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**Family Relationships and Children's School  
Achievement: Data from the National  
Longitudinal Survey of Children and Youth**

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**by**

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## Executive Summary

Since the 1980s, educators, child developmental specialists, and other social scientists have been increasingly interested in the overlap between the family and the school in the lived experiences of children. This is due largely to a shift in the psychological sciences in general and child development research in particular, from psychological explanations for behaviour to contextual or situational accounts.

This study analyses the effects of family relationship processes and family member characteristics on the school achievement of boys and girls aged 6 to 11 years. The results show that socio-economic status (SES) has a large and pervasive influence over children's school achievement. SES had a strong and direct impact on the level of social support perceived by parents, on the level of parental depression, on the tendency to use hostile parenting practices, on the child's academic skills, and on the level of achievement attained by the children. The results also show that a number of family characteristics (social support, parental depression, family dysfunction, hostile parenting, and child's academic skills) all interact in specific ways to produce positive or negative effects on achievement. Importantly, no differences were found between girls and boys nor between younger (6/7 years) and older (10/11 years) children in the pattern of effects on achievement.

The findings suggest the need to improve the economic circumstances of families. Indeed, preventive measures that alleviate conditions of poverty could make unnecessary the creation of later and more expensive intervention programs aimed at treating the more complicated family problems that are too often associated with low income conditions.

The results also suggest that when family problems appear it might be most helpful to intervene at the level of the whole family so that the general patterns of dysfunction can be reduced. This will allow parents to adopt more helpful parenting practices and provide opportunities to provide the right kinds of supports for children's school activities. Nonetheless, regardless of the absence of cooperation by parents and the rest of the family, children themselves can be helped. The evidence from the survey suggests that some children of special character and ability can learn to focus their academic skills and motivation so that the difficulties in the rest of their lives have minimal impact on their work at school.

## Sommaire

Depuis les années 80, les éducateurs, les spécialistes du développement de l'enfant et d'autres spécialistes des sciences sociales se sont de plus en plus intéressés à l'interaction entre la famille et l'école dans le vécu des enfants. Cela s'explique en grande partie par la réorientation à laquelle on a assisté dans les sciences psychologiques en général et dans la recherche sur le développement de l'enfant en particulier, qui ont cessé de chercher des explications psychologiques au comportement pour se tourner vers des explications contextuelles ou situationnelles.

Cette étude analyse les effets des processus des relations familiales et des caractéristiques des membres de la famille sur les résultats scolaires des garçons et des filles de 6 à 11 ans. Les résultats montrent que le statut socio-économique (SSE) a une influence vaste et profonde sur les résultats scolaires des enfants. Le SSE a en effet des répercussions directes marquées sur le niveau de soutien social perçu par les parents, le niveau de dépression parentale, la tendance à recourir à des pratiques parentales hostiles, les compétences scolaires des enfants ainsi que le niveau de réalisation atteint par l'enfant. Les résultats montrent également qu'un certain nombre de caractéristiques familiales (soutien social, dépression parentale, dysfonction familiale, style parental hostile et compétences scolaires de l'enfant) interagissent les unes avec les autres, chacune à sa façon, pour exercer une influence positive ou négative sur les résultats scolaires. Par ailleurs, et c'est là un facteur important, on n'a relevé aucune différence entre les garçons et les filles ni entre les enfants plus jeunes (les 6 et 7 ans) et les enfants plus vieux (les 10 et 11 ans) dans les effets sur les résultats scolaires.

Ces conclusions laissent penser qu'il serait important d'améliorer la situation économique des familles. En fait, si on adoptait des mesures préventives de lutte contre la pauvreté, on n'aurait plus besoin d'interventions ultérieures plus coûteuses pour traiter les problèmes familiaux plus compliqués qui sont trop souvent associés à un faible revenu.

Les résultats indiquent également lorsque des problèmes familiaux apparaissent, la façon la plus utile d'intervenir est peut-être au niveau de la famille dans son ensemble, afin de réduire les tendances générales à la dysfonction. On pourra ainsi aider les parents à adopter des pratiques parentales plus utiles et leur donner l'occasion de fournir à leurs enfants le soutien dont ils ont besoin pour leurs activités scolaires. Quoi qu'il en soit, même sans la coopération des parents et des autres membres de la famille, on peut aider les enfants eux-mêmes. En effet, selon les résultats de l'enquête, certains enfants qui présentent des traits de caractère et des aptitudes donnés peuvent apprendre à se concentrer sur leur rendement scolaire et leur motivation, de sorte que les difficultés qu'ils éprouvent dans le reste de leur vie n'auront que des répercussions minimales sur leur travail scolaire.

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# 1. Introduction

## 1.1 General Background

In the last twenty years there has been a rapid rise in scholarly interest in how the relationship between families and schools affects children's educational success. Prior to 1978, when Sara Lawrence Lightfoot's aptly titled book, "Worlds Apart: Relationships Between Families and Schools," was published, there were fewer than 30 scholarly works on the topic extant in the literature. By 1998 this literature had grown to over 450 works in book or journal article format (Ryan, 1998). As the decade of the 1980s began, and for reasons that are not entirely clear, educators, child developmental specialists, and other social scientists became interested in the overlap between the family and the school in the lived experience of children. This shift in interest might have been due, in part, to the rising concern by the general public, most particularly in the United States, that their children appeared to be doing relatively poorly in international achievement comparisons and which, among other things, led them to examine the role of parents in supporting their own children's education. This, however, could not be the whole of the explanation because researchers in many parts of the world made this same shift in scholarly interest at about the same time. Perhaps a more important instigating force was the general shift in focus, on the part of the psychological sciences in general and child development researchers in particular, from intra-psychic explanations for behaviour to contextual or situational accounts (e.g., Bronfenbrenner, 1979). Whatever the reasons for the changes in scholarly interests, they were rapid, remarkable, and extensive and still show no signs of retreating; the barriers between these two 'separate worlds' of family and school in the lives of children are indeed breaking down.

From the beginning, research papers and scholarly commentary on the family-school relationships has moved forward in two different, although related streams of activity. One stream is concerned with the way the family, as an institution, connects with the school as an institution. In keeping with this orientation, Lightfoot's (1978) book dealt primarily with the failure of schools to involve families and the failure of families to be present and active in school affairs. The range of issues and concerns most central to this *between-the-family-and-the-school* stream is perhaps best articulated in the writings of Joyce Epstein and her associates (1985, 1986, 1991, 1995). In general, this literature focuses most centrally on educational policy,

administrative practice, and advice to parents. Schools are advised on how to best communicate with parents and how to entice them into the school for meetings or for more significant volunteering duties. Other literature is directed at parents with suggestions about how best to seek information from schools and how to support the schools' educational objectives. Thanks partly to Epstein's (1992) attempt to develop a coherent model showing the components of family and school institutional interactions, the literature on parental involvement in and with schools is reasonably focused and provides useful advice for policy makers, educational practitioners, and parents.

