of others causally determine one's own self-concept. Marsh, Smith, and Barnes (1983, p. 334) argue that self-reports and reports by others are phenomenologically distinct and agree only when the observer knows the person well, observes a wide range of behaviours, is able to make skilful perceptions, and uses the same frame of reference informing judgments as the person being observed.

Despite the controversy that exists in the literature surrounding "significant others", many theorists, through the refinement of the symbolic interactionism theory, have relied heavily upon it in explaining self-concept. More particularly, Brookover et al. (1967) reviewed the related literature from 1962 to 1967 in an attempt to define self-concept as it relates to achievement in schools. In other words, Brookover and his associates were interested in one such behaviour, the learning behaviour in the classroom situation, which is one component of the hierarchical structure of self-concept as proposed by Shavelson, Hubner, and Stanton (1976). In his thesis entitled "Self-Concept of Ability and School Achievement of Seventh Grade Students in Newfoundland: A Symbolic Interactionist Approach", Singh (1972) drew heavily upon the work of Brookover

in the formation of his conceptual framework. The basic propositions of Brookover's theory state:

A student's self-concept of academic ability results from his perceptions of the evaluations significant others hold of his ability. The student's self-concept of academic ability in turn functions to limit the level of academic achievement attempted. Self-concept of academic ability is therefore hypothesized as an intervening variable between the expectations and evaluations of significant others and school achievement. The relationship of perceived evaluations of significant others to self-concept is conceptualized as a necessary and sufficient condition, i.e., a change in the perceived evaluation of others will be reflected in a change in self-concept. The relationship of self-concept of academic ability to academic achievement, on the other hand, is hypothesized as a necessary but not a sufficient condition for the occurrence of a particular level of academic performance. (Brookover, 1967, p. 140)

In a systematic test of the above theory, Brookover and his associates found that "parents and other family members are more likely than any other category to be 'significant others' for adolescents during the junior and senior high school years" (p. 93). Singh (1972) supported the findings by Brookover in the study between academic self-concept and reading achievement. Singh (1972) stated that "the major hypothesis that self-concept of academic ability is associated with school achievement was substantiated" (p. 108). Furthermore, with respect to significant others, Singh found that "parents were more often named as significant, both academically and generally, by seventh grade students in the present study" (p. 133). He also points out that "teachers were more often named in all the studies as academic significant others than as general significant others" (p. 133).

The framework of self-concept utilized in this study stems from the work by Shavelson et al. (1976). Basically, he expanded the work proposed by Brookover et al. (1967), and Singh (1972), by looking at self-concept as a hierarchical multifaceted system. Shavelson expanded on self-concept by including a nonacademic facet, in addition to the academic self-concept which Brookover et

al. (1967), and Singh (1972) proposed.

According to Shavelson et al. (1976, p. 411), self-concept is broadly defined as one's perception of oneself. These perceptions are formed through experiences with the environment and are influenced by environmental reinforcements and significant others. A distinction is made between self-concept and inferred self-concept. Inferred self-concept is "another's attribution of a person's self-concept" whereas self-concept, the basis for Shavelson's et al. model, is "inferred from a person's responses to situations" (p. 411).

There are seven features critical to the construct definition. Self-concept may be described as organized, multifaceted, hierarchical, stable, developmental, evaluative, and differentiable. Self-concept is organized or structured in such a way that people categorize the vast amount of information they have about themselves and relate the categories to one another. The second feature of self-concept is its multifaceted nature. The particular facets reflect the category system adopted by a particular individual and/or shared by a group. Self-concept is also hierarchical, with perceptions of behaviour at the base moving to inferences about self in sub-areas (e.g., academic-English, history), then to inferences about self in academic and nonacademic areas, and then to inferences about self in general. This hierarchical structure is shown in Figure 1. General self-concept is stable, but as one descends the hierarchy, it becomes increasingly situation specific and as a consequence, less stable. Self-concept becomes increasingly multifaceted as the individual develops from infancy to adulthood. The sixth dimension is its descriptive and evaluative component that allows individuals to describe themselves. Finally, self-concept can be differentiated from other constructs such as academic achievement (Shavelson et al., 1976, pp. 414-415).

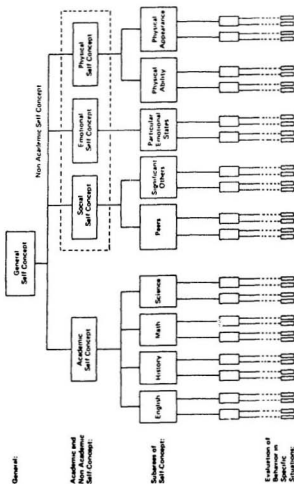


Figure 1: A Model Representing the Hierarchical Organization of Self-Concept.

Source: Shavelson et al. (1976, p. 413)

The self-concept facets, and the hypothesized structure as shown in Figure 1, seem logical and plausible, but the facets were not empirically validated by Shavelson et al. (1976). As a result, the model was opposed by Winne, Marx, and Taylor (1977), and Marx and Winne (1978) who discredited the multifaceted nature of self-concept. Both studies classified the scales from three commonly used self-concept instruments into academic, social, and physical facets. These facets are the same as the ones used in Shavelson's et al. (1976) model, which also contained an "emotional states" facet. The studies by Winne et al. (1977), and Marx and Winne (1978), were able to find that responses to each of the three facets demonstrated some agreement across instruments, but responses to the different scales could not be adequately differentiated. As a result, Winne et al. (1977) concluded that "... self-concept seems a more unitary construct rather than one broken down into distinct sub-parts or facets..." (p. 900). However, Shavelson and Bolus (1982) argued that there was insufficient justification for the classification of sub-scales into facets and reanalyzed the data by taking a single scale from each instrument to represent each of the three facets. By selecting scales that maximize agreement across instruments, they were able to demonstrate a modest difference in the responses to the different scales. Based upon this, Shavelson and Bolus (1982) state that "research on self-concept supports the multifaceted interpretation of self-concept" (p. 5). Other studies since then, especially those by Marsh, Parker, and Smith (1983), Marsh, Relich, and Smith (1983), and Marsh, Smith, and Barnes (1983), have found support for the multifaceted interpretation.

### Self-Concept and Academic Achievement

What is the causal relation between self-concept and academic achievement? This is a fundamental question and concern to educators that has not been clearly demonstrated in research. In the past, there have been only a few methodological demonstrations to show this important link.

It is argued by Pottebaum, Keith, and Ehly (1986) that many researchers merely assume that improvements in self-concept will cause improvements in academic achievement. They state that many studies involving self-concept and achievement have used designs that only show a single correlation between the two variables. These researchers point out that providing a significant correlation between the two constructs does not necessarily mean that self-concept is causally related to academic achievement. "Assuming that correlation implies causation is a well-known error in such methodology" (pp. 140-141).

In an attempt to determine the presence and direction of the causal relation between students' total or global self-concept and academic achievement, Pottebaum et al. (1986) conducted a study using 23,280 high school sophomores from 1,015 schools in the United States. The self-concept and academic achievement of these students were measured in the years 1980 and 1982, and a cross-lagged panel correlational technique between self-concept and achievement was used. This technique, which is not widely used, suggests that "there is no significant causal relation between self-concept and academic achievement, but rather that the observed relation is the result of one or more uncontrolled and unknown third variables" (Pottebaum et al., 1986, p. 142). Several explanations are provided by Pottebaum et al. (1986, pp. 142-143) as to why a significant causal relation was not found. First, self-concept and academic achievement may cause each other equally in a cyclical nature. Secondly, self-concept may cause

academic achievement (or vice versa) but the magnitude of the effect may be too small to be detected. Another possible explanation may have to do with some other variable that is causally predominant over both self-concept and academic achievement. Finally, Pottebaum et al. (1986) used high school sophomores and their total self-concepts in this study. A different pattern might emerge if younger children and/or students' academic self-concept were used rather than total self-concept.

On the other hand, Pottebaum et al. (1986) claim that their results are valid since the sample they used was large in comparison to other such analyses. Furthermore, their sample was nationally representative since it was randomly selected from 1,015 schools.

Byrne (1986), Newman (1984), and Shavelson and Bolus (1982) have also tested causal models of the relation between academic self-concept and achievement. The results from these studies may very well have to do with how academic achievement is measured. Byrne (1986) and Newman (1984) used standardized achievement tests as a measure of academic achievement while Shavelson and Bolus (1982) used school grades as a measure. Byrne (1986) and Newman (1984) concluded that academic self-concept did not have a causal influence on subsequent grades, whereas Shavelson and Bolus (1982) found the opposite. Marsh (1987) states:

This suggests that the causal influence of academic self-concept will be stronger on school grades than on standardized measures of academic ability, and it may explain why only Shavelson and Bolus found a causal influence of academic self-concept. (p. 281)

Marsh (1987, p. 292) offers two possible explanations for this finding. First, he suggests that school grades are affected by academic self-concept more so than standardized measures of achievement that may be less susceptible to change resulting from motivational influences. Secondly, one's past experience



may be an important factor. As Marsh (1987) states:

The effect of academic self-concept on subsequent school performance was in addition to the effects of previous school performances and a composite of academic ability tests and thus provides a more stringent test than one based on school performance alone. (p. 292)

From the researcher's point of view, it is difficult to determine the causal relation between self-concept (either academic or total) and academic achievement. However, studies involving self-concept and academic achievement should be carefully scrutinized using the arguments and thoughts presented in this section.

### Proposed Hypotheses Relating to Self-Concept and

#### Previous Findings

Out of the seven hypotheses proposed in Chapter 1, four have to do with some aspect of self-concept. The previous research findings that led to these four hypothesis on the dimensions of self-concept are presented in the following discussion.

#### Hypothesis Three

Students' total academic achievement will be more highly correlated with their academic self-concept than with their nonacademic self-concept.

There are relatively few studies that have tested the relationships between academic and nonacademic self-concept, and academic achievement. Most studies, especially those by Marsh and his colleagues, have concentrated on the relationships between students' self-concept in a specific subject and achievement in that subject. This is discussed in more detail in Hypothesis five.

Using two groups of Korean males ( $n = 537$  each) and two groups of Korean females ( $n = 611$  and  $612$ ) ranging in age between 14 and 15 years, Song and Hattie (1984) tested the relationships between each of academic self-concept, social self-concept, presentation of self, and academic achievement. For the two groups of males, a combined correlation of 0.91 was found between academic self-concept and academic achievement. For the same 1,074 males, correlations of 0.23 and 0.18 were reported between academic achievement and each of presentation of self and social self-concept respectively. Correlations of 0.60 and 0.70 were found between academic self-concept and academic achievement for the two groups of females. These correlations were higher than those between academic achievement and each of presentation of self (0.30 and 0.32) and social self-concept (0.25 and 0.21). As a result, Song and Hattie (1984) stated that "the relations between academic self-concept and academic achievement are much stronger than those between nonacademic self-concept and academic achievement" (p. 1276). Using a sample of 559 fifth grade students, Marsh, Smith and Barnes (1985) noted that academic achievement scores were uncorrelated with nonacademic self-concepts and positively correlated with academic self-concepts. Nonacademic self-concepts dimensions of physical abilities, appearance, peer relations and parent relations were negatively correlated with achievement in reading and math. These values ranged from -0.08 to -0.18. Self-concept in reading was positively correlated with achievement in reading ( $r = 0.43$ ) and achievement in math ( $r = 0.14$ ). The correlation between self-concept in math and achievement in math was 0.17, however, self-concept in math was negatively correlated with achievement in reading (Marsh, Smith, and Barnes, 1985, p. 589). Similar findings were presented by Marsh, Parker, and Smith (1983, p. 70) who found negative correlations ranging from 0.01 to -0.15 between nonacademic self-

concept dimensions and reading achievement. Positive correlations ranging between 0.20 to 0.57 was found between self-concept in reading and reading achievement. As a result, Marsh, Parker, and Smith (1983) concluded that "measures of academic ability tended to be uncorrelated with nonacademic self-concept sub-scales, and most highly correlated with the sub-scale to which it was most logically connected" (p. 70).

#### Hypothesis Five

Students' self-concept in a specific subject will be positively correlated with their achievement in that particular subject.

While hypothesis three suggests that academic achievement will be more highly correlated with students' academic self-concept than with their nonacademic self-concept, this hypothesis attempts to examine the exact relations that may exist between students' academic self-concept in language arts and mathematics and achievement in these areas. Hypothesis five is supported by the results of the studies performed by Marsh and his colleagues in their attempt to demonstrate construct validity for the self-concept model as first proposed by Shavelson et al. (1976).

In a 1983 study, Marsh, Relich, and Smith (1983, p. 184) demonstrated the finding while using fifth and sixth-grade students from Australia. The total sample used was 1,153 students, which consisted of 655 students who attended public schools, and 492 students who attended a private school. Mathematics achievement, for private school students, correlated most highly with self-concept in mathematics ( $r = 0.55$ ), followed by achievement in reading ( $r = 0.43$ ), and the self-concept in reading ( $r = 0.21$ ). Reading achievement, for public school students, correlated most with self-concept in reading ( $r = 0.22$ ), followed

by all school subjects ( $r = 0.18$ ), and then mathematical self-concept ( $r = 0.15$ ). In this study, reading achievement was measured by the Progressive Achievement Test, while mathematics achievement was measured by a combination of a test that contained only division problems, and the 45 items contained in the class achievement test in mathematics.

Marsh, Parker, and Smith (1983) also conducted a study to examine the construct validity of multi-dimensional self-concept. One of their findings showed that reading achievement scores tend to be more highly correlated with self-concept in reading than with self-concepts in mathematics and school subjects. Using three groups of students, Marsh, Parker, and Smith (1983, p. 69) reported correlations ranging from 0.20 to 0.57 between reading self-concept and reading achievement as measured by the Progressive Achievement Tests.

Positive correlations between students' self-concept in a specific subject, and achievement in that particular subject were also reported by Marsh, Smith, Barnes, and Butler (1983). Based upon the correlation coefficient produced for two groups of students, studied at two different time, it was concluded:

Reading ability measures are most highly correlated with self-concepts in Reading and in All School Subjects, but relatively uncorrelated with self-concepts in Mathematics. Mathematics ability measures are most highly correlated with self-concepts in Mathematics and All School Subjects, but relatively uncorrelated with self-concepts in Reading. (pp. 783-785)

This finding was supported by Marsh, Smith, and Barnes (1985, p. 589) when they produced correlation coefficients between self-concept in reading, mathematics, and school subjects with achievement in reading and mathematics derived from standardized test scores. Achievement in reading correlated most highly with self-concept in reading ( $r = 0.43$ ), followed by self-concept in mathematics ( $-0.03$ ), and then general school self-concept ( $r = -0.04$ ). The correlation coefficient for the relation between achievement in mathematics and

self-concept in mathematics was reported to be 0.17. Achievement in mathematics and self-concept in reading produced a correlation coefficient of 0.14 followed by a value of -0.02 for achievement in mathematics and general school self-concept.

#### Hypothesis Six

There will be a positive student-teacher agreement on all the self-concept dimensions.

#### Hypothesis Seven

There will be a positive parent-teacher agreement on all the self-concept dimensions.

In this study, self-concept is seen as a multifaceted and hierarchical structure as proposed by Shavelson et al. (1976). A numerical measure for self-concept was found by using the Self-Description Questionnaire as presented by Marsh, Parker, and Smith (1983, pp. 75-78). Several items in the questionnaire were modified for use in this study. The Self-Description Questionnaire measures 3 academic scales and 4 nonacademic areas. For a complete discussion of the Self-Description Questionnaire, see the section titled "Instrument for Self-Concept".

Hypotheses six and seven attempt to reproduce some of the results by Marsh and his colleagues, and to provide evidence for the construct validity of self-concept. According to Marsh, Smith, Barnes, and Butler (1983 p. 773), a "between-network" study can be performed to show construct validity whereby self-concept measures demonstrate a consistent and logical/theoretical pattern of relationships with other constructs. The perceptions of significant others are

often used as an external criterion and correlated with the students' perceived self-conception in order to demonstrate this consistent and logical pattern.

It is necessary, once again, to mention the manner in which symbolic interactionists view significant others. In general, they see the relationship between self-reports and rating of significant others as being of crucial importance. Marsh, Parker, and Smith (1983) expanded upon this by writing:

Self-reports and ratings by others are phenomenologically distinct and will agree only when the external observer knows the person well, observes a wide range of behaviours, has observed a broad enough sample of people to have an adequate frame of reference, and is able to make skilful perceptions. (p. 61)

Marsh went on to demonstrate that student self-concepts, as inferred by primary school teachers (who satisfy this criterion better than most external observers) on each of the seven self-description questionnaire dimensions, were significantly correlated with student ratings of their own self concepts in the same areas. Student-teacher agreement tended to be higher in academic areas, particularly in high socioeconomic status/ability schools where several correlations exceeded 0.70 (Marsh, Smith, Barnes, and Butler, 1983, p. 774). Marsh and his colleagues did not test student-parent agreement, however, the researcher believes that parents are significant others and meet most of the criteria as presented by Marsh, Parker, and Smith (1983).

Marsh, Smith and Barnes (1983) and Marsh, Parker, and Smith (1983) also demonstrated construct validity for self-concept by showing student-teacher agreement for the self-concept dimensions. Marsh, Smith and Barnes (1983) reported a "moderate student-teacher agreement on all the self-concept dimensions with the possible exception of the Relationship with Parents" (p. 345). Teachers are least likely to observe students in this area. Marsh, Parker, and Smith (1983) produced very similar results and concluded that "The pattern of

correlations among the different self-concept dimensions is generally consistent with a hierarchical organization of self-concept" (p. 68).

### **Home Environment**

#### **Conceptual Framework for the Home Environment**

While a case has been made in the foregoing that a positive correlation exists between self-concept and achievement, this study will examine one other variable, that being the home environment. More specifically, the home environment will be considered in terms of the "educational environment" that exists in the home. The research carried out by Dave (1963) is heavily relied upon in the formation of the conceptual framework for the home environment. The home environment is seen as one subset of the total environment in which one lives. Dave (1963) points out:

The educational achievement of the child is a product of a variety of factors and forces such as experience, motivation, intelligence, and the like. It appears from the study of pertinent theories and research findings that most of these factors are affected by the conditions of the child's environment. (p. 2)

The environment is seen as producing:

A multilateral influence on the educational development of the child. It influences his academic achievement directly by determining the kind and quality of his educational experiences. It also influences the child's academic growth indirectly by conditioning his motivation for learning and by stimulating his development and motivation process. (p. 4)

Of major concern in this study is one aspect of the total environment, namely the home environment. Dave viewed the home environment as having three dimensions: family structure, sociological status characteristics and the educational environment that exists in the home. These sub-sets of the total home environment have long been recognized by both researchers and educators as having major influence on the educational development of the child.

Dave defined the family structure by the birth order of a child and by the number of brothers and sisters living at home. Sociological status characteristics were defined by father's occupation, mother's occupation, father's education, mother's education, source of income, house type, and dwelling area.

The educational environment that exists in the home was defined by Dave in terms of six process variables: achievement press, language models, academic guidance, activeness of the family, intellectuality in the home, and work habits in the family. These six process variables, in turn, were defined by a total of twenty-one process characteristics. In other words, these twenty-one process characteristics defined the six process variables in more operational terms and thus provided the basis for the development of the questions used in the instrument. For each of the twenty-one process characteristics, a nine-point rating scale was devised (Dave, 1963). Scores on the six process variables were obtained by averaging the ratings on their relevant process characteristics, and an Index of the Educational Environment of the family was computed by totalling the scores on the six process variables.

In Dave's (1963, p. 67) study, the Metropolitan Achievement Battery was utilized to measure the academic achievement of the children. This battery is composed of seven tests that measure word knowledge, reading, arithmetic problem solving and concepts, word discrimination, language, spelling, and arithmetic computation. Dave computed multiple correlations between the six environmental process variables and subject achievement (determined by the seven sub-tests of the Metropolitan Achievement Battery). He found that the educational environment was related to over 50 per cent of the variance in scores for solving problems in arithmetic, reading, and word knowledge, but only 31 per cent of the variance in arithmetic computation was explained (pp.



81-85). Dave also found that the order of importance of the predictability of the six process variables differed from subject to subject. The stepwise regression analysis for example, revealed that work habits in the family was the most important process variable for word discrimination, while for arithmetic problem solving and concepts, intellectuality in the home was determined to be the most important.

In a study of 30 children from a low social status in Trinidad, Dyer (1967) used the educational environment measure devised by Dave. When this measure was correlated with the total achievement, using the Iowa Test of Basic Skills, it accounted for 61 per cent of the variance.

In the study of the relationships between the home environment, self-concept, and achievement, Song (1982) demonstrated that the home environment could be divided into three major facets: family structure, social status, and family psychological characteristics. The variables birth order and number of children in the home constituted family structure while father's occupation, parents' education and the ability to afford further education served as indicators of social status. Family psychological characteristics were defined to include encouragement and expectation, educational activities in the home, educational interests, parental evaluation of intellectual qualities of the child, and rewards and punishment (Song and Hattie, 1984, p. 1269).

Song, using higher order factor analysis, found it was not possible to reject the model that home environment is a higher order factor, with social status, family structure and family psychological characteristics as lower order factors. Furthermore, family psychological characteristics could be meaningfully subdivided into the five variables cited above (p. 1270).

The work by Song on the home environment is in agreement with that by Dave. Family structure was defined by both researchers in the same way. However, Song's dimensions titled social status and family psychological characteristics are similar to Dave's sociological status characteristics and educational environment in the home respectively.

For the purposes of the present study, the dimensions of the home environment as set forth by Dave are examined. The educational environment in the home, based upon the rationale given in the section titled "Instrument for Educational Environment" in Chapter 3, is defined in terms of six process variables: activities of the family, achievement press, academic insight of the parents, use of mass media, academic guidance, and language models. The instrument used in this study is a modification of the one used by Dave (1963) and the process variables, while bearing similar names are somewhat different from his. Family structure is defined by the birth order of the child and by the number of brothers and sisters living at home. Sociological status characteristics are defined in terms of three variables: Index of Social Class, parents' occupation, and parents' education.

#### Proposed Model

Based upon the literature proposed in this chapter, the model shown in Figure 2 has been designed in an attempt to link self-concept and the home environment with achievement. The evaluation by significant others is used only to validate the self-concept construct and is emphasized in the model by the use of a "broken line" connecting them to student self-concept. The relationships depicted are defined by the related research hypotheses and questions presented in Chapter 1.

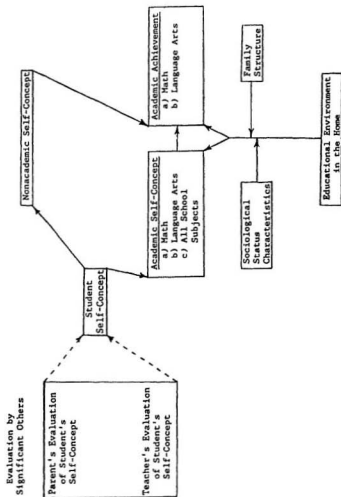


Figure 2: A Model Relating Self-Concept and the Home Environment with Achievement

### Proposed Hypotheses Relating to Home Environment and Previous Findings

Seven hypotheses are tested in this study. Three of these have to do with some aspect of the home environment. The following discussion presents previous research findings that led to the formation of these hypotheses.

#### Hypothesis One

Students' scores on the Index of Educational Environment will be more highly related to their academic achievement than will their sociological status characteristics.

Many investigations of the relations among social status, family environments, and children's academic achievement have proposed that social status indicators are relatively poor predictors of children's achievement, compared with more sensitive family measures. This view is supported by Dave (1963, p. 69) who reported correlation coefficients of 0.799, -0.018, 0.056, and 0.273 between total achievement scores and each of Index of Educational Environment, Index of Social Class, father's occupation, and parents' education, respectively. The correlation between total achievement scores and Index of Educational Environment was found to be significantly higher than each of the other three at the 0.05 level. Similarly, Walberg and Marjoribanks (1976) proposed that comprehensive measures of family environments are likely to mediate completely the effects of socioeconomic status on children's academic performance. The British Psychological Society (1986) also supported this view. For children's achievement in elementary school, "material circumstances and class position seem less important than what may be referred to as family 'climate', which includes parents' aspirations and attitudes and the support and encouragement for their child's schooling" (p. 124).

### Hypothesis Two

Students' academic achievement can be predicted to a greater extent when the Index of Educational Environment is combined with the sociological status characteristics.

Evidence presented in the foregoing suggested that measures of family environments correlate significantly higher with students' academic achievement than sociological status characteristics. However, many researchers argue that both variables, when used together, could provide a better understanding of academic achievement.

Halsey (1975), for example, claimed that in much family-environment research, the concept of social status "is trivialised to the point where differences of parental attitude are conceived of as separate factors rather than as an integral part of the work and community situation of children" (p. 17). He suggested the following:

It is essential to insist that the effect of class on educational experience is not to be thought of as one factor from which parental attitudes and motivations to succeed in education are independent. A theory which explains educational achievement as the outcome of a set of individual attributes has lost the meaning of those structural forces that we know as class. (Halsey, 1975, p. 17)

Similar concerns were expressed by Scott-Jones (1984) who observed that "The context in which parents and children live is important in understanding the family's influence on cognitive development and academic achievement. The family is itself an important context but is embedded in other contexts" (p. 262). She suggested, for example, that there is a need to study "children who develop normally or excel under conditions, such as low-income status. The family may be able to cope with adverse conditions in a manner that prevents the expected effects on the child" (Scott-Jones, 1984, p. 293).

Dave (1963) tested a hypothesis that was somewhat similar to the one proposed here. He found correlation coefficients between total achievement scores and each of I.Q., parents' education, father's occupation, and the Index of Social Class. Using multiple regression analysis, the Index of Educational Environment was used as an additional prediction variable. Dave (1963, p. 73) found that the Index of Educational Environment significantly increased the four correlation coefficients at the 0.05 level.

#### Hypothesis Four

Students' total academic achievement will be predicted to a greater extent when their self-concept is combined with the Index of Educational Environment.

Research conducted showing the relationships that exist between self-concept and academic achievement has been rather diverse and has often produced conflicting results. This diversity was addressed by Hansford and Hattie (1982) when they examined 128 previous studies conducted on these variables. A meta-analysis of 1,136 correlations derived from these studies showed that "the mean correlation between measures of self and performance/achievement was 0.21, with a range of association varying from -0.77 to 0.96" (p. 138). Such diversity in findings has focused researchers' attention on other variables that could strengthen the relation between self-concept and achievement. Shavelson and Bolus (1982, p. 16) recommended that additional variables, such as environmental variables, be included in further studies between self-concept and achievement. Marjoribanks (1979) also claimed that research on relating affective variables, such as self-concept, with achievement could be more powerful if environmental variables were used as moderating variables. Hypothesis four focuses on the home environment, as one

environmental variable, in an attempt to strengthen the relations that may exist between self-concept and achievement. In this study, the Index of Educational Environment is a measure of the educational environment that exists in the home.

Song and Hattie (1984) tested the relations that exist between home environment, self-concept, and academic achievement by formulating a model to represent the relations among these variables. In this study using four samples of 2,297 Korean adolescents ranging in age between 14 and 15 years old, home environment was defined in terms of family structure, socioeconomic status, and family psychological characteristics. Self-concept was seen as being composed of social self-concept and academic self-concept. Song and Hattie (1984) were able to conclude that "family psychological characteristics have indirect influences on academic achievement via their direct influence on the self-concept constructs" (p. 1278).

### CHAPTER 3

#### DESIGN OF THE STUDY

To test the proposed hypotheses, two major instruments were used in the study. One of these instruments measured the educational environment of the home, while the other measured the self-concept of the student.

##### **Instrument for Educational Environment**

The educational environment of the home was measured using a substantially modified form of the instrument used by Dave (1963). Discussed below are (a) the instrument that Dave developed and used, (b) the possible modifications supported by him resulting from factor analyses conducted after his hypotheses were tested, (c) further modifications made to the instrument for the present study, and (d) the use of television and the mass media. There will also be a discussion of the reliability and validity of Dave's instrument.

##### **Dave's Instrument**

Dave's (1963) instrument consisted of an interview schedule of sixty-three questions designed to yield scores on twenty-one process characteristics grouped into six process variables.

After an extensive review of the related literature, Dave identified six Environmental Process Variables to represent the educational environment of the home: Academic Press, Language Models, Academic Guidance, Activeness of the Family, Intellectuality in the Home, and Work Habits of the Family. Each process variable was then defined in terms of from two to seven specific characteristics referred to as Process Characteristics. In all, twenty-one process



characteristics were identified for the six process variables. The sixty-three items in his final interview schedule were designed to elicit sufficient information to quantify these process characteristics and, when aggregated, the process variables.

Dave's final interview schedule was developed from two preliminary tryouts. The first schedule was tried out on five families whose children were in the elementary grades. In light of difficulties encountered by this initial pilot, revisions were made to the instrument. The second pilot was administered to two more families. The instrument, which contained ninety-four questions required approximately 15 minutes to conduct. Since this was considered to be too long, additional modifications were made by eliminating duplicate questions. Thus, the final interview schedule used by Dave in his study contained sixty-three questions, which took about seventy-five minutes per interview, on the average, to administer.

One of the purposes of Dave's study (1963), was "the construction and validation of an instrument for the measurement of educational environment" (p. 8). Validation of the instrument was established by "testing the sustainment of the first hypothesis" (p. 69).

The first hypothesis of Dave's study stated that:

The relationship between the measure of educational achievement and the Index of Educational Environment in the home will be greater than that between the educational achievement and the sociological status characteristics such as social class, occupation of the father, and education of the parents. (p. 69)

Dave found the correlation between the Index of Educational Environment and the total achievement scores of the entire sample to be 0.799. This compared to a correlation of 0.273 between parents' education and the total achievement scores. The difference between these correlations was significant at

the 0.05 level. "The acceptance of the first hypothesis tends to establish the construct validity of the instrument used in this study for the environmental measurement" (p. 75).

#### **Dave's Suggested Modifications**

After his study had been carried out and the data analyzed, Dave carried out factor analysis. Based on this he suggested that the twenty-one process characteristics could be regrouped as six somewhat different process variables which he named: Activities of the Family and Verbal Interaction, Achievement Press, Academic Insight of Parents, Academic Guidance, Language Models, and Use of Mass Media. Each of the process variables would comprise from one to five of the twenty-one process characteristics.

#### **The Instrument for the Present Study**

The process variables used in the present study are those emerging from Dave's factor analysis. However, only eleven of the twenty-one process characteristics were retained. Dave's factor analysis had shown that only four process variables had eigenvalues greater than one, and only eight had commonalities greater than three. It was decided to retain these eight. Three others were retained for special reasons connected with the present study. Two, comprising the process variable "Use of Mass Media" were retained, despite commonalities of less than three, because, since Dave's study in 1963, television and the mass media have come to have a very great impact on the educational environment of the home. A third process characteristic "Keenness of the Parents for Correct and Effective Language Usage" was considered too important to omit from a study of variability in the educational environment of

Newfoundland homes. Therefore, for the purpose of the study, eleven process characteristics were used, grouped as suggested by Dave from his factor analysis. These represented 86.3 per cent of the cumulative commonality in Dave's study.

The process characteristic "Parents' Interest in Academic Achievement" had a commonality greater than three and, as discussed in the foregoing, was used in this study. Dave obtained data for this process characteristic using five questions, however, only four of these questions were used in this study. Question seven from Dave's (1963, p. 142) interview schedule asked about the recreation pastimes and activities of the family and was omitted from this study. The associate superintendent of the co-operating school board viewed this question as being "too personal" and objected to its use.

The interview schedule used in the present study appears in Appendix C. There are thirty-nine items. Table 1 shows the six new environmental process variables, the eleven process characteristics, and the corresponding thirty-nine questions of the interview schedule. All thirty-nine items were taken from Dave's instrument, fifteen being virtually unchanged, twenty-two modified slightly, and two modified somewhat more substantially. Question 8 is a combination of questions 18 and 19 from Dave's interview schedule, while question 38 is a combination of questions 32 and 33 from Dave's instrument, and questions derived from the next section titled "Television and the Mass Media". The numbering of the items used in the present modified questionnaire differs from those used in Dave's study. To facilitate quick referencing, a list is provided after the interview schedule in Appendix C relating the items used in this study to the items used in Dave's (1963) study.

The Index of Educational Environment, which is the sum for the eleven process characteristics, will serve as a single indicator of the educational

environment in the home. For each process characteristic, the researcher will

**TABLE 1**  
The Home Environmental Process Variables and their  
Related Questions in the Interview Schedule

Environmental Process Variables	Environmental Process Characteristics	Question Number in the Interview Schedule
Activities of the Family	(a) Parents' interest in academic achievement	5,9,10,23
Achievement Press	(a) Preparation and planning for the attainment of educational goals	23,24,25,27,29,30,34
	(b) Social press for academic achievement	21,22
	(c) Parental aspirations for the education of the child	3,4,14,15,16,17,20
	(d) Keenness of the parents for correct and effective language usage	7,8,11,12,13
Academic Insight of the Parents	(a) Parents' own aspirations	17,18,19,20
	(b) Standards of reward for educational attainment	3,6,26,29
Academic Guidance	(a) Knowledge of the educational progress of the child	1,2,28,31,32
Language Models	(a) Quality of the language usage of the parents	
Use of Mass Media	(a) Use of TV and other such media	35,38
	(b) Degree of structure and routine in the home management	33,36,37,39

\*The language usage of the mothers interviewed will be rated on the basis of the conversation during the interview. Language usage will be rated in terms of (1) fluency, (2) pronunciation, (3) vocabulary, and (4) organization of thought.

study the parents' answers to the relevant questions, and will then assign to the pupil a rating according to a nine-point scale presented in Appendix D. The responses to the questions for each process characteristic will be averaged and rounded off to the nearest one. Each process characteristic, therefore, ranges from 1 to 9, and since there are eleven process characteristics, the lowest possible measure of the educational environment in the home is 11, while a score of 99 represents the highest possible score.

### Television and the Mass Media

Technological advances over the past two decades have resulted in television programming being available in virtually all homes in Newfoundland and Labrador. Both the quality of programming and the quality of transmission have improved substantially. As a result, Newfoundlanders are exposed to programs from virtually all over the world.

Young children are exposed to a great deal of television, and hence are exposed to the good and bad it has to offer. Walberg (1979), in referring to American children, states "By the time children enter kindergarten, they will have used more time viewing television than they will later spend sitting in university classes" (p. 61).

The implications of this statement can be applied to Newfoundland children. The point being made by educators and researchers is that schools cannot compete with television. As Kitchen (1987) explains in his keynote address to the Short Course in Educational Leadership at Littledale, St. John's:

Classrooms are becoming irrelevant. Television is school in both the cognitive and affective domains. The accumulated evidence is overwhelming. It is television that imprints the child's moral structure. The purpose behind television programming is profits, not a moral society. Children and adults are coming to perceive the real and the ideal as that which emanate from the screen, not from pulpit or classroom or personal experience. (p. 6)

While Kitchen argues that we must have local input in television programming in order to gain control over the values and morals displayed on television, there is much that can be done by parents and teachers to affect its impact.