The second perspective on scholarly activity, which can be termed the *within-the-family* stream, is primarily concerned with the systems of interpersonal relationships within the family and how these might have an impact on the child's success, either academically or socially, in school. This literature actually predates the *between-the-family-and-the-school* stream with respect to research activity (Ryan & Adams, 1995). Child developmentalists (e. g., Milner, 1951) and family therapists (e.g., Miller and Westman, 1966) had published papers many years before the parent involvement movement began its rise. The major focus of the research and theorizing in the *within-the-family* literature has consistently been on understanding social processes rather than on generating recommendations for policy or intervention. Interestingly, the "within" literature is much larger and more diverse than the "between" literature.

While the "between" literature emanates primarily from scholars in the fields of educational sociology and educational policy, the "within" literature comes from researchers in child development, social psychology, family sociology, family therapy, social work, and clinical psychology, among others. These various disciplines have their own research traditions and ways of defining the processes of interest. Although they share an interest in the child and in the child's school success, the range of family processes, parent/child characteristics, and educational outcomes that have been explored by these researchers is truly overwhelming. As a consequence, this literature is largely unintegrated and underutilised.

## 1.2 The Family-School Relationships Model

### 1.2.1 The Model and Its Levels

In an attempt to bring some degree of order to this highly divergent literature, Ryan and Adams (1995) proposed the Family-School Relationships Model.<sup>1</sup> The model is aimed at being capable of accommodating virtually all variables researchers have used or could use in their work in the study of within-the-family processes. It assumes that all processes in the family or characteristics of family members operate in bidirectional terms so that any one variable can exert some kind of influence over all other variables and be influenced by all other variables. The model also assumes that each of these processes or characteristics occupy a position along a dimension of proximity to the child's schooling outcomes with some more intimately and closely connected to the outcome than others. This notion of a proximal-distal dimension in relation to schooling outcomes is consistent with the position taken by Wang, Haertel, and Walberg (1993) who found good evidence for such a dimension in a large meta-analysis for hundreds of research studies on educational achievement. Finally, the model further assumes that interactive influence effects will be strongest when the processes or characteristics are closer to each other along the proximal-distal dimension. In more technical language, indirect effects will predominate over direct effects; the model implies a strongly mediated and interacting set of processes.

The model is perhaps best depicted, in concrete terms, with the child's schooling outcomes located at the centre of a three-dimensional universe of variables which occupy positions of varying distance from the centre. For purposes of study and discussion, however, the model can be simplified by reducing it to a two-dimensional surface with the variables grouped as classes of variables. As shown in Figure 1, the model consists of a series of nested, enclosed shapes each of which defines a particular class of variables. Each class or level is identified by a number representing the various distances from Level 0, which includes all child outcome variables, to Level 6, which includes all variables that are effectively external to the system of family processes. For a full discussion of the model including consideration of the theoretical basis for the model, along with a more detailed explication of the classes of variables allocated to each of

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<sup>1</sup> Although this report is focused solely on the relationships between family processes and school achievement, it is important to bear in mind that the school itself is an institution comprised of a powerful set of processes that also affect achievement in children. Indeed, the literature concerned with school effects on learning is much more extensive and much better integrated than that dealing with the family. Strong models concerning schooling processes, such as the early one proposed by Carroll (1963), have long been effective in guiding teaching/learning practice. Nevertheless, this report is not directly concerned with the school-based processes captured in models such as that proposed by Carroll nor is any attempt being made to integrate these different literatures.

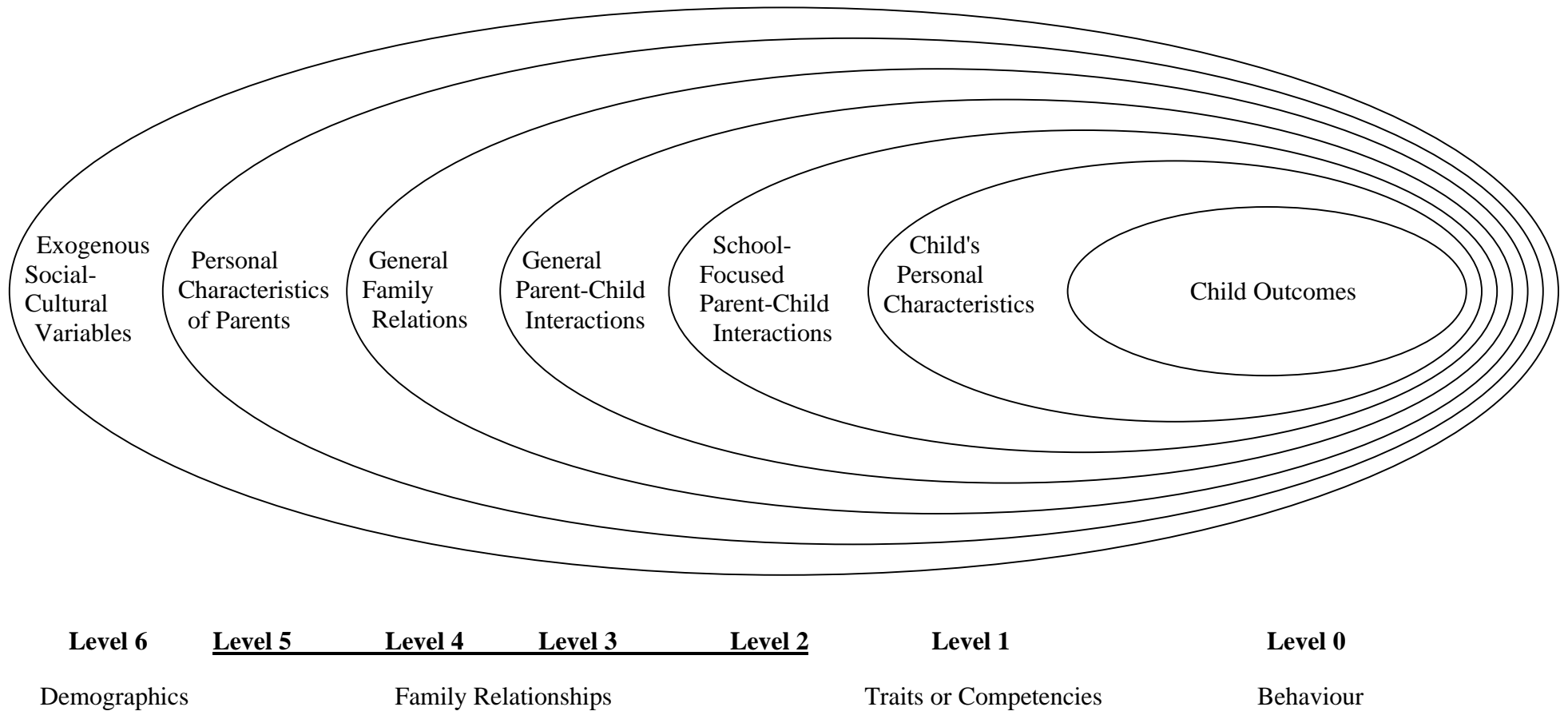


the model's levels, see Ryan and Adams (1995). What is presented here is only a brief description of the model so that the reader can understand the basis for the ordering of variables in the analysis of the NLSCY data considered in this report.

In the model, the first two levels (Levels 0 and 1) are concerned with the individual child where Level 0 consists of the class of outcome variables (most usually achievement or social behaviour in the school) and Level 1 variables represent the child's personal characteristics such as intelligence, frustration tolerance, or self-esteem. Variables at this level, as suggested by the proximal-distal assumption of the model, are considered to be very closely related to the outcome variables. The next two levels (Levels 2 and 3) are concerned with parent-child interactions. Level 2 designates those variables associated with school-focused parent-child interactions such as help with homework and monitoring while Level 3 is concerned with general parent-child interactions that are not focused on school activities but pertain to all of the interactions parents have with their children.

With Level 4, which is concerned with general family relationships, the focus of the model shifts to the general nature of family interactions which would include measures of such constructs as family warmth, cohesiveness, or hostility. Level 5 includes those variables concerned with the personal characteristics of the parents and as such is not directly focused on any relationship involving the children. Variables at this level would include, for example, measures of parental depression, parents' expectations for child schooling success, or parent's attitudes toward education. Finally, at Level 6 are those variables outside the family and which constitute the social, cultural, and economic context for the family. Level 6 variables would include characteristics of the community in which the family lives, the family's socioeconomic status, or the ethnic group to which the family members belong.

**Figure 1 The Family-School Relationships Model**



### **1.2.2 The Validity of the Model**

The evidence to date regarding the usefulness and validity of the model is encouraging. Ryan and Adams (1995) examined 17 studies using path analytic methods to assess the relationships between family processes and schooling outcomes for children. In 16 of the 17 studies, the observed path structures conformed very closely to what the model predicts: in these studies, the ordering of variables is consistent with the levels in the model, with the effects of variables distant from the outcomes being largely mediated by other variables closer to the outcomes. Using modestly-sized, non-random samples of elementary school-aged children and their parents, Ryan, Adams, and Corville-Smith (1994) and Ketszis, Ryan, and Adams (1998) also found that family processes and children's characteristics combined in patterns predicted by the model with the general family processes of conflict and cohesion influencing the school-focused parent-child interactions of support and pressure. The effects on school achievement and social adjustment in the classroom of these two parent-child interactions were mediated by the child characteristics of academic effort and intellectual effectiveness. In summary, the model appears to offer a valid and useful guide to organizing multivariate analyses of family-school relationships.

## **2. Relevant Constructs Selected From the NLSCY and Associated Literature**

Previous reviews of the literature concerned with family process influences on children's school success (see, for example, Christenson, Rounds, & Gorney, 1992; Hess & Holloway, 1984; Kellaghan, Sloane, Alvarez, & Bloom, 1993; Ryan & Adams, 1995; Scott-Jones, 1984) have shown that a very large number of family relationship processes variables and family member characteristics are significantly related to school success or failure. Almost all of the studies in this field, however, are limited by two significant problems. First, they typically employ smaller, convenience samples that usually unduly restrict the range of values associated with each variable studied. For example, when researchers have to rely only on those parents who respond positively to letters inviting them to participate in studies of social process, agreement is typically forthcoming from reasonably well functioning, educated, middle-class families. In these circumstances, variable distributions are highly likely to be truncated which has an impact on the capacity of the researchers to uncover significant relationships among the variables. Many distorted findings are likely results.

Second, the number of constructs usually measured in these studies is small due to the financial restraints faced by social science researchers combined with the unwillingness of most families to respond to a large number of measures. The result is that relatively few variables are studied together even though the literature suggests that large numbers of family processes and family member characteristics act simultaneously and jointly to produce schooling outcomes in children.

The NLSCY data set offers an opportunity to avoid these two significant problems in the study of family effects on schooling outcomes. The sample is large and serious attempts were made in the data collection to ensure that it is representative of Canadian children in general (with the exception of Native children who were not included in the survey). This ensures that a wide range of families are included in the study and that the scores on each of the measures are more likely to mirror the distribution of the sampled characteristics in the population. In addition, the survey includes a large number of important constructs; in fact, more measures are included in the survey than can readily be dealt with in any single analysis. Nevertheless, the data offer an

excellent opportunity to examine the joint effects of a substantial number of variables. Dealing more effectively with these two problem areas makes the present study particularly important in the field.

The selection of constructs and measures from the survey was guided by the structure of the Family-School Relationships Model (Ryan & Adams, 1995). The constructs included in the first cycle of data collection were examined to determine which variables could be used at each of the seven levels of the model. Constructs from each of the levels in the model were identified with the exception of level two which is concerned with school-focused parent-child interactions. Aside from some of the self-report data from the 10-11 year-old subjects (these self reports were not used in this analysis), the survey does not contain level two items. The operational definitions for each of these constructs are given below in the methods section of the report.

**Level 0 - Achievement Outcomes.** The survey includes information on overall child achievement as rated by parents and teachers. The data derived from teacher rating of achievement were used in the present study. These data were used instead of the rating of achievement by parents because teachers' knowledge of how the child stands in relations to his or her classmates is likely to be more accurate and informative of school success.<sup>2</sup>

**Level 1 - Child Characteristics.** Constructs concerning two child characteristics were selected for study. First, the survey provided data on *academic focus* which is a general construct encompassing a variety of skills and attitudes that promote learning. The academic focus construct is similar in character to what Gesten (1976) identified as a, 'good student' factor and what Ketsetzis, Ryan, and Adams (1998) referred to as 'intellectual effectiveness'. Prior evidence shows that such characteristics are closely linked with achievement.

Second, a measure of *hyperactivity and attention deficit* was included. The association between attention difficulties and school achievement has long been noted (Barkley, 1990; Hinshaw,

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<sup>2</sup> A different and more objective outcome variable for the study might have been the math test scores included in the survey. Measurement difficulties, however, arose in the test forms used in the first cycle of data for the survey. Because two form of the test were used, there were marked ceiling effects for the children in grades 3 and 5 which sharply reduces the usefulness of the measure in any analyses encompassing these two grade levels. Another outcome variable possibility might have been the Peabody Picture Vocabulary Test (PPVT) score although, for the purposes of this report, it is probably best regarded as a measure of the children's ability and placed at Level 1 in the model. Moreover, the PPVT was administered only to the 4 and 5 year-old group.

1992; Maguin, Loeber, & LeMahieu, 1993) although the precise nature of the causal linkage between the condition and achievement is still in question (Coie & Dodge, 1998).

**Level 3 - Parent-Child Interactions.** From the extensive number of measures of parent-child interactions available in the survey, two were judged representative of the general areas parent-child research suggests are central. First, a measure of *positive parent-child interactions* was selected. While there is no clear evidence that simply behaving positively (as distinct from, for example, authoritatively) with a child will lead to better achievement, a host of other positive developments for children do appear strongly associated with positive parent-child interactions (e.g., Bar-Tal, Nadler, & Blechman, 1980; Fabes, Eisenberg, Karbon, Troyer, & Switzer, 1994).