Walberg (1979, pp. 66-72) offers suggestions to parents and teachers that will affect the impact television has on children. He suggests that parents can (a) actively watch television with their children, (b) set limits on viewing, (c) develop critical evaluation of content, and (d) send letters to television networks. Teachers, on the other hand, are advised to (a) use television in the classroom, (b) refer to programs in classes, and (c) provide an aid to reading.

The instrument to measure the educational environment in the home will attempt to determine the degree to which the television and other such media are used in the home. In light of the possible impact television has on one's life, the process variable "Use of Mass Media" will be examined, despite the fact that Dave (1963, p. 106) found that the two corresponding process characteristics had commonalities of less than three. The two process characteristics and their related questions are shown in Table 1. The questions reflect Walberg's suggestions about "What Parents Can Do".

### Reliability and Validity of Dave's Instrument

Construct validity of the instrument used in Dave's (1963) study for the environmental measurement was established by the acceptance of Hypothesis 1 while a reliability coefficient was calculated by Hoyt's (1941) method using a two-way analysis of variance.

Dave's (1963, p. 20) first hypothesis stated that there would be a greater relationship between the Index of Educational Environment and Academic Achievement than each of father's occupation, parents' education, and sociological status characteristics with Academic Achievement. This hypothesis was tested, and substantiated, by the calculation of correlation coefficients. Correlations of 0.799, -0.018, 0.056, and 0.273 were reported between total academic achievement scores and each of Index of Educational Environment, Index of Social Class, father's occupation, and parents' education, respectively. The correlation between total achievement scores and Index of Educational Environment was found to be significantly higher than each of the other three at the 0.05 level (Dave, 1963, pp. 69-70). Based upon these findings, Dave (1963) stated, "The acceptance of the first hypothesis tends to establish the construct validity of the instrument used in this study for the environmental measurement" (p. 75).

Dave (1963, pp. 77-78) estimated the internal consistency of the instrument used in his study using Hoyt's (1941) method. A reliability coefficient of 0.95 was calculated in the following manner. Using a two-way analysis of variance, the variance "among students" (i.e., their homes) was calculated to be 31.22 while the variance of the "remainder" (i.e., all other sources of variation) was 1.56. The reliability coefficient was calculated by subtracting the "remainder variance"

from the "variance among students", and dividing this difference by the "variance among students".

In Dave's study, the interviews were conducted by two people, the writer and one other "competent" person (p. 80). The consistency in the ratings of the sub-sample interviewed by Dave was checked against those interviewed by the other interviewer. Dave conducted 28 interviews and the correlation between the Index of Educational Environment and total achievement scores was calculated to be 0.811. A correlation coefficient of 0.800 was reported for the 32 interviews conducted by the other researcher. The difference between these correlations was not significant at the 0.05 level, which demonstrated "that the environmental ratings made by the writer on the basis of the interview data collected by the other interviewer are consistent with the ratings made by the writer on the interview data collected by himself" (Dave, 1963, p. 81).

#### **Instrument for Self-Concept**

The Self-Description Questionnaire, contained in Appendix E, was designed to measure the seven dimensions of self-concept as proposed in the theoretical framework presented by Shavelson et al. (1976).

The instrument used in this study is the same as the one used by March, Relich, and Smith (1983) and originally contained 66 items but, based upon the results demonstrated by Marsh, Smith, and Barnes (1983), four items were excluded. These items "failed to correlate highly with other items from the same scale and were generally difficult for students to interpret" (March, Relich, and Smith, 1983, p. 175). Therefore, the Self-Description Questionnaire used in this study contained 62 items (Marsh, Relich, and Smith, 1983, pp. 178-180).

The seven dimensions of self-concept, which the Self-Description



Questionnaire measures, include 3 academic scales and 4 nonacademic scales. Physical Abilities, Physical Appearance, Relations with Peers, and Relationship with Parents constitute the nonacademic dimension, while Mathematics, Reading, and School Subjects represent academic self-concept. For the purpose of this study, Reading is replaced by Language Arts to better reflect the curriculum of grade V students in the province of Newfoundland. Table 2 presents the seven dimensions of self-concept and their related questions. The response to each question ranges on a five-point scale from false (1) to true (5).

Each of the 4 nonacademic scales is measured by eight positively worded items. Therefore, for each nonacademic scale, the lowest possible measure of self-concept is 8 while a score of 40 indicates the highest measure of self-concept.

The 3 academic scales are each measured by 10 items. Within each of these scales, there are 5 cognitive items and 5 affective items. Four of the 5 cognitive items are positively worded and one is negatively worded. Similarly, 4 affective items are positively worded and one is negatively worded. The negatively worded items are questions 6, 21, 29, 41, 56, and 62. For these items, the five-point scale will be reversed such that a score of 5 is given to those responding false and a score of 1 is given to those responding true. For each of the 3 academic scales, the lowest possible measure of self-concept is 10 and the highest 50.

The total self-concept is obtained by adding the scores on the 3 academic scales and the 4 nonacademic scales. Therefore, the lowest possible score for the total self-concept is 62 while the highest possible score is 310.

**TABLE 2**  
**The Seven Dimensions of Self-Concept**  
**and their Related Questions**

Self Concept Dimensions	Related Questions
1. Physical Abilities	3, 10, 22, 28, 35, 42, 48, 55
2. Physical Appearance	1, 8, 14, 20, 33, 40, 46, 53
3. Relations with Peers	7, 13, 19, 26, 32, 39, 52, 59
4. Relationship with Parents	5, 17, 24, 30, 37, 44, 50, 57
5. Language Arts	4, 11, 16, 23, 29*, 36, 43, 49, 56*, 61
6. Mathematics	6*, 12, 18, 25, 31, 38, 45, 51, 58, 62*
7. School Subjects	2, 9, 15, 21*, 27, 34, 41*, 47, 54, 60

\*reflect negatively worded items.

For the present study, the questionnaire was administered to grade V students. They were given instructions with 3 examples, and each of the 62 questions was read out loud to them. Each student then responded to each item, on a five-point scale ranging from false (1) to true (5), by placing a tick [✓] on the appropriate blank.

As reported above, Marsh, Relich, and Smith (1983) excluded 4 items from the original 66 in the instrument. The wording of these items, numbered 12, 17, 19, and 49, was not stated. The remaining 62 items were renumbered and, as a result, the numbering of the items used in this study differs from those same items used by March, Relich, and Smith (1983). The number in brackets at the end of each item of the Self-Description Questionnaire in Appendix E

corresponds to the number used in March, Relich, and Smith's (1983) questionnaire. These numbers were not present on the questionnaires completed by students, parents, or teachers.

For the purpose of this study, the wording of questions 21, 29 and 62 has been changed slightly based upon the wishes of the associate superintendent of the co-operating school board. In these questions, the word "dumb" was omitted in favour of the phrase "not very good at". The associate superintendent of the cooperating school board believed that if you ask "slower" students if they are dumb, they would reinforce it to themselves and say they are, which is what people expect to hear. There were two other changes. The word "Reading" was replaced by "Language Arts" in all 10 questions for the "Language Arts" self-concept dimension. The last minor change was on item 21 which read, "Most kids have more friends than I do" (March, Relich, and Smith, 1983, p. 178). Since all other items pertaining to nonacademic self-concept are positively worded, it was decided to reword this item to, "I have more friends than most of the other kids" which appears as number 19 on the instrument used in this study.

The homeroom teacher and the parent (mother when possible) completed the questionnaire for each child. The purpose of this was to determine or reaffirm construct validity by noting the correlation between the self-concept of the child and self-concept as inferred by significant others.

### Validity of the Self-Description Questionnaire

Self-concept, like any other hypothetical construct, becomes useful when its construct validity is demonstrated. According to March, Parker, and Smith (1983), there are two basic classifications of construct validity that should be

demonstrated.

Within-network studies explore the multidimensionality of self-concept and attempt to show that there are consistent, distinct components (e.g., social, physical, and academic). These studies typically employ factor analysis or multitrait-multimethod (MTMM) analysis. Between-network studies attempt to show that a logical pattern of relationships exists between measures of self-concept and other constructs (p. 60).

The best empirical support for the multidimensionality of self-concept, and the structure hypothesized by Shavelson et al. (1976), comes from the work on the Self-Description Questionnaire, or the SDQ. This instrument was specifically designed to measure three areas of academic self-concept and four areas of nonacademic self-concept.

Research based on the SDQ, in the form of within-network studies, has found evidence for the distinct, consistent components of self-concept. Factor analysis of responses from two diverse groups of primary school students found evidence for seven SDQ factors (Marsh, Relich, and Smith, 1983). Furthermore, correlations among these factors support the hierarchical structure proposed by

Shavelson et al. (1976). Marsh, Smith, and Barnes (1983), in their study using fifth and six grade students, state:

Items loaded substantially on the factors that they were designed to measure and not other factors; correlations among the various factors tended to be small; and those correlations that were observed were generally consistent with the hierarchical model on which the SDQ was based. (p. 353)

Marsh, Parker, and Smith (1983), using 958 students from three diverse groups, employed a multitrait-multimethod analysis of student-teacher ratings of student self-concept and their relations to academic ability. "Previous factor analysis, the MTMM analysis, and the pattern of relationships between the self-concept dimensions and academic measures all argue for the multi-dimensionality of self-concept and the relevance of the dimension hypothesized by Shavelson [et al.]" (p. 71).

Marsh, Smith, Barnes, and Butler (1983) state that "Between-network studies of the construct validity of self-concept require self-concept measures to demonstrate a consistent and logical/theoretical pattern of relationships with other constructs" (p. 773). In an attempt to demonstrate validity using these studies, academic ability/performance measures and the perceptions of significant others are used as the external criteria.

It is necessary, once again, to mention the manner in which symbolic interactionists view significant others. In general, they see the relationship between self-reports and ratings of others being of crucial importance. Marsh, Parker, and Smith (1983) state that:

Self-reports and ratings by others are phenomenologically distinct and will agree only when the external observer knows the person well, observes a wide range of behaviors, has observed a broad enough sample of people to have an adequate frame of reference, and is able to make skillful perceptions. (p. 61)

Marsh and his colleagues went on to demonstrate that student self-concepts as inferred by primary school teachers (who satisfy this criterion better than most external observers) on each of the seven SDQ dimensions were significantly correlated with student ratings of their own self-concepts in the same areas. Student-teacher agreement tended to be higher in academic areas, particularly in high-socioeconomic-status (SES) ability schools where several correlations exceeded 0.70 (Marsh, Smith, Barnes, and Butler, 1983, p. 774).

Continuing with the between-network validator, Marsh, Relich, and Smith (1983), using correlations between self-concept scores and achievement scores, found that mathematical achievement was significantly correlated with mathematics self-concept ( $r = 0.55$ ). A correlation of 0.21 was obtained with self-concept in reading and mathematics achievement, and mathematics achievement was uncorrelated with self-concept in four nonacademic areas

(Marsh, Relich, and Smith, 1983, p. 184). The result of this study indicates that, "while the correlation between general self-concept and ability is low, the relationship is stronger when the particular component of self-concept is more closely matched to the particular ability being considered" (Marsh, Parker, and Smith, 1983, p. 62).

#### **Information Blank**

In addition to the information about the educational environment in the home, an Information Blank (shown in Appendix F) was used to obtain information about the family structure and the sociological status characteristics of the home. This information was necessary in order to test Hypotheses 1 and 2 and Questions 3, 4, 5, and 6. This blank was filled out by the interviewer at the time the parents (mother or female guardian) were interviewed concerning the educational environment in the home.

#### **Family Structure**

For the purposes of this study, family structure was defined in terms of two variables, birth order of the child in his or her family, and the number of brothers and sisters living at home. These data were obtained from questions 2 and 4 on the Information Blank.

#### **Sociological Status Characteristics in the Home**

The Information Blank, completed at the time of the interview, also provided data concerning the following Sociological Status Characteristics of the Home (Dave, 1963, pp. 66-67): father's occupation, mother's occupation, father's

education, mother's education, source of income, house type, and dwelling area.

Dave (1963) combined these seven status characteristics into three status measures. First, he used Warner's Index of Social Class, which combines father's occupation, source of income, house type, and dwelling area by using Weights of 4, 3, 3, and 2 respectively. When Dave was obtaining data for his study, he found that only a few mothers had outside jobs, hence mother's occupation was not used in his analysis. In the present study, Index of Social Class is identical to Warner's with one important exception. Since working mothers are not uncommon today, mother's occupation will be included in the status characteristics of the Index of Social Class. Therefore, in the present study, the Index of Social Class will be defined in terms of father's occupation, mother's occupation, source of income, house type, and dwelling area, with weights of 4, 4, 3, 3, and 2 respectively (see Appendix H). However, in order to make comparisons with Dave's findings, Index of Social Class will also be calculated using the original formula.

The second status measure used by Dave was the rating of father's occupation. Again, mothers' occupation was not taken into account. This study will add scores on mothers' occupation to scores on fathers' occupation to produce a Combined Rating of Parents' Occupation as the second status measure.

The "Combined Rating of the Parents' Education" is the last measure. The rating scale used to measure this status characteristic was devised by the researcher, but was based in part on a somewhat obsolete seven-point scale used by Warner (1960) and a five-point scale used by the Royal Commission on Employment and Unemployment.

A numerical value for the Index of Social Class is obtained by the addition

of the measures of the four status characteristics. Each status characteristic is assigned a "Weight" and the "Weighted Rating" is obtained by multiplying this "Weight" with the response given on a seven-point rating scale. The status characteristic titled "rating of parents' occupation" will then be represented by the addition of the "Weighted Rating" for both mother and father. Appendix H gives the rating scales and the "Weights" assigned to the four status characteristics.

The "Combined Rating of Parents' Occupation" will be found by the seven-point rating scale as presented in Appendix H, section (a). The classification is based upon occupation and a combined rating is obtained by the addition of the father's rating and the mother's rating.

The "Combined Rating of Parents' Education" is measured by a single numerical index based upon the seven-point rating scale presented in Appendix G. Again, a combined rating is obtained by the addition of the mother's and father's rating.

Data regarding the sociological status characteristics were coded after each interview and recorded as items 5, 6, and 7 of the Information Blank in Appendix F.

#### **Selection of the School**

This particular study is not peculiar to any of the religious denominations that exist in the province. Therefore, based on a willingness to cooperate, a school under the jurisdiction of the St. John's Roman Catholic School Board was chosen. Permission was granted by the Associate Superintendent of the Board (Appendix A).



The exact school, selected within the St. John's Roman Catholic School Board, was located in St. John's, Newfoundland. The school chosen met two criteria. First, it had a large population of grade V students. There were 3 classes of grade V students during the 1986-87 school year, totalling 85 students. Secondly, the socioeconomic status of these students' families was seen as being fairly heterogeneous which enabled an accurate study of the home environment.

### Selection of the Grade

As mentioned above, grade V students will participate in this study. There were 85 grade V students attending the co-operating school during the 1986-87 school year. Grade V students were chosen because, according to Bloom (1964):

...that by age 9 (grade 3) at least 50% of the general achievement pattern at age 18 (grade 12) has been developed, whereas at least 75% of the pattern has been developed by about age 13 (grade 7). (p. 105)

In addition to this, the home is seen as the biggest factor in influencing elementary school children. Other influences, such as peer group for example, have not been found to be very strong at this age (p. 51).

### Parent and Student Sample Used in the Study

Every child in grade V at the co-operating school during the 1986-87 school year was given a letter to bring home to his/her parents. The letter (Appendix B) described the purpose of the study and asked parents if they wished to participate. Permission to have their child (or children) involved was also asked. The parents were asked to indicate their willingness to participate by placing a tick [✓] on the appropriate blank on the last page of the letter. The student was asked to return this page of the letter to their homeroom teacher. For those parents who did not want to participate, a blank space was provided

asking them to give a reason.

There were three classrooms of grade V students in the selected school during the 1986-87 school year. From each class, a random sample of 8 boys and 8 girls was chosen from those students whose parents gave approval for them to participate in this study. The parent(s) of these children were also used in this study. Alternate samples were randomly picked just in case these children were absent from school on the day that they completed the Self-Description Questionnaire.

#### Teacher Sample Used in the Study

The teacher sample was the homeroom teacher from each of the 3 classrooms of grade V students.

#### Collection of the Data

Letters asking parent(s) to participate in the study were given to grade V students on Thursday, June 11, 1987 and Friday, June 12, 1987. The students were instructed to bring these letters home and to return the last page of it to their homeroom teachers. Since there were four students absent from school on both days, eighty-one letters were sent home to a possible eighty-five grade V students.

Fifty-eight students returned the last page (or the permission slip) of the letter on Friday, June 12, 1987. On that day, those who did not return their forms were reminded to return them on the following Monday. Six more slips were returned on that day. A second reminder was given and three more students returned them on Tuesday, June 16, 1987.

From the sixty-seven returned forms, ten indicated that they didn't want to

participate. Only two of these provided a reason in the blank provided. One reason stated that the family would be out of the province for the summer while the other reason stated was, "I don't have the time".

The students who were given permission to participate were grouped according to their homeroom teacher. Table 3 presents the number of boys and girls given permission out of the total that exists in each of the classrooms.

**TABLE 3**  
**Fraction of Students Given Permission**  
**to Participate**

	Classroom 1	Classroom 2	Classroom 3
Boys	10/12	8/14	9/12
Girls	10/16	8/15	12/16

From each classroom, a random sample of 8 boys and 8 girls was drawn from those who had been given permission by their parents. Just in case a student might have been absent from school on the day that the Self-Description Questionnaire was administered, an alternate name was drawn for each group. In total, fifty students wrote the Self-Description Questionnaire with three of them being alternate names. Table 4 gives the number of students who wrote the questionnaire. In classroom 1, one alternate student was absent while three students originally picked were absent from classroom 2.