Second, the measure of *hostile-ineffective parenting* was selected largely as a contrast to the positive parenting measure. Patterson's work (e.g., Patterson, Reid, & Dishion, 1992) has extensively documented the effects of coercive parenting practices and their very negative outcomes for children as well as whole families.

**Level 4 - General Family Functioning.** The NLSCY included only one construct focused on overall family functioning that was applicable to all school-aged subjects: *family dysfunction*. Previous studies of family process and schooling outcomes (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992; Forehand, Thomas, Wierson, Brody, & Fauber, 1990; Grolnick & Slowiaczek, 1994) have shown that the general nature of family relationships can have a significant impact on both academic and social success in school.

**Level 5 - Parent Characteristics.** Two constructs from this level of the model were taken from the survey. The first, *parental depression*, has been shown in other research to have negative consequences for schooling outcomes (Forehand, McCombs, & Brody, 1987; Roseby & Deutch, 1985; Thomas & Forehand, 1991).

The second construct from the survey at this level was *perceived social support* which was taken as a measure of a the parent's sense of security. Such support or the perception of such support has been shown to provide parents with a buffer against a wide variety of negative forces that operate on them in difficult contexts (Garbarino, 1992). In general, the social support literature shows that well supported parents are less likely to suffer emotional difficulties and are less likely to be in families of greater dysfunction.

**Level 6 - Exogenous Social Variables.** The single level 6 variable used in the analysis was the survey's measure of *socio-economic status* (SES). Perhaps no other single variable in the social sciences over the last 5 decades has been so consistently shown to have an impact on children's school success (Booth & Dunn, 1996). One of the problems with small, convenience samples in the literature focused on families and schools is that the range of SES levels in the samples is often rather narrow and usually tilted toward the middle and higher-middle classes (these families are usually more ready to participate in research studies). As a consequence, SES frequently fails to contribute strongly to effects on schools and when it does its effects are largely mediated by family processes. The representativeness of the NLSCY sample makes the use of the SES measure especially valuable in this context.

### 3. Research Questions

The analysis of the NLSCY data was directed at answering four main research questions.

1. What is the relationship between family process variables, parental and child characteristics, and achievement outcomes for children in the elementary schools?
2. Are there different family processes and family member characteristics that affect achievement for children at different ages within the elementary school?
3. Are there different family processes and family member characteristics that affect achievement for boys versus girls within the elementary school?
4. Does the pattern of variable relationships observed in the NLSCY data conform to that predicted by the Family-School Relationships Model?



## 4. Method

### 4.1 Sample

The records of 4,302 (2,134 girls and 2,168 boys) Canadian children included in the first data collection cycle of the National Longitudinal Survey of Children and Youth comprised the sample for this study. While the survey is intended to provide representative information on Canadian children between birth and 11 years of age, only those school-age children from 6 to 11 years were included in this study. Because of the sampling design of the survey, the children and families in the study reflect a broad range of social classes, ethnic origins (excluding Natives), and geographic locations in all the provinces and territories of Canada.

### 4.2 Measures

**Achievement** was measured by a single item from the NLSCY teacher questionnaire. Teachers rated each child on the question, "How would you rate this student's current achievement across all areas [reading, mathematics, written work]? Teachers rated student achievement on a 5-point scale from, "near the top of the class" to "near the bottom of the class."

An **Academic Focus Scale** was developed by combining scores on six items from the teacher questionnaire. Children were rated by their teachers on a variety of academic skills. Sample items from the scale are, "Listens attentively", "Follows directions", "Works independently." Higher scores indicate better levels of academic focus. Cronbach's alpha for the scale was .91.

The **Hyperactivity-Inattention Scale**, consisting of 8 items from the parent questionnaire, provided a measure of the children's level of hyperactivity/inattention. Sample items are, "Can't sit still, is restless or hyperactive" and "Can't concentrate, can't pay attention for long". Higher scores indicate greater numbers of hyperactive-inattention behaviours. The alpha for this scale was .84.

The **Positive Interactions Between Parents and Child Scale**, consisting of 5 items from the parent questionnaire, provided a measure of positive, supportive interactions between parents and children. Higher scores indicate more positive interactions. The alpha value was .81. Sample items are, "How often do you praise (name) by saying something like 'Good for you!' or 'That's

good going!" and "How often you and he/she talk or play with each other, focusing attention on each other for five minutes or more, just for fun."

The **Hostile-Ineffective Parenting Scale**, consisting of 7 items from the parent questionnaire, was selected as a contrast to the positive parenting measure. Higher scores indicate more hostile-ineffective parent-child exchanges. The measure of hostile parenting contained items such as, "How often do you get angry when you punish (name)?" and "How often do you get annoyed with (name) for saying or doing something he/she is not supposed to do?" The alpha for this scale is .71.

The **Family Functioning Scale**, consisting of 11 items from the parent questionnaire, provided a measure of the level of overall dysfunction in the family with higher scores indicating increased amounts of dysfunction. Sample items are, "In times of crisis we can turn to each other for support," "We express our feelings to each other," and "Making decisions is a problem for our family." The alpha for this scale is .88.

Two measures of the parent characteristics were drawn from the parent questionnaire.

Technically speaking, the respondents assessed in each case are called the "person most knowledgeable" (PMK) in the survey documents. Females make up 91.8% of the PMKs which means that the data overwhelmingly reflect the responses of mothers or female guardians. Of the female PMKs, 98.0% are biological mothers. The first of the two measures available for this level of the model is the **Parental Depression Scale** which consists of 12 items with an alpha of .82. Higher scores indicate increased levels of depression. Sample items from the scale are, "How often have you felt or behaved this way in the last week: I felt lonely; I had crying spells; and I felt hopeful about the future." The second measure is the **Social Support Scale** on which the respondents rate their feelings of security and sense that they have useful social supports around them. It consists of 6 items. Higher scores indicate greater social support. The alpha for the scale is .82. Sample items are, "I have family and friends who help me feel safe, secure and happy" and "There are people I can count on in an emergency."

**Socio-Economic Status (SES)** was determined for the NLSCY by standardizing the measures of education levels for the PMK and spouse, the prestige of occupation of the PMK and spouse, and

the household income. Then, a mean of the five standardized measures was calculated to yield the SES variable. Higher scores indicate higher levels of socioeconomic status.

### 4.3 Data Analysis Procedures

The data were analysed using linear structural equation modelling (Jöreskog & Sörbom, 1989) largely because of the technique's capacity to examine simultaneously a large number of direct and indirect associations between variables. Such analyses are often used to examine underlying causal processes although cross sectional data, such as those obtained in the first cycle of the NLSCY, make interpretations of causality difficult. In such situations, strong theory is needed to make strong causal claims. Nevertheless, this technique is highly suited to analyses of large samples with multiple variables that are understood to be interacting in highly dynamic ways.