### Students

To obtain a measure of the students' self-concept, the Self-Description Questionnaire was administered on June 18, 1987. A total of fifty students completed the questionnaire.

**TABLE 4**  
**Number of Students Who Wrote the**  
**Self-Description Questionnaire**

Number of Students			
	Classroom 1	Classroom 2	Classroom 3
Boys	9	8	9
Girls	8	7	9
	17	15	18

At the time of administration, students were brought to the cafeteria and seated at the tables provided. Each student was then given a questionnaire face down. When each student was given a questionnaire, all students were instructed to turn over their questionnaires. Students were then given instructions and asked not to talk while filling out the form. Three examples were given at the beginning to ensure that students understood how to complete the test. Each of the 62 questions of the Self-Description Questionnaire was read aloud to overcome any reading difficulties any student might have.

The Self-Description Questionnaire provided data concerning three areas of academic self-concept and four areas of nonacademic self-concept. Table 2 indicates the seven dimensions of self-concept and their related questions. The

response to each question ranges on a five-point scale from false (1) to true (5). It took approximately one-hour to administer this test.

Mathematics and Language Arts were chosen as the subject areas to represent academic achievement. It was initially intended to use test scores in these subjects dating back to three months prior to the start of the study. Final marks had to be used, however, as it is not the policy of the St. John's Roman Catholic School Board to issue students' marks. The Board did allow the final letter grades in these subjects to be released but the names of the students had been erased. Each letter grade corresponded to a range of values as defined by the co-operating school. The letter grades A, B+, B, C, D, and F corresponded to a numerical value between 90 and 100, 80 to 89, 70 to 79, 60 to 69, 50 to 59, and below 50 respectively. For each of Mathematics and Language Arts, the standard deviation and mean for each of the three grade V classes was calculated by assigning a numerical value to each letter grade. The researcher used 95, 85, 75, 65, 55, and 45 to represent A, B+, B, C, D, and F respectively. The researcher obtained students' marks in Mathematics and Language Arts by asking the parents if he could see the child's report card at the time of the interview. The marks in each of these two subject areas were then standardized (to have a mean of 0 and a standard deviation of 1.0) by using the standard deviation and mean of each child's particular class. The student's total academic achievement is determined by the addition of the student's standardized scores in Mathematics and Language Arts.

#### Teachers

The three grade V teachers at the co-operating school completed the Self-Description Questionnaire for each student in their class who was chosen to be

in the sample. The teachers were instructed to fill out the questionnaire as if they were that student. In other words, the teachers had to try to guess how their students answered each of the 62 questions.

This exercise gave indication of student-teacher agreement on student self-concept. It is realized that teachers' ratings are not the ultimate criterion for the student ratings; however, teachers who spend the school day with the same group should be able to serve as a useful indicator of student self-concept.

### Parents

Four sets of data were obtained from the parent(s) studied in this investigation. In keeping with the argument proposed by Dave (1963, pp. 44-45), the mother supplied the data.

The parents of the fifty students who wrote the Self-Description Questionnaire were contacted by telephone in early July, 1987. At that time, parents arranged a convenient time to be interviewed. Out of the fifty possible parents, one could not be contacted after five attempts, while another five parents had changed their minds. In all 44 cases, the mothers were interviewed. Only 4 fathers participated in the interview along with their wives. The last interview was conducted on October 17, 1987. Table 5 summarizes the parents contacted per classroom.

Data regarding the educational environment of the home were obtained by interviewing the mother (and father when possible) in the home using the Interview Schedule contained in Appendix C. After the interview, the responses were used by the interviewer to assign ratings, using the nine-point scales of Appendix D, for each of the eleven process characteristics. The sum of these eleven ratings became the home's score on the Index of Educational Environment.

The mothers also completed the Self-Description Questionnaire for their children. The parent was instructed to fill out the questionnaire as if she (the mother) were the child. In other words, the mother had to try to guess how her child answered each of the 62 questions.

**TABLE 5**  
**The Number of Parents**  
**Interviewed per Classroom**

Parents Interviewed From:			
	Classroom 1	Classroom 2	Classroom 3
Boys	8	7	7
Girls	7	7	8
	15	14	15

In addition, data concerning the sociological characteristics of the home and the family structure were collected by having the mother provide the information to complete the Information Blank at the time of the interview.

Finally, the parents were asked to show their child's report card. From this, the student's final mark in mathematics and language arts were noted. This piece of information was asked last to guard against interview bias. The shortest visit took approximately 90 minutes while the longest visit took about 140 minutes.

### Analysis of Data

#### Hypothesis One

To examine this hypothesis, correlations will be calculated between (i) the educational environment as measured by the I.E.E. and total academic achievement, and (ii) each status measure of the sociological status characteristics and total academic achievement. The Index of Social Class will be presented in items of the Warner Scale and the Revised Scale. The correlations between academic achievement and Index of Social Class, using the two scales, will be compared to see if the revision to the Warner Scale adversely affects the results.

#### Hypothesis Two

Here, separate multiple correlations will be calculated using the Index of Educational Environment and each of the sociological status characteristics as predictor variables for total academic achievement. Similarly, by calculating multiple correlations, additional variance in total academic achievement will be explained when Index of Educational Environment is added to each sociological status characteristic.

#### Hypothesis Three

Correlations will be calculated between (i) academic self-concept and total academic achievement, and (ii) nonacademic self-concept and total academic achievement. The null hypothesis to be tested is that the difference between the two correlation coefficients is equal to zero. This hypothesis will be tested using the one-tailed t-test for correlated samples at the 0.01 level of significance.



Further analysis of Hypothesis Three will include the calculation of correlation coefficients between each dimension of self-concept with mathematics, language arts, and total achievement. Also, a stepwise multiple regression analysis will be performed using mathematics, language arts achievement, and total achievement as dependent variables, and students' self-concept with respect to mathematics, language arts, and all school subjects as predictors.

#### Hypothesis Four

In order to test this hypothesis, correlation coefficients will be calculated for each of the three self-concept variables with total academic achievement. Then, multiple correlation coefficients will be computed using the Index of Educational Environment with each of the self-concept variables to predict total academic achievement.

#### Hypothesis Five

Hypothesis Five will be tested by computing the correlation coefficients between students' self-concept in a subject and their achievement in that subject. Finally, differences related to gender will be tested by using Fisher's z-transformation.

#### Hypotheses Six and Seven

To test these hypotheses, for each of the seven dimensions of self-concept and for total self-concept, correlation coefficients will be calculated between the ratings of students and the ratings inferred by both teachers and parents.

### Question One

In order to answer Question One, correlation coefficients will be computed between each of the environmental process variables and each of mathematics and language arts achievement. Question One will also be analyzed by performing a stepwise multiple regression analysis for academic achievement while using the process variables as predictors.

### Question Two

Question Two will be analyzed by first finding the correlation coefficients between each of the environmental process variables and each of academic self-concept and nonacademic self-concept. A multiple regression analysis will also be performed for academic and nonacademic self-concept while using the environmental process variables as predictors.

### Questions Three and Four

These two questions will be analyzed by computing correlation coefficients between family structure variables of birth order and number of siblings living at home with each of Index of Educational Environment, nonacademic self-concept, academic self-concept, mathematics achievement, language arts achievement, and total achievement.

## CHAPTER 4

### ANALYSIS OF DATA

As stated in the previous chapter, there were 44 sets of interviews conducted with the parent(s) of the students who completed the Self-Description Questionnaire. All 44 mothers, but only 4 fathers participated. There were 6 fathers who were either deceased, separated or divorced. When the fathers participated, it was noted that they were very active in answering the questions along with their wives.

A minor problem in analyzing the data arose in the 6 cases whereby fathers were deceased, separated or divorced. For example, the values for the 3 sociological status measures were necessarily lower for single parent families. In other words, it was not known if father's occupation and father's education should be given a value of zero, or whether the students concerned should be excluded from the analysis altogether. It was decided to do two separate analyses when sociological status characteristics were present. One analysis was carried out on all 44 students (22 boys and 22 girls) while entering zero for the missing data. In the second analysis, students of the single parent families were omitted. The number of cases in this analysis is therefore reduced to 38, consisting of 16 boys and 22 girls.

#### Analysis of Hypotheses

##### Hypothesis One

Students' scores on the Index of Educational Environment will be more highly related to academic achievement than will their Sociological Status Characteristics.

To test this hypothesis, correlation coefficients were first calculated between

each of the indices and Total Academic Achievement. These correlations are reported in Table 6.

**TABLE 6**  
**Correlations of Academic Achievement with the**  
**Index of Educational Environment and**  
**the Status Measures**

	N = 44		N = 38	
	r	p	r	p
Index of Educational Environment (I.E.E.)	0.7571	0.000	0.7126	0.000
Index of Social Class (Warner)	0.8650	0.000	0.8331	0.000
Index of Social Class (Revised)	0.8837	0.000	0.8694	0.000
Combined Parents' Occupation	0.8203	0.000	0.8141	0.000
Combined Parents' Education	0.8664	0.000	0.8895*	0.000

Note: The asterisk \* indicates a correlation coefficient significantly greater than that for I.E.E. ( $p < 0.01$ ).

As shown in Table 6, contrary to the hypothesis, the correlations with Total Academic Achievement for the sociological status characteristics were all larger than for the Index of Educational Environment. The next step was to test the differences, using the t-test for correlated samples. Only in one case, that of Combined Parents' Education for  $N = 38$ , was the difference statistically significant. However, since there was no support for the predicted direction, Hypothesis 1 was rejected. The findings here disagree with those of Dave (1963) who reported correlation coefficients of 0.799, -0.018, 0.056, and 0.273 between total achievement scores and each of Index of Educational Environment, Index of Social Class, father's occupation, and parents' education, respectively (p. 69). The correlation of 0.799 between total achievement scores and Index of

Educational Environment was found by Dave (1963) to be significantly higher than each of the other three at the 0.05 level.

The findings presented in Table 6 also challenge the view held by Walberg and Marjoribanks (1976) and the British Psychological Society (1986) who suggested that "material circumstance and class position seem less important than what may be referred to as family 'climate', which includes parents' aspirations and attitudes and the support and encouragement for their child's schooling" (British Psychological Society, 1986, p. 124). The findings presented in Table 6 suggest that the Index of Social Class, Combined Parents' Occupation, and Combined Parents' Education are just as important as the Index of Educational Environment in determining the academic achievement for the sample of grade V students selected for this study. Furthermore, for  $N = 38$ , Combined Parents' Education is more important than the Index of Educational Environment.

Table 6 indicates that the correlation for the Index of Social Class (Revised), which used a weight of 8 for parents' occupation, instead of 4 as in Warner's scale, turned out to be almost identical to that of the Warner scale. Consequently, in subsequent analyses, only the revised scale will be used.

Table 7 displays the detailed correlations of the indices and all their dimensions with students' scores on mathematics and language arts, as well as with total scores on both. Except for Use of the Mass Media, the correlations between each of the process variables and academic achievement were statistically significant ( $p = 0.000$ ).

**TABLE 7**  
**Correlations Between Home Environment Variables**  
**and Academic Achievement (N = 44)\***

Mathematics	Language Arts		Total			
	r	p	r	p	r	p
Index of Ed. Environment	.6983	.000	.7414	.000	.7571	.000
Activities of Family	.7244	.000	.7843	.000	.7923	.000
Achievement Press	.8199	.000	.9168	.000	.9169	.000
Academic Insight	.8251	.000	.7269	.000	.8089	.000
Academic Guidance	.6056	.000	.5995	.000	.6305	.000
Language Models	.5752	.000	.6914	.000	.6691	.000
Use of Mass Media	.0300	.847	.0437	.778	.0398	.798
Index of Social Class	.8834	.000	.8086	.000	.8837	.000
Father's Occupation	.7730	.000	.6701	.000	.7550	.000
Mother's Occupation	.6451	.000	.6299	.000	.6672	.000
Source of Income	.8205	.000	.6765	.000	.7792	.000
Housing Type	.8299	.000	.7809	.000	.8438	.000
Dwelling Area	.8235	.000	.7766	.000	.8377	.000
Combined Parents' Occ.	.8133	.000	.7387	.000	.8141	.000
Combined Parents' Ed.	.8740	.000	.8182	.000	.8895	.000
Father's Education	.7650	.000	.6856	.000	.7627	.000
Mother's Education	.7534	.000	.7405	.000	.7804	.000

\*For Father's Occupation, Father's Education, Combined Parents' Occupation, and Combined Parents' Education, N = 38.

### Hypothesis Two

Students' academic achievement can be predicted to a greater extent when their Index of Educational Environment is combined with their Sociological Status Characteristics.

To test this hypothesis, separate multiple correlations were calculated using the Index of Educational Environment and each of the Sociological Status Characteristics as predictor variables for Total Academic Achievement.

TABLE 8

**Additional Variance in Total Academic Achievement Explained  
When Social Status Characteristics Are Added Separately  
to Index of Educational Environment**

Variable Entered	N = 44		N = 38	
	Rm	R <sup>2</sup> %	Rm	R <sup>2</sup> %
Index of Educational Environment	.7571	57.3	.7126	50.1
+ Index of Social Class	.9202	84.7	.9105	82.9
<u>Difference</u>		<u>27.4</u>		<u>32.8</u>
Index of Educational Environment	.7571	57.3	.7126	50.1
+ Combined Parents' Occupation	.8892	79.1	.8779	77.1
<u>Difference</u>		<u>21.8</u>		<u>27.0</u>
Index of Educational Environment	.7571	57.3	.7126	50.1
+ Combined Parents' Education	.9196	84.6	.9355	87.5
<u>Difference</u>		<u>27.3</u>		<u>37.4</u>

As shown in Table 8, the correlation between Total Academic Achievement and the Index of Educational Environment for all 44 students was 0.7571. Squaring this value indicates that 57.3 per cent of the variance in Total Academic Achievement is explained by the Index of Educational Environment. When each of the Social Status Characteristics is added, an additional percentage of the variance is explained. The Index of Social Class explains an additional 27.4 per cent, Combined Parents' Occupation 21.8 per cent, and Combined Parents' Education 27.3 per cent. When the data were analyzed separately for the 38 students with both parents, the correlation between Total Academic Achievement and the I.E.E. was 0.7126, with 50.1 per cent of the variance explained by the Index of Educational Environment, an additional 32.8 per cent explained by I.S.C., 27.0 per cent by Combined Parents' Occupation, and 37.4 per cent by Combined Parents' Education. In each case, examination of the

statistical significance of the beta weights of the additional variable indicated that the change in  $R^2$  was statistically significant ( $p = 0.000$ ).

Similarly, as shown in Table 9, as the Index of Educational Environment was combined separately with each of the Social Status Characteristics, additional variance was explained, although somewhat less so than when the Social Status Characteristics were added last. Thus, from both tables, Hypothesis 2 was accepted.

**TABLE 9**  
**Additional Variance in Total Academic Achievement Explained**  
**When Index of Educational Environment is Added**  
**to Each Social Status Characteristic**

Variable Entered	N = 44		N = 38	
	Rm	R <sup>2</sup> %	Rm	R <sup>2</sup> %
Index of Social Class	.8837	78.1	.8694	75.6
+Index of Educational Environment	.9202	84.7	.9105	82.9
<u>Difference</u>		<u>6.6</u>		<u>7.3</u>
Combined Parents' Occupation	.8263	68.3	.8141	66.3
+Index of Educational Environment	.8892	79.1	.8779	77.1
<u>Difference</u>		<u>10.8</u>		<u>10.8</u>
Combined Parents' Education	.8664	75.1	.8895	79.1
+Index of Educational Environment	.9196	84.6	.9355	87.5
<u>Difference</u>		<u>9.5</u>		<u>8.4</u>

The findings presented in Tables 8 and 9 are in agreement with the views held by researchers such as Halsey (1975) and Scott-Jones (1984) who point out that the family is embedded in other contexts. As a result, Academic Achievement cannot be totally explained by examining one variable. Other variables have to be taken into account. The results are also in agreement with



the findings by Dave (1963). Using multiple regression analysis, the Index of Educational Environment was used as an additional predictor variable with the correlation between total achievement scores and each of I.Q., parents' education, father's occupation, and the Index of Social Class. Dave (1963, p. 73) found that the Index of Educational Environment significantly increased the four correlation coefficients at the 0.05 level. As previously pointed out, however, each Sociological Status Characteristic adds more to the Index of Educational Environment than the Index of Educational Environment adds to the Sociological Status Characteristics. Furthermore, the results presented in Table 8 indicate that Combined Parents' Education adds as much to the variance explanation as the Index of Social Class, and its initial correlation with achievement is similar. This suggests that, in the interest of parsimony, the cumbersome Index of Social Class may be dispensed with in favour of Combined Parents' Education.

#### Hypothesis Three

Students' academic achievement will be more highly correlated with their academic self-concept than with their nonacademic self-concept.

To test hypothesis three, correlation coefficients were first computed between Total Academic Achievement and each of Academic Self-Concept and Nonacademic Self-Concept as shown in Table 10.

**TABLE 10**  
**Correlations of Academic and Nonacademic Self-Concept**  
**With Total Academic Achievement (N = 44)**

	r	p
Academic Self-Concept	.9749	.000
Nonacademic Self-Concept	.0912	.556

The correlation coefficient of 0.9749 between Total Academic Self-Concept and Total Achievement was statistically significant ( $p = 0.000$ ). However, the correlation coefficient of 0.0912 between Nonacademic Self-Concept and Total Academic Achievement was not. Using a one-tailed test of significance, this difference was found to be statistically significant at the 0.01 level. Thus, hypothesis three was accepted. The correlation coefficient of 0.0912 between Nonacademic Self-Concept and Academic Achievement is in close agreement to similar values found by Marsh, Smith, and Barnes (1985, p. 589), and Marsh, Parker, and Smith (1983, p. 70) who reported values ranging from -0.08 to -0.18, and 0.01 to -0.15 respectively. In essence, academic ability is uncorrelated with Nonacademic Self-Concept subscales. Similarly, the correlation coefficient of 0.9749 between Total Academic Achievement and Academic Self-Concept compares favorably with a value of 0.91 found by Song and Hattie (1984, p. 1276). The value reported in this study is much higher, however, than the value reported by Marsh et al. Marsh, Smith, and Barnes (1985), and Marsh, Parker, and Smith (1983) reported values ranging from about 0.50.

Correlations were also calculated between each dimension of self-concept and mathematics, language arts, and total achievement. As can be seen from Table

11, only one of the dimensions of Nonacademic Self-Concept had correlation coefficients significantly different from zero, namely Relationship with Parents, which was correlated 0.4890 with mathematics, 0.5111 with language arts, and 0.5251 with total achievement. However, all three dimensions of Academic Self-Concept were correlated with the achievement measures.

TABLE 11  
Correlations Between Self-Concept Dimensions  
and Academic Achievement (N = 44)

	Mathematics		Language Arts		Total	
	r	p	r	p	r	p
Nonacademic Self-Concept	.0163	.917	.1441	.351	.0912	.556
Physical Abilities	-.0578	.710	-.0743	.632	-.0696	.653
Physical Appearance	-.2039	.184	-.0308	.843	-.1135	.463
Relations with Peers	-.1441	.351	-.1033	.505	-.1275	.410
Relations with Parents	.4890	.001	.5111	.000	.5251	.000
Academic Self-Concept	.9469	.000	.9137	.000	.9749	.000
Mathematics	.8891	.000	.6564	.000	.8005	.000
Language Arts	.8315	.000	.9462	.000	.9384	.000
All School Subjects	.9084	.000	.9174	.000	.9584	.000
Overall Self-Concept	.8780	.000	.8576	.000	.9100	.000

Table 12 displays the results of stepwise multiple regression analyses using Mathematics Achievement, Language Arts Achievement, and Total Achievement as dependent variables, and students' self-concept with respect to Mathematics, Language Arts and All School Subjects as predictors.

Self-concept in All School Subjects was found to be correlated 0.9084 with Achievement in Mathematics, contributing 82.5 per cent of the variance. When self-concept in Mathematics was added to the equation, the multiple R increased to 0.9565 and the amount of explained variance to 91.5 per cent.

Self-concept in Language Arts was found to be correlated 0.9463 with Achievement in Language Arts, explaining 89.5 per cent of the variance. When self-concept in All School Subjects was added to the equation, the correlation increased to 0.9589 and the explained variance to 92 per cent.

For total achievement, self-concept in All School Subjects was correlated 0.9584, explaining 92 per cent of the variance. When self-concept in Language

TABLE 12

Stepwise Multiple Regression Analyses for Academic Achievement  
Using Academic Self-Concepts in Mathematics, Language Arts,  
and All School subjects as Predictors

Self-Concept Variable	Step	R	R <sup>2</sup>	p
<u>Mathematics Achievement</u>				
All School Subjects S-C	1	.9084	.8252	.000
Mathematics Self-Concept	2	.9563	.9150	.000
<u>Language Arts Achievement</u>				
Language Arts Self-Concept	1	.9463	.8954	.000
All School Subjects S-C	2	.9589	.9195	.000
<u>Total Achievement</u>				
All School Subjects S-C	1	.9584	.9185	.000
Language Arts Self-Concept	2	.9748	.9502	.000
Mathematics Self-Concept	3	.9807	.9619	.000

Arts was added to the equation, the correlation increased to 0.9748 and explained variance to 95 per cent. When self-concept in Mathematics was also added to the equation, the correlation increased to 0.9807 and explained variance to 96.19 per cent.

#### Hypothesis Four

Students' total academic achievement will be predicted to a greater extent when their self-concept is combined with the Index of Educational Environment.

To test Hypothesis Four, correlation coefficients of each of the three self-concept variables with total academic achievement were computed. Multiple correlation coefficients were then computed combining the Index of Educational Environment with each of the self-concept variables to predict Total Academic Achievement.

TABLE 13  
Correlations of Self-Concept Variables with Total Academic Achievement, and the Additional Contributions by the Index of Educational Environment

Self-Concept Variable	r (Self-Concept Variable with Academic Achievement)	p	R (Self-Concept Variable + I.E.E. with Academic Achievement)	p (I.E.E. beta)
Total S-C	.9100	.000	.9333	.001
Academic S-C	.9749	.000	.9756	.299
Nonacademic S-C	.0912	.556	.8875	.000

As shown in the above Table, the Pearson correlation coefficient between total self-concept and total academic achievement was 0.9100. When the Index of Educational Environment was combined with total self-concept, the Multiple R was 0.9333. The 0.001 significance of the Index of Educational Environment beta weight indicated that the Index of Educational Environment made a statistically significant addition to the correlation. However, the addition of Index of Educational Environment to academic self-concept raised the correlations from

0.9749 only to 0.9756, an increase not statistically significant. By itself, the nonacademic self-concept correlation of 0.0912 was not statistically significant. The combined correlation with Index of Educational Environment was 0.8875. However, it should be noted that the original correlation of Index of Educational Environment with academic achievement was 0.8837. Thus, Hypothesis Four was accepted for total self-concept and for nonacademic self-concept, but rejected for academic self-concept.

This finding supports the claim by Shavelson and Bolus (1982), Marjoribanks (1979), and Song and Hattie (1984) who suggested that other variables, such as home environmental variables, could strengthen the often diverse relation between students' self-concept and total academic achievement. In this study, home environmental variables were measured by Index of Educational Environment which increased significantly the relations between each of total self-concept and nonacademic self-concept with academic achievement. The relation between academic self-concept and academic achievement was not strengthened, however, by the addition of Index of Educational Environment.

#### Hypothesis Five

Students' self-concept in a specific subject will be positively correlated with their achievement in that particular subject.

To test Hypothesis Five, correlation coefficients were computed between students' self-concept in a subject and their achievement in that subject. The results are shown in Table 14.

TABLE 14  
Correlations Between Self-Concept and Achievement in  
Mathematics and Language Arts, by Gender

	Mathematics		Language Arts	
	r	p	r	p
Boys	.9171	.000	.9328	.000
Girls	.8628	.000	.9559	.000
Total	.8891	.000	.9462	.000
Probability of Gender Difference		.412		.503

For Mathematics, the correlations between achievement and self-concept was 0.8891 for all students, 0.9171 for boys, and 0.8628 for girls. For Language Arts, the corresponding correlation coefficients were 0.9462, 0.9328, and 0.9559. All coefficients were statistically different from 0 ( $p = 0.000$ ). Thus, Hypothesis Five was accepted.

In addition, using Fisher's Z-transformation, tests were carried out to see whether the correlation for boys differed from those of girls. As the 0.412 and 0.503 probabilities indicate, there were no statistically significant differences in these correlations, by gender.

The results displayed in Table 14 are much higher than values reported elsewhere. The correlation coefficient of 0.8891 between self-concept in Mathematics and achievement in Mathematics is much higher than the value of 0.55 reported by Marsh, Relich, and Smith (1983, p. 184) and the value of 0.70 reported by Marsh, Smith, and Barnes (1985, p. 589). Similarly, the correlation coefficient of 0.9462 between self-concept in Language Arts and achievement in Language Arts is much higher than the corresponding values found by Marsh and

his colleagues. Marsh, Parker, and Smith (1983, p. 69) reported values of 0.20, 0.35, and 0.57, while Marsh, Relich, and Smith (1983, p. 184) and Marsh, Smith, and Barnes (1985, p. 589) reported values of 0.22 and 0.43 respectively.

#### Hypothesis Six

There will be a positive student-teacher agreement on all of the self-concept dimensions.

For each of the seven dimensions of self-concept and for total self-concept, correlations coefficients were calculated between the ratings of students and the ratings inferred by teachers.

TABLE 15  
Correlations Between Students and Teachers on  
the Seven Dimensions of Self-Concept

Self-Concept Dimension	r(Student-Teacher Agreement)	p
Physical Abilities	0.3563	0.009
Physical Appearance	0.3930	0.004
Relationship with Peers	0.0405	0.386
Relationship with Parents	-0.0812	0.300
Language Arts Self-Concept	0.8592	0.000
Mathematics Self-Concept	0.9066	0.000
School Subjects Self-Concept	0.9266	0.000
Total Self-Concept	0.7080	0.000

As shown in Table 15, all but two coefficients were statistically significant (different from 0 at the 0.01 level). Teachers were able to predict the self-concepts of students in Language Arts ( $r = 0.86$ ), in Mathematics (0.91), and in All School Subjects (0.93). They were less able to predict the self-concepts of



students with regard to physical appearance (0.39). They were still less successful with physical abilities ( $r = 0.36$ ), and were unable to predict students' self-concepts with respect to relationships with peers ( $r = 0.04$ ) or with parents (-0.08). For overall self-concept, the coefficient was 0.71 (50 per cent of the variance).

The data support the conclusion that grade five teachers know how pupils feel about themselves in relation to their school subjects, but they do not know much about how students feel about themselves in regard to physical appearance, physical abilities, and especially with respect to their relationships with parents and peers. Thus, teacher inferences about student self-concepts strongly support the validity of the instrument to measure self-concept with respect to school subjects, but not with respect to the other dimensions.

#### Hypothesis Seven

There will be a positive student-parent agreement on all of the self-concept dimensions.

For each of the seven dimensions of self-concept and for total self-concept, correlation coefficients were computed between the ratings of students and their ratings inferred by their parents (chiefly mothers). The results are presented in Table 16.

TABLE 16  
Correlations Between the Students and Parents on  
The Seven Dimensions of Self-Concept

Self-Concept Dimension	r(Student-Parent Agreement)	p
Physical Abilities	0.0706	0.325
Physical Appearance	0.3351	0.013
Relationship with Peers	-0.0191	0.451
Relationship with Parents	0.1550	0.158
Language Arts Self-Concept	0.9309	0.000
Mathematics Self-Concept	0.8944	0.000
School Subjects Self-Concept	0.9442	0.000
Total Self-Concept	0.8440	0.000

Half the coefficients were statistically significant (different from 0 at the 0.01 level), the others were not. Like teachers, parents were able to predict the self-concept of their children in Mathematics ( $r = 0.89$ ), in Language Arts (0.93) and in all school subjects (0.94). Again, like the teachers, parents were less able to predict the self-concept of their children with respect to physical appearance (0.34). Also, they were much less successful with respect to physical abilities ( $r = 0.07$ ), with relationships with parents (0.16), and with peers ( $r = -0.02$ ). The correlation coefficient for overall self-concept was 0.84 (71 per cent of the variance).

The data support the conclusion that the mothers of grade five students know how their children feel about themselves in relation to their school subjects, but they know little about how their children feel about themselves in regard to physical appearance, physical abilities, or their relationships with peers or even with parents. Thus, parent inferences about student self-concepts strongly support the validity of the instrument to measure self-concept with

respect to school subjects, but not with respect to the other dimensions.

### Analysis of Questions

#### Question One

How are the ratings on the environmental process variables related to specific-subject achievement, such as mathematics and language arts?

To answer Question One, correlation coefficients were first computed between each of the environmental process variables and each of Mathematics and Language Arts achievement. This is presented in Table 17.

**TABLE 17**  
**Correlations of Environment Variables with Achievement**  
**in Mathematics and Language Arts (N = 44)**

Process Variable	Mathematics		Language Arts		Total	
	r	p	r	p	r	p
Activities of Family	.7244	.000	.7843	.000	.7923	.000
Achievement Press	.8199	.000	.9168	.000	.9169	.000
Academic Insight of the Parents	.8251	.000	.7269	.000	.8089	.000
Academic Guidance	.6056	.000	.5995	.000	.6305	.000
Language Models	.5752	.000	.6914	.000	.6691	.000
Use of Mass Media	.0300	.847	.0437	.778	.0398	.399
Total (I.E.E.)	.6983	.000	.7414	.000	.7571	.000

The above Table shows that for five process characteristics, the correlation coefficients were statistically significant. The sole exception was Use of the Mass Media, which was correlated 0.03 with Mathematics achievement and 0.04 with Language Arts achievement. In other words, Use of Mass Media is uncorrelated with achievement in Mathematics and Language Arts. This suggests that the manner in which the mass media is used in the homes, of this sample of students, is not related to achievement in these two subject areas.

The next step in answering Question One was to carry out stepwise multiple regression analysis. The results are shown in Table 18.

**TABLE 18**  
**Stepwise Multiple Regression Analyses for Academic Achievement**  
**Using Process Variables as Predictors**

	Step	R	R <sup>2</sup>	p
<u>Mathematics</u>				
Academic Insight of Parents	1	.8251	.6808	.000
Achievement Press	2	.8904	.7928	.000
<u>Language Arts</u>				
Achievement Press	1	.9168	.8405	.000
<u>Total Achievement</u>				
Achievement Press	1	.9169	.8408	.000
Academic Insight	2	.9447	.8924	.000

For achievement in Mathematics, Academic Insight of Parents was found to be correlated 0.8251, contributing 68.08 per cent of the variance. When Achievement Press was added to the equation, the Multiple R increased to 0.8904, and the amount of explained variance increased to 79.28 per cent. All other process variables, when added to the regression equation did not significantly increase the amount of explained variance at the 0.01 level.

For Language Arts achievement, Achievement Press was found to be correlated 0.9168, contributing 84.05 per cent of the variance, with no other process variable, as shown in Table 18, contributing any statistically significant increase.

For total achievement scores, Achievement Press with a correlation of 0.9169 contributed 84.08 per cent of the variance, Academic Insight made an additional statistically significant contribution, raising explained variance to 89.24 per cent.

### Question Two

How are the ratings on the environmental process variables related to students' academic and nonacademic self-concept?

To answer Question Two, correlation coefficients were first computed between each of the environment process variables and each of academic and nonacademic self-concept. As shown in Table 19, for all the process variables except Use of Mass Media, the correlation coefficients with academic self-concept were statistically significant. However, for nonacademic self-concept, none of the process variables was statistically significant.

**TABLE 19**  
**Correlations of Environmental Process Variables with**  
**Academic and Nonacademic Self-Concept (N = 44)**

Process Variable	Academic Self-Concept		Nonacademic Self-Concept	
	r	p	r	p
Activities of Family	.8051	.000	.0808	.602
Achievement Press	.8907	.000	.0928	.549
Academic Insight of the Parents	.8469	.000	.0214	.890
Academic Guidance	.6236	.000	-.0708	.648
Language Models	.6302	.000	-.0367	.813
Use of Mass Media	.0394	.800	-.2215	.149
Total (I.E.E.)	.7522	.000	.0106	.945

The next step in answering Question 2 was to carry out stepwise multiple regression analysis. The results for academic self-concept are shown in Table 20.

TABLE 20  
Stepwise Multiple Regression Analysis  
for Academic Self-Concept

Process Variable	Step	R	R <sup>2</sup>	p
Achievement Press	1	.8907	.7934	.000
Academic Insight by Parents	2	.9422	.8877	.000

Achievement Press was correlated 0.8907 accounting for 79.33 per cent of the variance. When Academic Insight by Parents was added to the regression equation, the Multiple R increased to 0.9422, and a total of 88.77 per cent of the variance was explained. No other process variable made a statistically significant contribution to the variance.

For nonacademic self-concept, no variable made a statistically significant contribution to variance.

#### Questions Three and Four

Is there any relationship between family structure variables of birth order and number of brothers and sisters living at home and Index of Educational Environment, academic achievement, academic self-concept, and nonacademic self-concept?

To answer these questions, simple correlation coefficients were calculated and reported in Table 21.

**TABLE 21**  
**Correlations of Family Structure Dimensions with**  
**Index of Educational Environment, Self-Concept**  
**and Achievement (N = 44)**

	Birth Order		No. of Siblings	
	r	p	r	p
Index of Educational Environment	-.0450	.772	.0150	.923
Nonacademic Self-Concept	.1552	.315	.1865	.225
Academic Self-Concept	-.0923	.551	-.0023	.988
Mathematics Achievement	-.1038	.503	-.0422	.786
Language Arts Achievement	-.0728	.634	-.0457	.768
Total Achievement	-.0884	.568	-.0421	.786

As indicated in Table 21 above, no statistically significant relationships were found. The correlation coefficients ranged from -0.1038 to 0.1865. It can be said that birth order and number of siblings living at home have no effect on Index of Educational Environment, self-concept dimensions, and achievement in Mathematics and Language Arts.

#### Additional Analysis

Additional multiple regression analysis was carried out for each of the three achievement variables. The choice of the independent variables, listed in Table 22, was based on the following procedure. First, the correlation of each with the dependent variables had to be statistically significant ( $p < 0.01$ ). Then, for groups of variables, the total was chosen if its product-moment correlation exceeded that of its components; otherwise the components with correlations exceeding that of the total were chosen provided they survived a preliminary stepwise regression analysis. The result, as shown in Table 22, was seven predictors for Mathematics achievement, six for Language Arts achievement, and

eight for total achievement.