In all of the analyses reported, the observed models were all derived from covariance matrices. Because single indicator latent variables were used in the analysis, variable error variance was estimated by multiplying the observed variance for each variable by 1 minus alpha (Hayduk, 1987). To begin, we determined maximum likelihood estimates for each predictive relation in just-identified models. Models were then trimmed using statistical significance at the .01 level and then by eliminating all paths with coefficient values less than .1. These two very stringent criteria were used because of the very large sample sizes in the models. For large samples, even relationships of very small effect size can be statistically significant. Because the goal of the present study was to identify highly robust and meaningful relationships between variables, small effects or weak relationships were discarded.

One of the original objectives of the study was to investigate the possibility of developmental change in the relationship between family processes and children's school achievement (Research Question 2). Accordingly, the total sample of 4,302 children was divided into males and females and then into three age groupings of roughly equal size within each sex: 6/7 year-olds, 8/9 year-olds, and 10/11 year-olds. Results showed that the core models supported by the data were essentially the same across all age groups with only weak and unstable differences appearing in the different age groups. We concluded that within the age range covered by the survey data (6 years to 11 years) no meaningful developmental differences were observable. In future data collection cycles, when data can be compared between children in primary school and

others in junior or senior high school, age differences may indeed emerge. As a consequence of these preliminary analyses, all the age groups were collapsed. The final models report analyses for boys and girls separately as well as a single model with both sexes combined.

One final general point concerns the placement of the social support variable in the model. Because we used the family-school relationships model to establish the expected relationships between variables, the usual placement of social support would have been at the same level as parental depression. There are logical reasons, however, for considering that social support is more distant from the child's achievement than is parental depression. In a sense, the social support variable, while indicating something of the parent's state of mind, also describes the parent's perceived context and could be properly considered to belong to Level 6 which is formally concerned with contextual circumstances. From this perspective, it is possible that an environment that is not supportive could lead to increased levels of parental depression. For these reasons, we put social support to the left of parental depression in the models and another step further removed from the achievement outcome variable.

## 5. Results

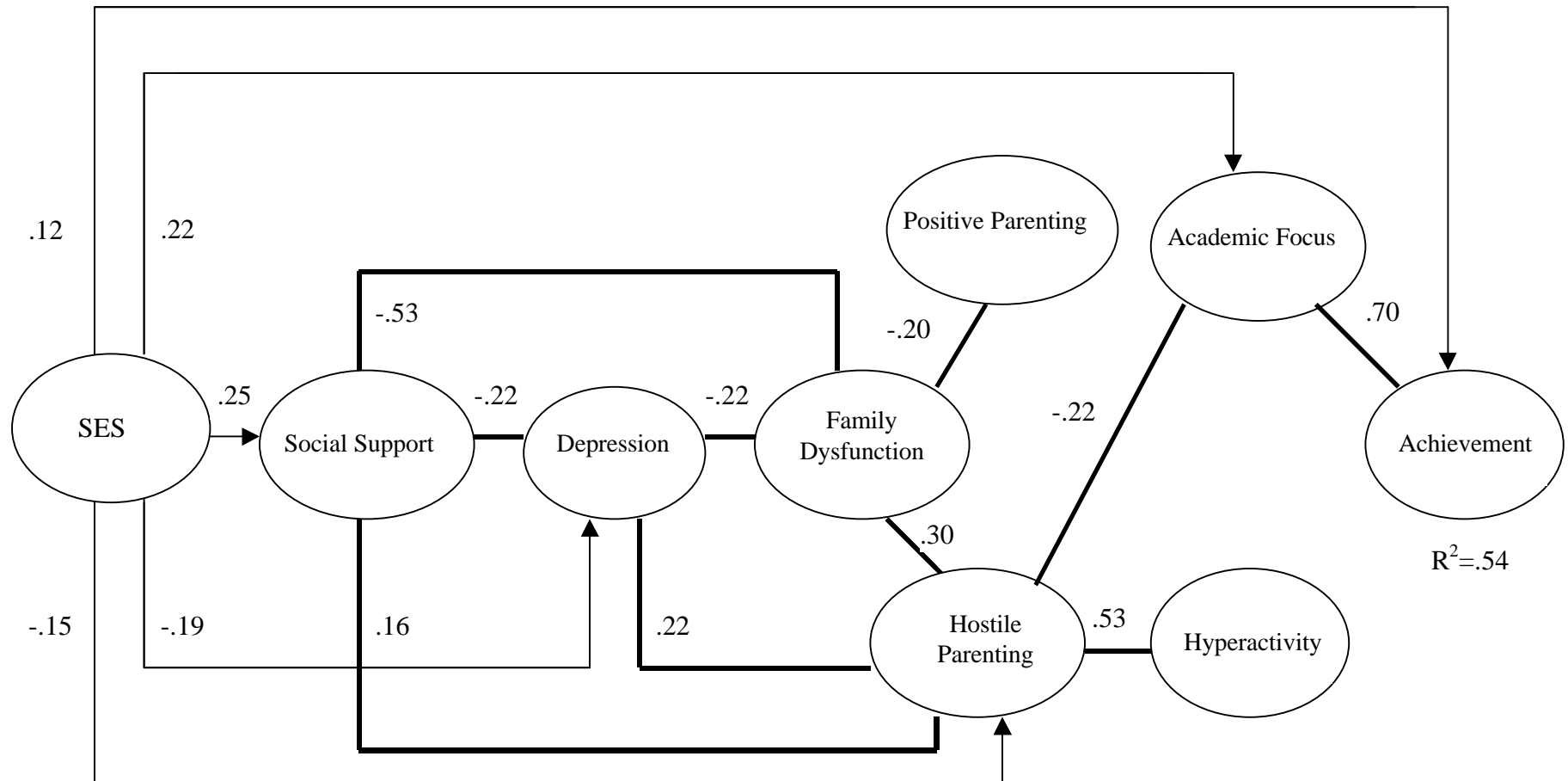
Once the non-significant paths were trimmed from the just-identified models (see Appendix 1 for the initial standardized gamma and beta coefficients), the final over identified models for the full sample, the girls, and the boys are shown in Figures 2, 3, and 4, respectively. In all cases the adjusted goodness of fit indices are adequate with values of .995, .992, and .994 for Figures 2, 3, and 4 respectively. Figure 2 shows the results of the analyses for the total sample.<sup>3</sup> The model shows that SES plays a powerful and general role in the lives of these children in having direct effects across many variables in the model. Higher levels of SES lead directly to higher levels of achievement, superior academic focus in the children, lower levels of hostile parenting, higher levels of perceived parental social support, and lower levels of parental depression. Higher levels of social support are associated with lower levels of parental depression, lower levels of family dysfunction, but higher levels of hostile parenting. Higher levels of parental depression are associated with more family dysfunction and higher levels of hostile parenting. Higher levels of dysfunction are associated with lower levels of positive parenting and higher levels of hostile parenting. Although positive parenting does not relate to any further variables, hostile parenting is linked to higher levels of hyperactivity and lower levels of academic focus in children. Hyperactivity does not link significantly to achievement, but higher levels of academic focus are associated with higher levels of achievement. The variables in the model collectively explain 54% of the variance in achievement.