**TABLE 22**  
**Independent Variables in Multiple Regression Equations Using**  
**Achievement Measures as Dependent Variables (N = 44)**

Independent Variable	Mathematics r	Language Arts r	Total r
Academic Insight	.8251	*	.8089
Achievement Press	.8199	.9168	.9169
Index of Social Class	.8834	.8086	.8837
Combined Parents' Education	.8550	.8036	.8664
Relationship with Parents	.4890	.5111	.5251
Mathematics Self-Concept	.8891	*	.8005
Language Arts Self-Concept	*	.9462	.9384
All School Subjects S-C	.9084	.9174	.9584

\*Indicates a variable not included in the regression analysis

However, of the seven predictors for Mathematics achievement, only three contributed to the Multiple R. As shown in Table 23, All School Subjects Self-Concept contributed 82.52 per cent of the variance in Mathematics achievement, Mathematics Self-Concept raised the predicted variance to 91.5 per cent, and Index of Social Class raised it to 93.55 per cent.



**TABLE 23**  
**Stepwise Multiple Regression Analysis for Academic Achievement**  
**Using Selected Statistically Significant Predictors**

Variable	Step	R	R <sup>2</sup>	p
<b><u>Mathematics</u></b>				
All School Subjects S-C	1	.9084	.8252	.000
Mathematics Self-Concept	2	.9565	.9150	.000
Index of Social Class	3	.9672	.9355	.001
<b><u>Language Arts</u></b>				
Language Arts Self-Concept	1	.9463	.8954	.000
Achievement Press	2	.9606	.9228	.010
All School Subjects S-C	3	.9654	.9321	.025
<b><u>Total Achievement</u></b>				
All School Subjects S-C	1	.9584	.9185	.000
Language Arts Self-Concept	2	.9748	.9500	.000
Mathematics Self-Concept	3	.9807	.9619	.007
Achievement Press	4	.9833	.9670	.015
Combined Parents' Education	5	.9855	.9713	.022

For Language Arts achievement, three of the six predictors contributed significantly to the multiple regression equation - Language Arts Self-Concept, Achievement Press, and All School Subjects Self-Concept. Together, they were associated with 93.21 per cent of the variance in Language Arts achievement.

For total achievement, five of the eight predictors contributed to the multiple regression equation - All School Subjects Self-Concept, Language Arts Self-Concept, Mathematics Self-Concept, Achievement Press and Combined Parents' Education. Together, they were associated with 97.13 per cent of the variance in total achievement.

Neither Academic Insight nor Relations with Parents Self-Concept contributed to either of the three regression equations. Also, although not shown in the

Tables, similar analyses using students with one parent ( $N = 38$ ) yielded virtually identical results.

Since a case can be made that academic self-concepts are the result rather than the cause of academic achievement, it was decided to carry out the regression analysis using the variables of Table 22 with the exception of the three academic self-concept variables. This analysis is presented below.

**TABLE 24**  
Stepwise Multiple Regression Analysis for Academic Achievement  
Using Selected Statistically Significant Predictors  
Other than Academic Self-Concept Variables

Variable	Step	R	R <sup>2</sup>	p
<b><u>Mathematics</u></b>				
Index of Social Class	1	.8834	.7803	.000
Academic Insight of Parents	2	.9229	.8517	.001
Achievement Press	3	.9332	.8708	.020
<b><u>Language Arts</u></b>				
Achievement Press	1	.9168	.8405	.000
Index of Social Class	2	.9311	.8670	.007
<b><u>Total Achievement</u></b>				
Achievement Press	1	.9169	.8408	.000
Index of Social Class	2	.9587	.9191	.000
Academic Insight of Parents	3	.9668	.9347	.004

As shown in Table 24, the three variables Index of Social Class, Academic Insight of Parents, and Achievement Press combined to produce a Multiple R of 0.9332 explaining 87.08 per cent of the variance in Mathematics achievement, with each making a statistically significant contribution. For Language Arts achievement, the two variables Achievement Press and Index of Social Class

produced a Multiple R of 0.9311, explaining 86.70 per cent of the variance. (Academic Insight of Parents was not entered into the equation.) For total achievement, Achievement Press, Index of Social Class, and Academic Insight of Parents produced a Multiple R of 0.9668, explaining 93.47 per cent of the variance. The two variables Combined Parents' Education and Relationships with Parents made no statistically significant contribution to these Multiple R's.

## CHAPTER 5

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

The ability to improve students' academic achievement until graduation, from at least high school, is a basic concern of all educators and was the focus of much attention in this province during the latter part of 1986 and 1987 when the Report of the Royal Commission on Employment and Unemployment (1986) was being examined. The background report on education, Education for Self-Reliance (1986) made some predicted, but startling, comments about education in this province. Those pertinent to this study can be summarized by saying that Newfoundland students generally underachieve in school as compared to their Canadian counterparts. While 30 per cent of the Newfoundland labour force had less than nine years of formal schooling, the Canadian average is only 19 per cent. The Report suggested that the school system is to blame for these low attainment levels due to its inability to entice students to stay in school.

In the past, Government and educators have looked at ways to improve achievement in the schools. However, these efforts have focussed mostly on "in school" improvements such as better buildings and increased facilities. These efforts have perhaps helped improve achievement, but more work has to be done as these improvements have levelled off below, unfortunately, an "acceptable" level. In order to further increase academic achievement, educators are forced to look at other variables that are termed "out-of-school" or social factors. This study attempted to examine the various relations that exist between two such factors, self-concept and the educational environment in the home, with academic

achievement. If strong relations do exist, as this study set out to determine, then improvements in such areas should lead to improvements in students' academic achievement. If such factors are examined at each grade level, then any "low" scores that occur can be improved by qualified personnel and programs. Ideally, if problems are identified and corrected when they occur, then underachievement should not occur (or at least not to the extent that it is occurring at present). The result is that students will have a better chance of obtaining the prerequisite skills necessary for subsequent grades, become less frustrated with the subject matter, and hopefully stay in school until grade XII.

It was decided to use self-concept as one of the social factors, as it has been recognized as a valued outcome throughout history. More specifically, improvement in self-concept is said to facilitate improvements in other areas, particularly in academic achievement. Self-concept is seen here as a multifaceted and hierarchical structure which is the most recent of a series of approaches traced back to the Symbolic Interactionism point of view. This multifaceted, hierarchical approach is expressed in the Self-Description Questionnaire which tests two areas, academic and nonacademic self-concept. Academic self-concept is further defined to include (i) self-concept in mathematics, (ii) self-concept in language arts, and (iii) self-concept in all school subjects. Nonacademic self-concept is divided into four categories. They are (i) physical abilities, (ii) physical appearance, (iii) relations with peers and (iv) relationship with parents. The Self-Description Questionnaire contains ten questions for each academic dimension and eight questions for each nonacademic dimension for a total of 62 questions. The response to each question ranges on a five-point scale from false (1) to true (5). Each of the 4 nonacademic scales is measured by eight positively worded items. Therefore, for each nonacademic

scale, the lowest possible measure of self-concept is 8 while the highest measure is 40. The 3 academic scales are measured by a total of 30 questions, of which six are negatively worded. For these items, the five-point scale was reversed such that a score of 5 was given to those responding false and a score of 1 was given to those responding true. For each of the 3 academic scales, the lowest possible measure was 10 and the highest 50. The total self-concept was obtained by the addition of the 3 academic scales and the 4 nonacademic scales. The lowest score was 62 while the highest self-concept was 310.

The second social factor studied was the home environment. More specifically, the home environment was seen as one subset of the total environment in which the student lives, and was defined by (i) family structure, (ii) sociological status characteristics, and (iii) the educational environment that exists in the home. Like self-concept, improvement in the home is believed to improve academic achievement. Family structure was further defined by birth order and the number of brothers and sisters living at home while sociological status characteristics were measured by parents' combined education, parents' occupation, and the Index of Social Class. The Information Blank, administered to the parents during the interview, was designed to reveal data about the students' family structure and sociological status characteristics. The third measure of the home environment, the educational environment that exists in the home, was investigated by interviewing parents (mothers) using an interview schedule modified from that first presented by Dave (1963). The 39 questions in the interview schedule were rated according to a nine-point rating scale and grouped into eleven process characteristics. The scores were averaged and rounded off to the nearest one and as a result, each process characteristic ranged from 1 to 9. The Index of Educational Environment, which was found by

the addition of the eleven process characteristics, grouped into six process variables, ranged from 11 to 99 and served as a single numerical indicator of the educational environment in the home.

This study was based on grade V students who attended an elementary school under the jurisdiction of the St. John's Roman Catholic School Board during the 1986-87 school year. The associate superintendent of this school board showed a willingness to co-operate and gave the researcher permission to enter the selected school in order to collect necessary data. The school selected had the highest population of grade V students of any elementary school within the jurisdiction of the board. Also, the socioeconomic status of these students' families was considered to be fairly heterogeneous which allowed an adequate study of the home environment.

It was initially hoped to obtain a random sample of 8 boys and 7 girls from each of the 3 grade V classrooms. However, because some students were not present during testing and some parents were not willing to participate, 44 students were used. These consisted of 8 boys and 7 girls in the first classroom, 7 boys and 7 girls in the second, and 7 boys and 8 girls in the third classroom. The parents and teachers of these students also participated in the study.

The 44 students completed the SDQ in June 1987. Final marks in mathematics and language arts for each student were obtained to represent academic achievement. It was initially intended to use test scores in these subjects dating back to three months (April, May, and June) prior to the start of the study. Final marks had to be used, however, as it is not the policy of the St. John's Roman Catholic School Board to issue students' marks. The Board did release to the researcher the final marks of all students, but the names were not

revealed. The researcher obtained each student's marks at the time of the interview. To guard against bias the child's marks were requested at the end of the interview. The marks were then standardized to have a mean of 0 and a standard deviation of 1.0. The students' total academic achievement was determined by the addition of the students' standardized scores in mathematics and language arts.

To assess student-teacher agreement on the self-concept dimensions, the three grade V teachers completed the SDQ for each student in their class who participated in the study.

The parents of the children who participated in the study were also used in the study. Interviews with these parents were conducted from July 1987 to October, 1987 at a convenient pre-arranged time at which time the researcher collected four sets of data. First, the parent(s) (mothers) were interviewed using an interview schedule based largely on the one used by Dave (1963) to determine the educational environment that existed in the home. The parent(s) then completed the Information Blank which revealed data about the family structure and the sociological status characteristics. Finally, the parent(s) completed the SDQ for their child.

There were seven hypotheses and four questions examined in this thesis. Data were collected and analyzed in a manner as to best reveal information about the proposed hypotheses and questions. A minor problem in analyzing the data arose in 6 cases whereby fathers were deceased or separated/divorced. As a result, it was not known if father's occupation and father's education should be given a value of zero, or whether it should be excluded from the analysis altogether. Since this would affect the 3 sociological status measures, it was decided to do two separate analyses. One analysis was performed on all 44



students (22 boys and 22 girls) while entering zero for the missing cases. In the second analysis, students of single parent families were omitted. The number of cases in this analysis was reduced to 16 boys and 22 girls, for a total of 38.

The data collected for this study did not support the first hypothesis, namely that the Index of Educational Environment (I.E.E.) would be more highly related than sociological status characteristics to academic achievement. In fact, the reverse was found. Scores on combined parents' education, on a revised form of Warner's Index of Social Class, and on combined parents' occupation were all more highly related to achievement than were scores on a revised form of Dave's Index of Educational Environment. This finding was in sharp contrast to the literature, not that the correlation of I.E.E. with achievement was so much lower, but that the correlations of the three status measures were so much higher than usual.

Hypothesis two was accepted, namely that academic achievement would be predicted to a greater extent when Index of Educational Environment was combined with sociological status characteristics. While I.E.E. by itself explained 57.3 per cent of the variance using 44 students, Index of Social Class added 27.4 per cent, combined parents' occupation 21.8 per cent, and combined parents' education 27.3 per cent, with similar findings for the 38 students who had both parents. It is noteworthy that the simple measure of combined parents' education added more variance than did Warner's cumbersome Index of Social Class.

The third hypothesis stated that students' total academic achievement would be more highly correlated with students' academic self-concept than with nonacademic self-concept. This hypothesis was indeed supported by the data collected. In fact, the correlation coefficient between academic self-concept and

academic achievement ( $r = 0.9749$ ) was significantly higher than that between nonacademic self-concept and academic achievement ( $r = 0.0912$ ) at the 0.01 level. These two correlations were also tested for sex differences by using Fisher's Z-transformation at the 0.05 level of significance. There were no differences, however, in sex for each of the two correlations.

Hypothesis four, which stated that total academic achievement would be predicted to a greater extent when student self-concept was combined with I.E.E., received only partial support. The correlation of nonacademic self-concept with achievement was raised from 0.0912 to 0.8895 by the addition of I.E.E., that for total self-concept was raised from 0.9100 to 0.9300 ( $p = 0.001$ ). However, for academic self-concept, the already high correlation of 0.9749 was raised to 0.9756 ( $p = 0.299$ ), by the addition of I.E.E.

Hypothesis five stated that students' self-concept in a specific subject would be positively correlated with achievement in that particular subject. The correlation between students' self-concept in mathematics and achievement in mathematics was 0.8891 while the correlation between students' self-concept in language arts and achievement in language arts was found to be 0.9462. Each of these correlations was significantly greater than zero at the 0.01 level and no differences in sex existed in each correlation at the 0.05 level.

Hypothesis six and seven, which predicted that teachers and parents would be able to infer the self-concepts of students on all self-concept dimensions, received only partial support. Teachers and parents (mostly mothers) were able to infer quite well with the self-concepts of students in language arts, in mathematics, and in all school subjects (correlations ranging from 0.86 to 0.94). They were less able to predict students' self-concepts with regard to physical appearance (0.39 and 0.34). They were completely unable to predict regarding

relationships with peers or parents (0.16 to -0.08). Parents were less able than teachers to predict regarding physical abilities (0.07 vs 0.36). The data support the conclusion that while teachers and parents know how pupils feel about themselves in relation to their school subjects, they know little about students' feelings about themselves in regard to physical appearance or physical abilities, and they know nothing about how students feel about their relationships with parents and peers. While student-teacher and student-parent agreement supports the validity of the Self-Description Questionnaire with respect to school subjects, the lack of agreement raises questions about its validity to measure the other dimensions.

The first question raised, as part of the analysis, was how the ratings on the environmental process variables related to specific-subject achievement in mathematics and language arts. The answer to this question was found by performing a stepwise multiple regression analysis using mathematics and language arts as the dependent variables and the six environmental process variables and the I.E.E. as the predictor variables. "Academic insight by parents" added most to achievement in mathematics with a correlation of 0.8251. The variable "achievement press" was entered on the second step and made a significant contribution at the 0.05 level. The multiple R was 0.8904. When language arts was used as the dependent variable, a correlation of 0.9168 was calculated using "achievement press" as the predictor variable. No other variables made a significant contribution at the 0.05 level.

The second question, which was very similar to the first, asked how the ratings on the environmental process variables related to students' academic and nonacademic self-concept. This question was answered by performing a stepwise multiple regression using the six environmental process variables as the predictor

variables. "Achievement press" added significantly to students' academic self-concept with a correlation of 0.8907. The multiple correlation rose to 0.9422 when "academic insight by parents" was added in the second step. No other variable was entered at the 0.05 level. When students' nonacademic self-concept was the dependent variable, there were not any variables that could be entered at the 0.05 level.

Questions three and four examined the relationships of birth order and number of siblings living at home with Index of Educational Environment, academic achievement, academic self-concept, and nonacademic self-concept. Using correlation coefficient analyses, no statistically significant relationships were found.

One final analysis, separate from the hypotheses and questions was performed. Correlations were computed between each of achievement in mathematics, achievement in language arts, and total achievement, with 8 independent variables. As a result of this analysis, there were seven independent variables that had statistically significant correlations ( $p < 0.01$ ) with mathematics achievement. Similarly, there were six predictors for language arts achievement, and eight for total achievement. These predictors were used in a multiple regression analysis.

Out of the seven predictors for mathematics achievement, All School Subjects Self-Concept contributed 82.52 per cent of the variance in mathematics achievement, Mathematics Self-Concept raised the variance to 91.5 per cent, and Index of Social Class raised it to 93.55 per cent.

For language arts achievement, Language Arts Self-Concept, Achievement Press and All School Subjects Self-Concept all contributed significantly to the multiple regression equation, and were associated with 93.21 per cent of the

variance in language arts achievement.

For total achievement, All School Subjects Self-Concept, Language Arts Self-Concept, Mathematics Self-Concept, Achievement Press, and Combined Parents' Education were associated with 97.13 per cent of the variance in total achievement.

For achievement in mathematics, achievement in language arts, and total achievement, at least two academic self-concept dimensions added significantly to each. The three academic self-concept dimensions were removed and another regression analysis was performed.

Each of Index of Social Class, Academic Insight of Parents, and Achievement Press made a significant contribution to mathematics achievement, explaining 87.08 per cent of the variance.

A multiple  $R$  of 0.9311 was found using language arts achievement as the dependent variable, with Achievement Press and Index of Social Class adding significantly, explaining 86.70 per cent of the variance.

The independent variables Achievement Press, Index of Social Class, and Academic Insight of Parents produced a multiple  $R$  of 0.9668 with total achievement, explaining 93.47 per cent of the variance.

### Conclusions

Based on the findings of this study, several major conclusions can be drawn.

First, this study supports previous studies concerning the relationship between the educational environment of the home and academic achievement. Dave (1963) suggested that approximately 64 per cent of the variance in academic achievement could be explained by the educational environment in the

home. In the present study the educational environment of the home explained 57.3 per cent of the variance for all 44 pupils and 50.1 per cent when using the 38 students with both parents.

Secondly, contrary to the research by Dave, the correlations with academic achievement were at least as high for sociological status characteristics as for educational environment in the home. Combined parents' education, combined parents' occupation, and a revised version of Warner's Index of Social Class each explained as much of the variance in mathematics and language arts achievement as did the revised form of Dave's Index of Educational Environment. This startling finding suggests that these sociological status characteristics may be just as important to students' academic achievement as the educational environment of the home. Moreover, two of them, namely parents' education and parents' occupation are much easier to measure than educational environment of the home, which is measured by detailed data gathered from lengthy home interviews with parents. This unusual finding suggests the need for more research into the matter, including replication.