Aside from the direct and pervasive impact of SES on many family process variables and the child's achievement, the model reveals a strong internal structure. Phrased in unidirectional causal terms, SES leads to increased levels of social support which, in turn, reduce the amount of depression experienced by the parent. Lower levels of depression appear to help reduce the amount of family dysfunction which, in turn, reduces the amount of hostile parenting.

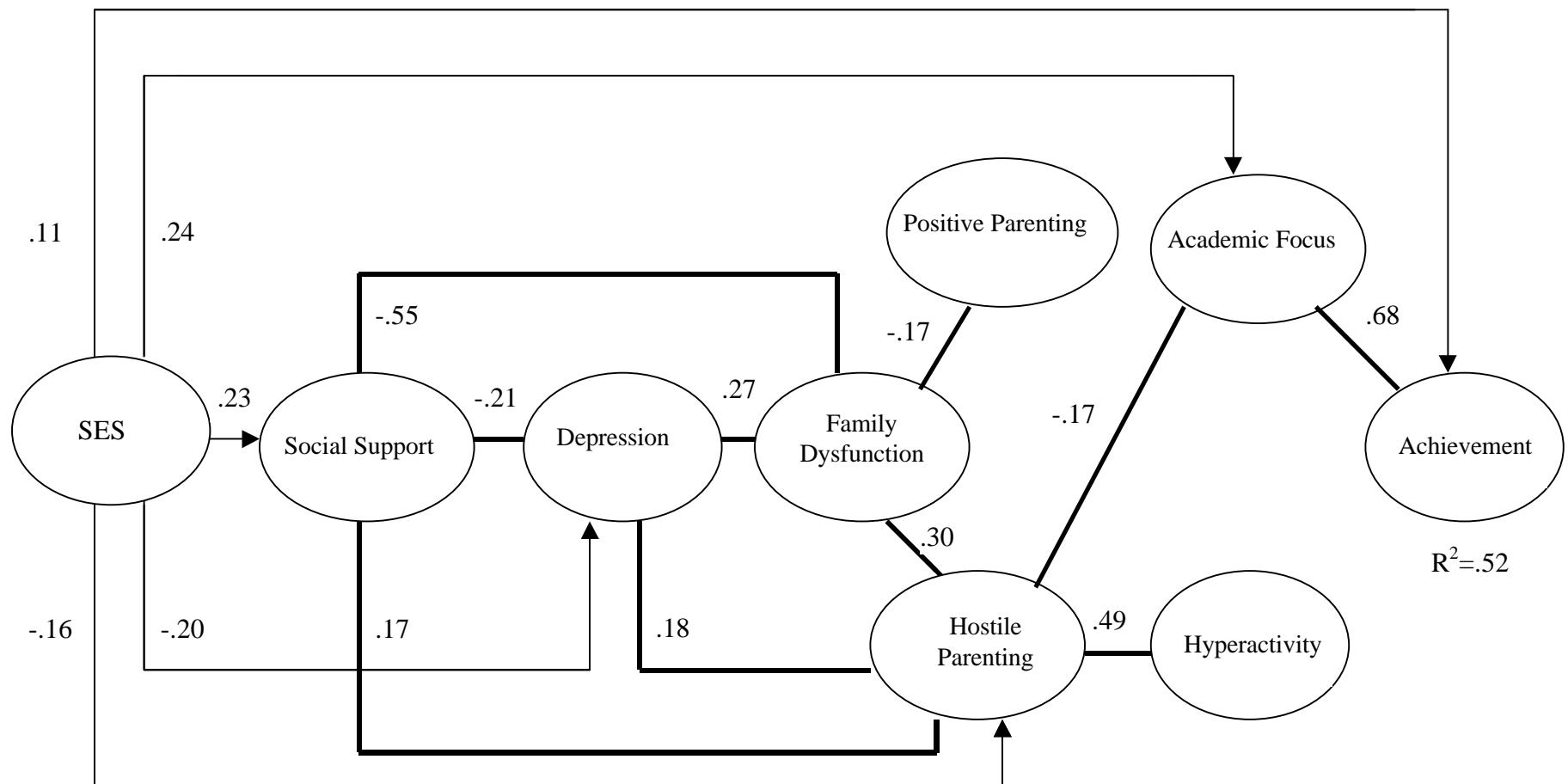
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<sup>3</sup> The discerning reader will notice that the figures as presented diverge in some ways with the conventions of structural equation model presentation. Generally, all paths in final structural models are marked with single-headed arrows denoting causal and unidirectional effects. In the case of these models and considering the cross-sectional data being used, we elected to reserve single-headed arrows for those relationships highly likely to be unidirectional and causal. This applied to all paths going from SES to other variables; it is hard to imagine, for example, that families have low SES *because* a son or daughter is doing poorly in school. All other paths in the figures are shown with simple lines indicating that bidirectional processes are probably operating.

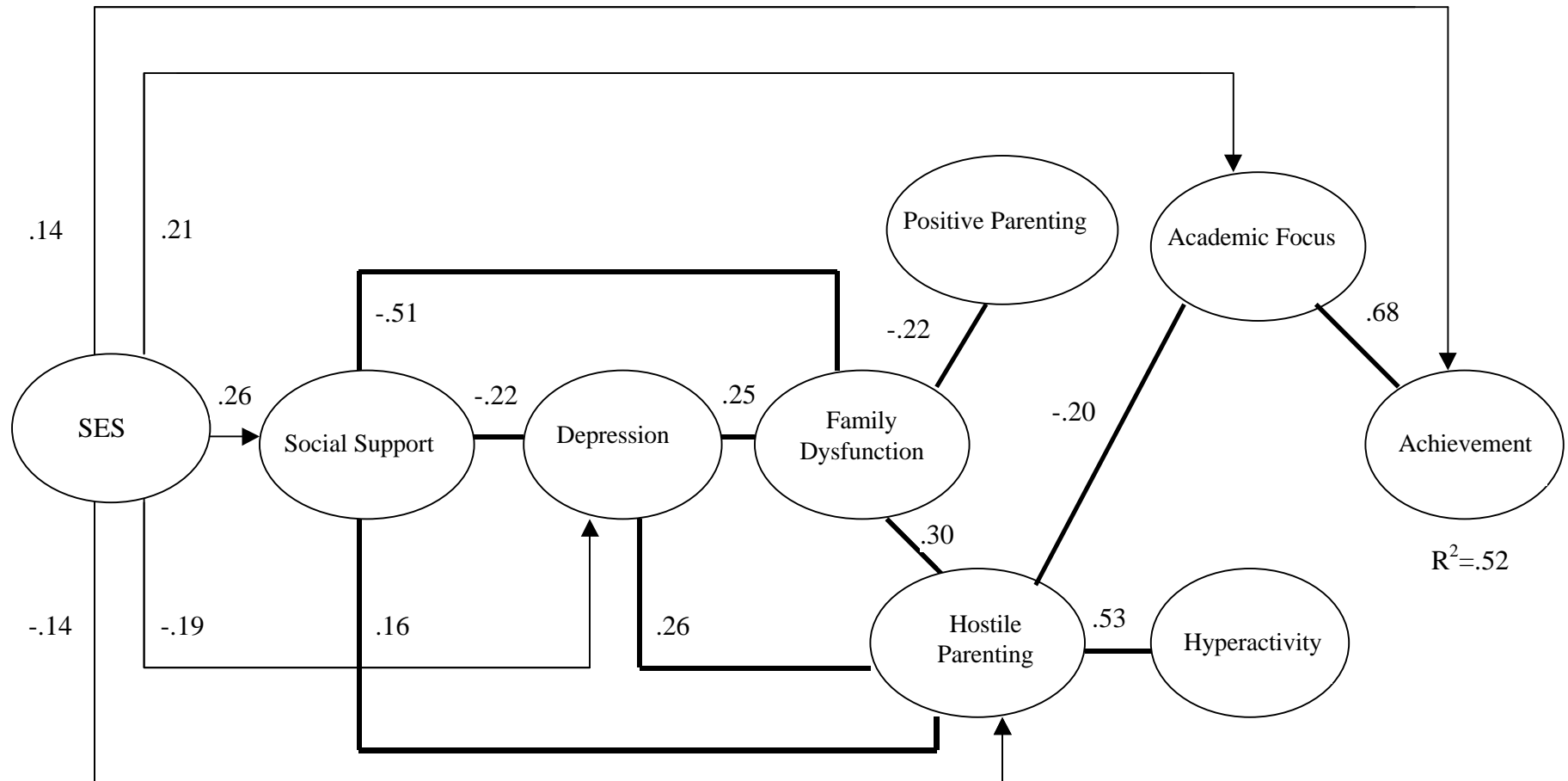
**Figure 2 Structural Equation Model Showing the Relationship Between Family Processes, Child Characteristics, and Achievement for Children Aged 6 to 11 Years**



**Figure 3 Structural Equation Model Showing the Relationship Between Family Processes, Child Characteristics, and Achievement for Girls Aged 6 to 11 years**



**Figure 4 Structural Equation Model Showing the Relationship Between Family Processes, Child Characteristics, and Achievement for Boys Aged 6 to 11 years**





Lower levels of hostile parenting lead to better academic focus in the children and better academic focus leads to higher achievement.

With respect to research question 3, which was concerned with differences between boys and girls, Figures 3 and 4 show that the pattern of relationships among the variables is the same for boys and girls. While the magnitudes of the specific associations differ between the sexes, the differences are essentially trivial.

Finally, research question 4 asked if the observed relationships conformed to the mediated model suggested by the Family-School Relationships Model. With respect to the variables that operate within the family (levels 5 through 1), the findings are highly consistent with the model. The level 6 variable (SES) used in this analysis had multiple effects across several levels and suggests that, perhaps, powerful conditions external to the family may have a higher probability of acting directly (in addition to their mediated effects) on a wide variety of processes and outcomes for family members.

## 6. Discussion

To reiterate, this study had four objectives: first, examine the relationships between children's school achievement and family processes; second investigate how family relationships affect children's achievement at different ages; third investigate possible differences between boys and girls in the way family relationships affect achievement; fourth, evaluate the adequacy with which the family-school relationships model represents the data in the NLSCY. Essentially, the data show that over the age range 6 to 11 years, no age differences (the second objective) emerge in the patterns of variables examined in this report nor were there any significant differences between boy and girls (the third objective). Consequently, the results can be understood to apply generally to children in the elementary school years.

With respect to the first objective, that of describing the way the selected variables from the NLSCY interact with each other to produce effects on children's school achievement, several useful points can be made. First, the generally accepted truism that *SES* is a very important determinant of a wide range of social and psychological functioning is strongly supported by the NLSCY data. These data are consistent with the possibility that school achievement may be affected by *SES* regardless of what families do to modify the conditions of learning within the home. In fact, *SES* effects are pervasive. Social support, not surprisingly, appears to be more available to parents at higher *SES* levels. Higher *SES* parents appear to experience lower levels of depression and to be marked with lower levels of hostile parenting with this latter finding being consistent with previous research (Edelman & Ladner, 1991; Hill, 1980). The data also show that, irrespective of processes within the family, the children in this sample from higher *SES* homes have more academic skills and focus as well as higher levels of achievement than children from lower *SES* homes. This finding of a direct relationship between social class and achievement related behavior is not unique nor new. Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, and York (1966), among others, reported on this phenomenon decades ago although the full explanation for this correlation between class and achievement has been elusive. Kellaghan, et al. (1993), for example, observed that this relationship is probably due largely to the superior learning resources and experiences made available by parents of greater economic means. Moreover, such parents understand and are more experienced themselves in the schooling environment. The data reported here are in keeping with the suggestions by Kellaghan,

et al. (1993), but they also imply that SES has an effect beyond what the family brings to the child. Certainly, higher SES families will probably associate more with other people also at higher SES levels. As a consequence, the child's social network is comprised of a greater number of people involved in intellectual and cultural activities and from whom the children will take, in part, their values and goals (Fordham & Ogbu, 1986; Steinberg, Dornbusch, & Brown, 1992). No doubt there are many more extra-familial variables and processes at work; the important point in the context of the present study is that it is probably unlikely that simply strengthening family processes themselves will be sufficient to overcome entirely an unfavourable social address.

A second general point is that the data bearing on *family processes* linked to achievement appear logical and consistent with the wider literature (with two exceptions to be discussed later). Greater levels of social support are associated with lower levels of depression and less family dysfunction. The effects here are highly likely to be bidirectional. Some parents who are in a dysfunctional family and who are depressed may overburden those around them with the result that their supports are fewer while others with strong and reliable supports feel less depressed and receive the kind of assistance needed to reduce the dysfunctionality in their families.

A further point concerning family processes is that higher levels of depression and greater family dysfunction are associated with more hostile-ineffective parenting. Again, these relationships are not unexpected. Parents burdened by depression simply do not have the energy to deal with many of the complexities of parenting and are pushed by circumstances or by their children into aversive strategies (Hops, Sherman, & Biglan, 1990; Patterson, Reid, & Dishion, 1992; Radke-Yarrow, 1990). The very fact that hostile interactions with their children are so frequent may make parents feel more depressed and contribute directly to overall family dysfunction beyond the parent-child relationship. Again, the direction of effects is probably bidirectional. Finally, hostile-ineffective parenting in the NLSCY sample is associated with reduced academic skill and learning effectiveness, a finding that is consistent with previous research (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Mounts, Lamborn, & Dornbusch, 1991). As before, the evidence, at this stage, is probably best interpreted bidirectionally. Children might indeed be less academically focused and effective because the parents are acting in hostile ways, but it is also easy to imagine that when a child is consistently poor in schooling skills, the parents might be driven to less effective parenting strategies. The final link in this chain of processes is the finding that better academic focus leads

to better achievement although it is also possible for greater academic success to encourage the children to strengthen their academic capacities.