Thirdly, it can be concluded that when the Index of Educational Environment and either of the social status characteristics are combined, the prediction of academic achievement is improved.

Fourthly, strong relationships exist between student self-concept and achievement in each of mathematics and language arts. However, while academic self-concept is highly related to educational achievement, nonacademic self-concept is not at all related.

Fifthly, the correlations between actual self-concepts of students and the student self-concepts inferred by parents and teachers indicate that grade five teachers and parents know quite well how students feel about themselves in

respect to school subjects, but they do not know how students feel about themselves with respect to physical appearance or physical abilities, nor, especially, how they feel about themselves with respect to their relationships with parents or peers. Why? One answer may be that students, teachers, and parents all know, from marks awarded, the academic achievement of students, and that they form self-concepts and inferences about self-concepts from these marks. Thus, self-concept is derived from objective reality. With no shared objective reality underlying the realm of nonacademic self-concept the correlations are missing. These findings suggest that self-concept is the result rather than a cause of achievement. They suggest that self-concept can be raised by raising achievement, not vice versa.

Sixthly, Achievement Press, Index of Social Class, and (for mathematics achievement and total achievement) Academic Insight of Parents together explain 87, 87 and 93 per cent of the variances in mathematics, language arts and total achievement respectively, percentages only slightly smaller than when academic self-concept variables are included.

Seventhly, it had been suggested that strong correlations among parents, teachers and students regarding the self-concept of students would strengthen the validity claims of the Self-Description Questionnaire. For academic self-concept and its dimensions the claim is supported, but not for nonacademic self-concept and its dimensions.

Finally, neither birth order nor number of siblings is related to Index of Educational Environment, to the two major dimensions of self-concept (academic and nonacademic), nor to achievement.

### Recommendations for Further Research

1. This study should be replicated to see whether the strong correlations of social status characteristics, particularly parents' education, with teacher-made tests can be confirmed for the other measures of academic success, including possibly, the Canadian Test of Basic Skills, using the population of this study, and possibly other populations.
2. Studies should be conducted to determine the direction of the causal relationship underlying the high correlations between academic self-concept and academic achievement. While this study suggests that academic achievement determines academic self-concept, other studies have shown the opposite.
3. Further study and research is needed to develop a "better" instrument for the home environment, or to replace it with some other measure (i.e., parents' occupation and/or parents' education) that may be easier to administer and just as reliable. The revised interview schedule was too long and time consuming to administer efficiently.



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**APPENDICES**

**APPENDIX A**  
**LETTER OF PERMISSION FROM SCHOOL BOARD**

*Roman Catholic School Board for St. John's*

BELVEDERE  
BONAVENTURE AVENUE  
ST. JOHN'S, NEWFOUNDLAND  
A1C3Z4

1987 06 06

Mr. John Murrin  
P. O. Box 1248  
Bell Island, NF  
AOA 4H0

Dear John,

Re: Research for thesis: "Self-Concept and the Home Environment  
as it Relates to Academic Achievement of Fifth Grade Students  
in St. John's, Newfoundland"

Further to our meetings in June regarding the revision of some of the  
instruments, permission is granted to conduct a Study.

I understand that you have already administered the revised Student Question-  
naire and that you will contact parents over the Summer to arrange inter-  
views.

Best wishes for success in your research.

Yours truly,

Geraldine Roe  
Associate Superintendent  
Curriculum/Instruction

GR/gfp

**APPENDIX B**  
**LETTER SENT TO PARENTS**



June 12, 1987

Dear Parent(s):

I am a high school teacher who returned to Memorial University last July to complete a Master's degree in Education. As a requirement for this degree, I will be completing a thesis, for which I need your cooperation.

I am of the belief that the type and quality of education a child receives in the lower grades will largely determine the extent to which he/she will achieve in the higher grades. Therefore, I am attempting to study two areas that will influence a child's ability to achieve in the lower grades. One such area has to do with your child's Self-Concept, that is, how your child sees or perceives himself or herself. The second area I have researched as being crucial is that of the Home Environment. More specifically, I will attempt to determine the child's educational environment at home.

I have received permission from the St. John's Roman Catholic School Board to study these areas with grade five students. I will be working with Dr. Hubert Kitchen, Dr. Phil Warren, Dr. Llewellyn Parsons (professors at the university), Mrs. Geraldine Roe (Assistant Superintendent), the Principal, and the grade five teachers. All of these people are willing to support me in my efforts and have agreed to lend me a helping hand. They all believe that my efforts are worthwhile and that the findings will have practical implications to both teachers and parents in improving the quality of education your child receives.

I am hoping that you will help by working with me as well. I have been assured by the principal and the teachers that the parents would be willing to cooperate because of the high interest they have in the education of their children.

First, I need your permission to have your child take part in this study. Each child will be asked to complete what is called a "Self-Description Questionnaire". This will be used to measure your child's self-concept and will be administered sometime during the last week of school in June. It will take about 50 minutes for your child to complete this questionnaire.

I also need your cooperation. I would like to interview you about your child's educational environment at home. This interview will be conducted in your home or any other convenient location. I plan to carry out these interviews during the months of July and August of this year. I will inform you of the exact time at a later date. I would also like for parents to complete the same Self-Description Questionnaire that your child has completed. In all, I will need about an hour or so of your time.

I would appreciate it very much if you would indicate your willingness for you and your grade five child (children) to participate in this study. Please complete the last page of this letter and have your child return it to his/her homeroom teacher by Monday, June 14, 1987.

The responses to all the questionnaires used in this study will be held in the strictest of confidence, and under no circumstances will the names or identity of the respondents be revealed. If you have any further questions, or would like to see the Self-Description Questionnaire, please contact me by phoning 488-2935 (collect).

Thank you for your time and cooperation in this very important matter.

Yours truly,

John Murrin

## INSTRUCTIONS TO PARENTS

Please complete the following, detach this page, and have your child return it to his/her homeroom teacher on Monday, June 15, 1987. Please complete both parts A and B.

**Part A**

Please place a tick (✓) in the blank provided for either (i) or (ii) below.

- (i) Yes, I give permission for my child (childre.) to be involved in this study, and we (parents) too are willing to participate. \_\_
- (ii) Neither my child (children) nor I want to be involved in this study. \_\_

Please give reason. \_\_\_\_\_

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**Part B**

Please complete the following

1. Parent's Name: \_\_\_\_\_
2. Telephone Number: \_\_\_\_\_
3. Address: \_\_\_\_\_  
\_\_\_\_\_

4. Please give the name of each child you have in grade five and the name of his/her homeroom teacher.

Child's Name

Homeroom Teacher

_____	_____
_____	_____
_____	_____

**APPENDIX C**  
**INTERVIEW SCHEDULE FOR HOME ENVIRONMENT**

## INTERVIEW SCHEDULE

**Request:** It is essential to have a very accurate response to each of the questions. However, if a question is believed to be an invasion of your privacy, feel free not to answer it. We would rather have no response to some questions than inaccurate responses. Also, please answer the question on behalf of your spouse.

**Guarantee:** Anonymity of parents.

1. (a) How does he/she generally do in school? \_\_\_\_\_  
 (b) What grades does he/she usually receive? \_\_\_\_\_  
 (c) What are his/her best subjects? \_\_\_\_\_  
 (d) What are his/her weakest subjects? \_\_\_\_\_
2. (a) What subjects has he/she improved in most during the past year? \_\_\_\_\_  
 (b) The least? \_\_\_\_\_
3. (a) What grades do you expect him/her to receive? \_\_\_\_\_  
 (b) How do you feel about your child's progress in school? \_\_\_\_\_  
 (c) What grades satisfy you? \_\_\_\_\_
4. How do (did) your other children generally do in school? \_\_\_\_\_
5. (a) What organizations or clubs do you belong to (CWL, Lions, Kiwanis, PTA, etc.)? \_\_\_\_\_  
 (b) Does your child know what you do in these organizations? \_\_\_\_\_
6. Please list the kinds of toys, games, books, etc. you have bought for your child in the past two years (include birthdays and holidays). \_\_\_\_\_
7. (a) Does your child have a library card? \_\_\_\_\_  
 (b) What is the name (and location) of the library? \_\_\_\_\_  
 (c) Do you ever accompany him/her to the library? \_\_\_\_\_  
 (d) What kinds of books do you encourage him/her to read? \_\_\_\_\_  
 (e) Where else does he/she obtain reading material? \_\_\_\_\_
8. (a) Do you have a dictionary in your home? \_\_\_\_\_  
 (b) What other learning resources does your child have at his/her disposal? \_\_\_\_\_
9. (a) How often do you and your spouse discuss your child's progress in school? \_\_\_\_\_  
 (b) What generally results from such discussion? \_\_\_\_\_

10. (a) Have you or your spouse had any experience in teaching? \_\_\_\_\_
11. (a) Did you read books to your child when he/she was younger? \_\_\_\_\_  
 (b) About how many hours per week? \_\_\_\_\_  
 (c) How regularly did you read to him/her? \_\_\_\_\_  
 (d) Does he/she read to you? \_\_\_\_\_  
 (e) How often? \_\_\_\_\_
12. (a) How would you describe your child's language usage? \_\_\_\_\_  
 (b) Did you help him/her to increase his/her vocabulary? \_\_\_\_\_  
 (c) If so, how? \_\_\_\_\_  
 (d) How have you helped him/her to acquire appropriate use of words and sentences? \_\_\_\_\_  
 (e) Are you still helping him/her in these respects? \_\_\_\_\_
13. (a) How much would you estimate you correct him/her in his/her speech? \_\_\_\_\_  
 (b) How particular are you about your child's speech? \_\_\_\_\_  
 (c) Are there particular speech habits of him/her that you are working on to improve? \_\_\_\_\_
14. How much schooling do you wish your child to receive? \_\_\_\_\_
15. How much schooling do you expect your child to receive? \_\_\_\_\_
16. What is the minimum level of education that you think your child must receive? \_\_\_\_\_
17. Do you have any idea about the kind of work you would like to see your child do when he/she grows up? \_\_\_\_\_
18. How does your spouse feel about the kind of work he/she is doing? \_\_\_\_\_
19. How do you feel, in general, about the accomplishments of your family? \_\_\_\_\_
20. (a) How important has education been in achieving these goals? \_\_\_\_\_  
 (b) How much importance is education going to have in the life of your child? \_\_\_\_\_  
 (c) Would his/her future status be radically affected if he/she does not attain the level of education you wish him/her to attain? \_\_\_\_\_
21. (a) What is the educational level of some of your close friends and relatives? \_\_\_\_\_
22. (a) Do any of their children go to college or have they? \_\_\_\_\_  
 (b) Are there any who did not attend college? \_\_\_\_\_  
 (c) Are there any who did not complete high school? \_\_\_\_\_

23. (a) Have you met with your child's present teacher? \_\_\_\_\_  
 (b) If so, when? \_\_\_\_\_ why? \_\_\_\_\_  
 (c) Does the teacher usually initiate parent-teacher conferences? \_\_\_\_\_  
 (d) If you ask for a meeting, for what purpose? \_\_\_\_\_  
 (e) What other ways are you in contact with the school? \_\_\_\_\_
24. (a) Do you know your child's best friends in the neighbourhood and school? \_\_\_\_\_  
 (b) Do you approve of them? \_\_\_\_\_  
 (c) How would you rate these kids in their studies? \_\_\_\_\_  
 (d) Do you help your child in choosing his/her friends? \_\_\_\_\_  
 (e) If so, how? \_\_\_\_\_
25. (a) Do you have your child read biographies of great people? \_\_\_\_\_  
 (b) Has he/she read any biographies in the past two months? \_\_\_\_\_  
 (c) If so, whose? \_\_\_\_\_
26. (a) Did you hug, kiss or speak approvingly to your child in the past few days? \_\_\_\_\_  
 (b) If so, for what reason? \_\_\_\_\_  
 (c) What are some of the activities and accomplishments of your child that you praise and approve of? \_\_\_\_\_  
 (d) How do you do this? \_\_\_\_\_  
 (e) What things do you find you have to scold him/her for? \_\_\_\_\_
27. (a) Have you thought about the kind of high school program you want your child to enroll in? \_\_\_\_\_  
 (b) If so, which one? \_\_\_\_\_
28. (a) How often does the school give out report cards or progress reports? \_\_\_\_\_  
 (b) Who usually signs it? \_\_\_\_\_  
 (c) Do both parents see it? \_\_\_\_\_  
 (d) In what ways do you use the report card? \_\_\_\_\_
29. (a) Do you discuss his/her school grades with him/her? \_\_\_\_\_  
 (b) What particular things do you discuss with him/her? \_\_\_\_\_
30. (a) Do you have college plans for him/her? \_\_\_\_\_  
 (b) If so, what have you done, or what are you doing, to financially prepare for this? \_\_\_\_\_  
 (c) In what other ways do you prepare him for the attainment of educational goals? (e.g., acquaint him with college, telling him about what people learn in college etc.) \_\_\_\_\_
31. (a) About how often do you ask your child how well he/she is doing in school? \_\_\_\_\_  
 (b) What particular things do you ask him/her? \_\_\_\_\_

32. (a) Do you know what textbooks he/she uses in different subjects? \_\_\_\_\_  
(b) Do you know what things he/she will be studying during the year in each subject? \_\_\_\_\_  
(c) If so, how do you find this out? \_\_\_\_\_
33. (a) Is there any regular amount of time you have your child study each day? \_\_\_\_\_  
(b) How regularly is it followed? \_\_\_\_\_
34. (a) Have you had to sacrifice any of your major needs or desires for the present and/or future education of your child? \_\_\_\_\_  
(b) If so, what did you give up? \_\_\_\_\_  
(c) What are the immediate consequences? \_\_\_\_\_
35. (a) What are your favorite TV programs \_\_\_\_\_  
(b) Did you recommend that your child watch any particular programs in the past week? \_\_\_\_\_  
(c) If so, which ones? \_\_\_\_\_  
(d) Did you discuss any programs with him/her after watching them? \_\_\_\_\_
36. (a) Does he/she help in your routine housework? \_\_\_\_\_  
(b) If so, what responsibilities does he/she have? \_\_\_\_\_  
(c) How punctually does he/she carry them out? \_\_\_\_\_
37. (a) Is the housework distributed among the members of the family? \_\_\_\_\_  
(b) If so, who did the planning for such arrangements? \_\_\_\_\_  
(c) How regularly are these assignments followed? \_\_\_\_\_  
(d) What factors come in the way of carrying out such plans? \_\_\_\_\_
38. (a) About how many hours a week does he/she usually watch TV? \_\_\_\_\_  
(b) What are his/her favorite programs? \_\_\_\_\_  
(c) Do you approve of them? \_\_\_\_\_  
(d) Do you watch them with him/her? \_\_\_\_\_  
(e) If not, what do you do about them? \_\_\_\_\_  
(f) Do you set a limit on viewing? \_\_\_\_\_  
(g) Are you aware of the types of TV programs, VCR videos, etc., your child watches? \_\_\_\_\_
39. (a) How would you rate your child's habit of completing his/her work on time, not leaving a problem undone, correcting his/her mistakes, etc.? \_\_\_\_\_  
(b) How did he/she acquire these habits? \_\_\_\_\_



ITEM IN THIS INSTRUMENT	SAME AS THE FOLLOWING NUMBER IN DAVE'S (1963) INSTRUMENT	SOMEWHAT SIMILAR TO THE FOLLOWING NUMBER(S) IN DAVE'S INSTRUMENT
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---

1	2	
2	3	
3		4
4	5	
5		6
6		13
7		14
8		18 and 19
9	23	
10		24
11		31
12	34	
13		35
14		37
15		38
16		39
17		40
18		41
19		42
20	43	
21	44	
22	45	
23	46	
24	47	
25		48
26	49	
27		50
28		51
29	52	
30		53
31		54
32		55
33	57	
34		62
35	33	
36		58
37		59
38		32 and 33
39	60	

**APPENDIX D**  
**RATING SCALES**

## PARENTS' INTEREST IN ACADEMIC ACHIEVEMENT

### Criteria:

- a) Extent of participation in the educational activities (e.g. reading, PTA).
- b) Keenness for the educational progress of the child.

### Questions:

5, 9, 10, 23.

### Rating Scale:

9. Both parents very active in educational organizations and activities. Very particular about the educational progress of the child.
- 8.
7. Both or any one of the parents active in educational organizations and activities. Particular about the educational progress of the child.
- 6.
5. Only one of the parents occasionally active in educational organizations and activities. Fairly particular about the educational progress of the child.
- 4.
3. Only one of the parents occasionally active in educational organizations and activities. Not quite particular about the educational progress of the child.
- 2.
1. None of the parents active in any educational organization or activity. Not at all particular about the educational progress of the child.

## PREPARATION AND PLANNING FOR THE ATTAINMENT OF EDUCATIONAL GOALS

### Criteria:

- a) Financial preparation.
- b) Academic and mental preparation (e.g. emphasizing good grades as preparation for higher learning, selecting bright children as friends).

### Questions:

23, 24, 25, 27, 29, 30, 34.

### Rating Scale:

- 9. Sound financial preparation. Also academic and mental preparation for higher learning.
- 8.
- 7. A good financial preparation, or achievement of best grades in the hope of getting good scholarships for higher learning. Also fairly good academic and mental preparation for higher learning.
- 6.
- 5. Moderate financial preparation, or a desire to do it but not yet done. Some efforts toward academic and mental preparation for higher learning.
- 4.
- 3. Only incidental preparation. No definite plans made yet. Moderately high educational goals. However, the parents are aware of the need for doing financial and other preparation to reach the goals.
- 2.
- 1. No financial or other preparation. Absence of any higher educational goals.