Two results appear anomalous. First, the positive relationship between the level of perceived social support for the parent and the level of hostile parenting is not readily explained. It is possible that parents who engage in hostile acts also seek out and receive assistance from others. If this is so, it is disturbing that the presence of the help may not be effective in moving the parent toward lower levels of hostile parenting. The second unexpected finding was that positive parenting does not lead either to better academic focus or to achievement as the literature on parenting styles would suggest (Lamborn, et al., 1991; Steinberg, et al., 1991). The failure to find a significant relationship among these variables in this study might be due to the nature of the positive parenting scale used in the NLSCY. The five items that make up this scale deal less with how the parent responds to the behaviours of the child and more with what sorts of associations exist between the parent and the child. Four items are specifically of that nature: How often do you play sports, hobbies, or games with him/her?; How often do you do something special with him/her that he/she enjoys?; How often do you and he/she laugh together?; How often do you and he/she talk or play with each other...?. The fifth item is different in that it asks about the nature of a responsive interaction: How often do you praise [child's name] by saying something like "Good for you!" or "That's good going!?" The chances are that if the survey had used a more conventional parenting scale, a significant association with academic focus would likely have emerged.

With respect to the fourth objective, the results indicate overall support for the model. The paths connecting the variables through the data are consistent with the presumption that indirect effects will predominate over direct effects. For the most part, the Level 5 variables are associated with Level 4 which associate with Level 3 which associate with Level 1 which associate with Level 0. Most of the exceptions to the assumption of adjacent-level-associations are limited to 'jumps' of one level only which means that, in relation to achievement, the effects are still chiefly indirect.

The major violation to the overall-indirect-effects assumption is the multilevel associations of the socioeconomic status variable. SES was directly associated with all variables except family dysfunction, positive parenting, and hyperactivity-attention deficit. This is evidence that the processes involved in the family system depicted in the model can never be considered a purely

mediated system; theory must allow for a reasonable number of widely dispersed direct effects for variables like SES that are tremendously powerful in their consequences. Only replicated empirical work will be able to identify which variables are of this magnitude in influence.

In summary, two conclusions can be drawn. First, a consistent set of processes appears to operate to link family circumstances, family processes, and children's characteristics to children's school achievement. The same pattern of relationships appear for boys and girls at all ages between 6 and 11 years. The advantage of such consistency is that it simplifies the task of developing recommendations for social policy and for clinical or educational interventions. Second, the overall validity of the model was generally supported although the widespread impact of SES at many levels in the model suggests that some particularly powerful constructs may have many direct effects in addition to their indirect, mediated effects.

## 7. Implications for Policy and Intervention

The results of the study suggest several different policy directions and possible clinical/educational interventions relevant to efforts aimed at enhancing the school performance of school-age children. First, the large impact of the socio-economic status variable on achievement in this study reinforces the generally accepted notion that it is very important to ensure that every family has sufficient economic resources. The data clearly indicated that children in higher income families do substantially better in school regardless of what happens within their families. Not only is the children's achievement directly affected by a higher standard of living, but such children also acquire more productive school work habits and academic skills. Moreover, the general quality of family life is strongly affected directly and indirectly by economic well being. Assuring adequate family income and educational learning opportunities for parents are almost essential social objectives if the educational success of the children in those families is to be enhanced. Social policy initiatives such as this must necessarily come from government either through direct delivery of economic resources to families or through the creation of employment and training conditions so that all families are adequately supported through employment income.

Second, the data suggest that while therapeutic interventions in the family are potentially useful, the most immediate effects are likely to come from educationally oriented efforts to promote the development in children of more effective academic skills and work habits. It is possible that when the narrow outcome of achievement is targeted, working directly with children on skill development will enable them to overcome most of the negative effects of poor parenting and disadvantaging economic conditions. While it is likely that interventions of this nature can most easily be mounted within schools, efforts by parents to hire tutors or otherwise provide assistance to their children could also strengthen these qualities.

Third, the data also suggest that interventions can be targeted on family processes, either specifically at the parent-child relationship or more generally at overall family relations. Parent education programs or parenting classes could be used to change hostile and unproductive parent-child interactions which appear to make it harder for the children to develop the skills needed for school success. While there are roles here for outreach programs in schools, families could also benefit by enrolling in parent education programs offered by local family service

agencies. Attempts to intervene at the level of general family processes is considerably more difficult and raises the question of clinical and professional family therapy services. Such strategies take the issue away from schools or educationally based interventions into the domain of mental health professionals where interventions necessarily become more expensive and specialized.

Fourth, the effects on family processes of the depression variable in this study suggests that some interventions might need to be targeted at parents themselves either through the provision of medication or through psychological counselling or psychiatric services. By providing direct individual services to parents, stressful conditions for children within the family could very well be alleviated. As with services for whole families, such interventions would involve the medical and psychological services community.

Fifth, the significant and multiple effects of social supports points to the importance of attending to the immediate social context for family members. Interventions aimed at activating the involvement of extended family members and neighbours may be very important in certain situations and would likely be initiated by social work professionals and community support agencies.

### **Final Comment on Policy Implications**

While each of the above five suggestions for action have merit individually, the importance of the analysis presented in this report is that it is likely most beneficial to intervene at more than one level at a time. Indeed, it is highly probable that the most powerful interventions would involve co-ordinated efforts to work simultaneously at more than one level of the model with some interventions directed primarily at the child's personal characteristics while others are focused on family relationships and/or on circumstances external to the family (Cowan, Powell, & Cowan, 1998). The mobilization of resources at several levels of this complex system of interactions through economic, community, educational, and individual interventions may be necessary to effect change in the educational performance of some children.

## Appendix

Standardized Gamma and Beta Coefficients Obtained in the Initial Just-Identified LISREL Model for the Data in Figure 2

| Standardized Coefficients |        |        |         |         |        |        |         |        |     |
|---------------------------|--------|--------|---------|---------|--------|--------|---------|--------|-----|
|                           | Gamma  | Beta   |         |         |        |        |         |        |     |
| Variables                 | SES    | SocSup | Depress | FamDysf | PosPar | HosPar | AdacFoc | HypAc  | Ach |
| SES                       |        |        |         |         |        |        |         |        |     |
| SocSup                    | 0.239  |        |         |         |        |        |         |        |     |
| Depress                   | -0.191 | -0.217 |         |         |        |        |         |        |     |
| FamDysf                   | -0.036 | -0.524 | 0.255   |         |        |        |         |        |     |
| PosPar                    | 0.013  | -0.024 | 0.022   | -0.219  |        |        |         |        |     |
| HosPar                    | 0.035  | 0.167  | 0.205   | 0.315   |        |        |         |        |     |
| AcadFoc                   | 0.213  | 0.020  | 0.014   | -0.026  | -0.092 | -0.247 |         |        |     |
| HypAc                     | -0.139 | -0.033 | 0.066   | -0.035  | 0.087  | 0.545  |         |        |     |
| Ach                       | 0.119  | 0.014  | 0.004   | 0.014   | 0.006  | 0.076  | 0.684   | -0.067 |     |



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