**SOCIAL PRESS FOR ACADEMIC ACHIEVEMENT****Criteria:**

- a) Education of the close relatives, parents, friends, and neighbors.
- b) Education of their children.

**Questions:**

21, 22.

**Rating Scale:**

- 9. All or most having four years of college and beyond. Their children of college age are in college.
- 8.
- 7. Most having some college education. Many have finished all the four years. Most of their children of college age are in college.
- 6.
- 5. Some having high school completed or above, and some having high school not completed. Some of their children of college age are in college.
- 4.
- 3. Many having high school not completed. Most of their children of college age are not in college. Some have dropped out before completing high school.
- 2.
- 1. Hardly any having high school completed. Their children of college age are not in college. Most of them have dropped out before completing high school.

**PARENTAL ASPIRATIONS FOR THE EDUCATION OF THE CHILD****Criteria:**

- a) Nature of the educational and vocational goals.
- b) Level of expectation of the educational accomplishments.

**Questions:**

3, 4, 14, 15, 16, 17, 20.

**Rating Scale:**

- 9. Beyond four years of college. Occupational expectation requiring very high education. Expectation of best grades in school.
- 8.
- 7. Four years of college. Occupational expectation requiring high education. Expectation of A's with some B's.
- 6.
- 5. At least through high school. Some college education desired. Moderately high occupational aspiration. Expectation of B's with some A's and C's.
- 4.
- 3. Only up to high school. Very moderate and uncertain occupational expectation. Expect grades C's with some B's.
- 2.
- 1. Absence of any long term educational and vocational goals. Only narrow and immediate goals. No expectation about grades, or expectation below C's.

# **KEENNESS OF THE PARENTS FOR CORRECT AND EFFECTIVE LANGUAGE USAGE**

## **Criteria:**

- a) Regularity in reading to the child during pre-school period.
- b) Variety of efforts for increasing vocabulary, and correcting language usage, if needed.

## **Questions:**

7, 8, 11, 12, 13.

## **Rating Scale:**

9. Read to the child very regularly, almost everyday, from early childhood until he began reading himself. Some special reading to him still continues. The child is encouraged to read some special material to the parents and others. A great variety of efforts in increasing vocabulary and improving language usage.
- 8.
7. Read to the child quite regularly, almost everyday, for about three years or more before he began to read himself. Some occasional reading to him still continues. A good variety of efforts in improving his vocabulary and language usage.
- 6.
5. Read to the child fairly regularly for two or three times a week for about two years or so. Some effort to improve vocabulary and language usage still continues.
- 4.
3. Read to the child during the pre-school period occasionally and without any regularity. Incidental efforts to improve vocabulary and language usage.
- 2.
1. Not read to the child with any regularity at any time. Hardly any efforts to improve vocabulary and language usage.

**PARENTS' OWN ASPIRATIONS****Criteria:**

- a) Present accomplishments.
- b) Means of the accomplishments.
- c) Future aspirations.

**Questions:**

17, 18, 19, 20.

**Rating Scale:**

- 9. Very high accomplishments already attained. Education used as if the most important means of the accomplishments, or a very keen feeling for not having enough education. Still very high aspirations.
- 8.
- 7. High accomplishments already attained. Education used as one of the chief means of the accomplishments, or a keen feeling for not having enough education. Still high aspirations.
- 6.
- 5. Fairly high accomplishments already achieved. Education used as one of the chief means of the accomplishments, or a keen feeling for not having enough education. Still more, but moderate aspirations.
- 4.
- 3. Moderate accomplishments. Education played only an incidental role in the accomplishments. Very moderate aspirations.
- 2.
- 1. Little accomplishments. Education is not considered as a means of any possible accomplishments. Practically no future aspirations.



## STANDARDS OF REWARD FOR EDUCATIONAL ATTAINMENT

## Criteria:

- a) Valuing academic accomplishments.
- b) Selection of gifts having educational value.

## Questions:

3, 6, 26, 29.

## Rating Scale:

- 9. Academic accomplishments very highly and invariably praised. They are praised more than any other accomplishments. Very high expectations of educational achievement. Selection of gifts invariably having educational value.
- 8.
- 7. Academic accomplishments are one of the most highly praised accomplishments. High expectation of educational achievement. Gifts very often having educational value.
- 6.
- 5. Academic accomplishments are praised. Some other accomplishments are praised more. Moderately high expectations for educational achievement. Some gifts having educational value.
- 4.
- 3. Academic accomplishments are occasionally praised. Some other accomplishments are praised highly. Moderate expectations of educational achievement. Gifts having educational value chosen only occasionally.
- 2.
- 1. Academic accomplishments are not praised at all. Some other accomplishments are very highly praised. Very low expectations of educational achievement. Gifts hardly having any educational value.

## KNOWLEDGE OF THE EDUCATIONAL PROGRESS OF THE CHILD

### Criteria:

- a) Extent of knowledge of the child's educational progress.
- b) Extent of knowledge of the textbooks used by the child and his courses of study.

### Questions:

1, 2, 28, 31, 32.

### Rating Scale:

9. Detailed and up-to-date knowledge about the daily progress of the child in the school. Knowledge about the specific topics being studied or recently completed by the child in different subjects. Good acquaintance with all the textbooks used by the child.
- 8.
7. Detailed knowledge about the daily progress of the child in the school. Knowledge about the general topics covered or being covered. Acquaintance with some of the textbooks.
- 6.
5. General idea about the child's school progress in terms of subjectwise grades. Knowledge of the general topics covered in some of the subjects. Acquaintance with one or two textbooks.
- 4.
3. Some gross idea about the child's school progress in terms of general grades. Knowledge of the subjects studied but not the topics. No acquaintance with textbooks.
- 2.
1. No knowledge of the child's school progress. No knowledge of the textbooks or topics of study.

## QUALITY OF THE LANGUAGE USAGE OF THE PARENTS

### Criteria:

- a) Fluency of expression.
- b) Pronunciation.
- c) Vocabulary.
- d) Organization of thoughts.

### Evidences:

From the conversation with the mother during the interview.

### Rating Scale:

- (i) To rate each of the four criteria individually on the following scale, and
  - (ii) to take their average as the overall rating for this characteristic.
- 9. Excellent.
  - 8. Very good.
  - 7. Good.
  - 6. A little above average.
  - 5. Average.
  - 4. A little below average.
  - 3. Quite below average.
  - 2. Poor.
  - 1. Very poor.

## USE OF TV AND OTHER SUCH MEDIA

### Criteria:

- a) Purpose of the use.
- b) Extent of the use.

### Questions:

35, 38.

### Rating Scale:

- 9. Regular use for specifically educational purposes. Recreational value subsidiary. Frequent follow-up discussions.
- 8.
- 7. Regular use for general educational and recreational purposes. Sometimes follow-up discussions.
- 6.
- 5. Fairly regular use. Recreational purpose often more predominant than educational purpose. Occasional follow-up discussions.
- 4.
- 3. Not much use of TV and other media. Mostly recreational purpose when used. Hardly any follow-up discussions.
- 2.
- 1. No use of any of these media.

**DEGREE OF STRUCTURE AND ROUTINE IN THE HOME MANAGEMENT****Criteria:**

- a) Planning and distribution of work.
- b) Punctuality in following it.

**Questions:**

33, 36, 37, 39

**Rating Scale:**

- 9. Well planned home management. Distribution of work among the family members. Punctuality and discipline in following the plans.
- 8.
- 7. Major duties distributed among the family members. Planning followed quite consistently.
- 6.
- 5. Moderate planning. It is followed with only moderate regularity.
- 4.
- 3. Some efforts made for the planning and distribution of work which was not followed systematically.
- 2.
- 1. No planning of household work.

**APPENDIX E**  
**SELF-DESCRIPTION QUESTIONNAIRE**

Name: \_\_\_\_\_

Boy: \_\_\_\_\_ Girl: \_\_\_\_\_

Teacher: \_\_\_\_\_

This is a chance to look at yourself. It is not a test. There are no right answers and everyone will have different answers. Be sure that your answers show how you feel about yourself. **Please do not talk about your answers with anyone else.** We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence and decide your answer (You may read quietly to yourself as I read aloud). There are five possible answers to each question--"True", "False", and three answers in between. There are five blanks next to each sentence, one for each of the answers. Choose your answer to a sentence and put a tick (✓) on the blank you choose. **Please do not say your answer out loud or talk about it with anyone else.**

Before you start, there are three examples below. Somebody named Bob has already answered one of these sentences to show you how to do it. In the second and third sentence, you must chose your own answer and put in your own tick (✓).

True  
 Mostly True  
 Sometimes False,  
 Sometimes True  
 Mostly False  
 False

1. I like to read comic books

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(Bob put a tick in the blank under the answer "TRUE". This means he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "False", or "Mostly False".)

2. In general, I am neat and tidy

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. I like to watch T.V.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

For sentences 2 and 3, you must choose the answer that is best for you. First you must decide if the sentence is "TRUE" or "FALSE", or somewhere in between.

If you want to change an answer you have marked, you may erase the tick and put a new tick in another blank on the same line. For all the sentences, be sure that your tick is on the same line as the sentence you are answering. You should have one answer for each sentence. Please do not leave out any of the sentences.

If you have any questions please put up your hand. Turn over the page and begin. Once you have started, Please do not talk.



	True	Mostly True	Sometimes False, Sometimes True	Mostly False	False
1. I am good looking (1)	_____	_____	_____	_____	_____
2. I am good in All School Subjects (2)	_____	_____	_____	_____	_____
3. I can run fast (3)	_____	_____	_____	_____	_____
4. I get good marks in Language Arts (4)	_____	_____	_____	_____	_____
5. My parents understand me (5)	_____	_____	_____	_____	_____
6. I hate Mathematics (6)	_____	_____	_____	_____	_____
7. I have lots of friends (7)	_____	_____	_____	_____	_____
8. I like the way I look (8)	_____	_____	_____	_____	_____
9. I enjoy doing work in All School Subjects (9)	_____	_____	_____	_____	_____
10. I like to run and play hard (10)	_____	_____	_____	_____	_____
11. I like Language Arts (11)	_____	_____	_____	_____	_____
12. I enjoy doing work in Mathematics (13)	_____	_____	_____	_____	_____
13. I make friends easily (14)	_____	_____	_____	_____	_____
14. I have a pleasant looking face (15)	_____	_____	_____	_____	_____
15. I get good marks in All School Subjects (16)	_____	_____	_____	_____	_____
16. I look forward to Language Arts (18)	_____	_____	_____	_____	_____
17. I like my parents (19)	_____	_____	_____	_____	_____
18. I look forward to Mathematics (20)	_____	_____	_____	_____	_____
19. I have more friends than most of the other kids (21)	_____	_____	_____	_____	_____
20. I am an attractive person (22)	_____	_____	_____	_____	_____
21. I am not very good in All School Subjects (23)	_____	_____	_____	_____	_____

	True	Mostly True	Sometimes False, Sometimes True	Mostly False	False
22. I enjoy sports and games (24)	—	—	—	—	—
23. I am interested in Language Arts (25)	—	—	—	—	—
24. My parents like me (26)	—	—	—	—	—
25. I get good marks in Mathematics (27)	—	—	—	—	—
26. I get along with other kids easily (28)	—	—	—	—	—
27. I learn things quickly in All School Subjects (30)	—	—	—	—	—
28. My body is strong and powerful (31)	—	—	—	—	—
29. I am not very good in Language Arts (32)	—	—	—	—	—
30. I want to raise my children like my parents did (33)	—	—	—	—	—
31. I am interested in Mathematics (34)	—	—	—	—	—
32. I am easy to like (35)	—	—	—	—	—
33. Other kids think I am good looking (36)	—	—	—	—	—
34. Work in All School Subjects is easy for me (37)	—	—	—	—	—
35. I am good at sports (38)	—	—	—	—	—
36. I enjoy doing work in Language Arts (39)	—	—	—	—	—
37. My parents and I spend a lot of time together (40)	—	—	—	—	—
38. I learn things quickly in Mathematics (41)	—	—	—	—	—
39. Other kids want me to be their friend (42)	—	—	—	—	—
40. I have a good looking body (43)	—	—	—	—	—
41. I hate All School Subjects (44)	—	—	—	—	—

	False	Mostly False	Sometimes False, Sometimes True	Mostly True	True
42. I am good at aiming at targets (45)	_____	_____	_____	_____	_____
43. Work in Language Arts is easy for me (46)	_____	_____	_____	_____	_____
44. My parents are easy to talk to (47)	_____	_____	_____	_____	_____
45. I like Mathematics (48)	_____	_____	_____	_____	_____
46. I am better looking than most of my friends (50)	_____	_____	_____	_____	_____
47. I am interested in All School Subjects (51)	_____	_____	_____	_____	_____
48. I am a good athlete (52)	_____	_____	_____	_____	_____
49. I am good at Language Arts (53)	_____	_____	_____	_____	_____
50. I get along well with my parents (54)	_____	_____	_____	_____	_____
51. I am good at Mathematics (55)	_____	_____	_____	_____	_____
52. I am popular with kids my own age (56)	_____	_____	_____	_____	_____
53. I have nice features like nose, eyes, and hair (57)	_____	_____	_____	_____	_____
54. I look forward to All School Subjects (58)	_____	_____	_____	_____	_____
55. I am good at throwing a ball (59)	_____	_____	_____	_____	_____
56. I hate Language Arts (60)	_____	_____	_____	_____	_____
57. My parents and I have a lot of fun together (61)	_____	_____	_____	_____	_____
58. Work in Mathematics is easy for me (62)	_____	_____	_____	_____	_____
59. Most other kids like me (63)	_____	_____	_____	_____	_____
60. I like All School Subjects (64)	_____	_____	_____	_____	_____
61. I learn things quickly in Language Arts (65)	_____	_____	_____	_____	_____
62. I am not very good in Mathematics (66)	_____	_____	_____	_____	_____

**APPENDIX F**  
**INFORMATION BLANK**

# INFORMATION BLANK

1. Name: \_\_\_\_\_

2. (a) Child's name: \_\_\_\_\_  
(b) Birth Order: \_\_\_\_\_

3. Adults living at home:

a) Father    ☐ Yes    ☐ No  
b) Mother    ☐ Yes    ☐ No  
c) Other \_\_\_\_\_

4. Children living at home:

	Name	Sex	Age	Grade in School	Remarks (at home, adopted, etc.)
a)					
b)					
c)					
d)					
e)					

5. Index of Social Class:

	Weight	Weighted Rating	Rating
a) Father's Occupation _____	_____	<u>4</u>	_____
b) Mother's Occupation _____	_____	<u>4</u>	_____
c) Source of Income _____	_____	<u>3</u>	_____
d) House Type _____	_____	<u>3</u>	_____
e) Dwelling Area _____	_____	<u>2</u>	_____

6. Combined Rating of Parents' Occupation:

	Rating
a) Father's Occupation _____	_____
b) Mother's Occupation _____	_____

7. Combined Rating of Parents' Education:

	Rating
a) Father's education _____	_____
b) Mother's education _____	_____

**APPENDIX G**  
**RATING SCALE FOR PARENTS' EDUCATION**

**SEVEN-POINT RATING SCALE FOR PARENTS' EDUCATION**

1. 0-8 years of schooling
2. high school
3. some post-secondary education
4. trades certificate (i.e. welding, etc.) at college (1 year)
5. non-trades certificate (i.e. food technology) at college (3 years)
6. university degree
7. professional or graduate school

**Note:** This revised seven-point rating scale was based in part on a somewhat obsolete seven-point scale used by Warner (1960) and a five-point scale used by the Royal Commission on Employment and Unemployment (1986, p. 65).

**APPENDIX H**  
**RATING SCALE FOR STATUS CHARACTERISTICS**



SEVEN-POINT RATING SCALE FOR THE  
FOUR STATUS CHARACTERISTICS

- a) Occupation
1. unskilled workers.
  2. semi-skilled workers.
  3. proprietors of small businesses
  4. skilled workers.
  5. clerks and kindred workers.
  6. semi-professionals and smaller officials of large businesses.
  7. professionals and proprietors of large businesses.
- b) Source of Income
1. public relief and non-respectable income.
  2. private relief.
  3. wages.
  4. salary.
  5. profits and fees.
  6. earned wealth.
  7. inherited wealth.
- c) House Type
1. houses in very bad condition (very poor houses).
  2. medium-sized houses in bad condition; small houses in bad condition (poor houses).
  3. small houses in good condition; small houses in medium condition; dwellings over stores (fair houses).
  4. medium-sized houses in medium condition; apartments in regular apartment buildings (average houses).
  5. large houses in bad condition (good houses).
  6. large houses in medium condition; medium sized houses in good condition (very good houses).
  7. large houses in good condition (excellent houses).
- d) Dwelling Area
1. very low; slum.
  2. low; considerably deteriorated, run-down and semi-slum.
  3. below average; area not quite holding its own, beginning to deteriorate.
  4. average; residential neighbourhoods, no deterioration in area.
  5. above average; areas all residential, larger than average space around houses; apartment areas in good condition, etc.
  6. high; the better suburbs and apartment house areas, houses with spacious yards, etc.
  7. very high; executive neighbourhood.

**WEIGHTS ASSIGNED TO THE FOUR STATUS CHARACTERISTICS**

1. total occupation (8) which includes a weight of 4 each for both mother's occupation and father's occupation
2. source of income (3)
3. house type (3)
4. dwelling area (2)

Source: W.L. Warner et al., Social Class in America (New York: Harper and Row, 1960), p. 123.







