



Catalogue no. 11F0019MIE — No. 242

ISSN: 1205-9153

ISBN: 0-662-39533-6

## Research Paper

**Analytical Studies Branch Research Paper Series**

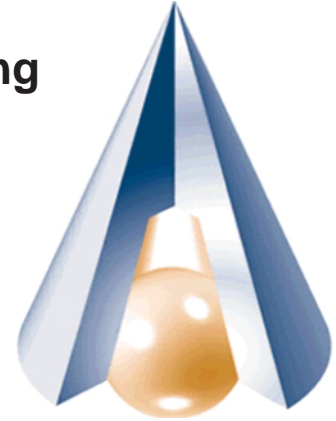
# **Making the Transition: The Impact of Moving from Elementary to Secondary School on Adolescents' Academic Achievement and Psychological Adjustment**

by Garth Lipps

Family and Labour Studies Division  
Statistics Canada Ottawa, Ontario K1A 0T6

Telephone: 1 800 263-1136

*This paper represents the views of the author and does not necessarily reflect the opinions of Statistics Canada.*



Statistics  
Canada

Statistique  
Canada

Canada

# **Making the Transition: The Impact of Moving from Elementary to Secondary School on Adolescents' Academic Achievement and Psychological Adjustment**

by

**Garth Lipps**

**11F0019 No. 242  
ISSN: 1205-9153  
ISBN: 0-662-39533-6**

Family and Labour Studies Division  
Statistics Canada  
Ottawa, Ontario  
K1A 0T6

**How to obtain more information :**  
National inquiries line: 1 800 263-1136  
E-Mail inquiries: [infostats@statcan.ca](mailto:infostats@statcan.ca)

**February 2005**

The author wishes to thank Harold Mantel, Data Analysis Research Centre, Statistics Canada for his assistance with the complex variance estimation analyses. The author would also like to thank Yanhong Zhang, Jackie Yiptong, Patrice de Broucker, and Jillian Oderkirk for their helpful comments on previous versions of this paper. This paper represents the views of the author and does not necessarily reflect the opinion of Statistics Canada.

Published by authority of the Minister responsible for Statistics Canada

© Minister of Industry, 2005

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission from Licence Services, Marketing Division, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6.

*Aussi disponible en français*

## Table of Contents

1	Introduction.....	5
2.	The social context of schools.....	5
3.	Method.....	8
4.	Results.....	13
5.	Summary and discussion.....	18
6.	Conclusion.....	25
	Bibliography.....	26

## **Abstract**

Early adolescence is a time of rapid social, cognitive, and physical change. For some youth, these changes can make this period a vulnerable point in development. Adding to the stress, some students transfer from an elementary school to a middle school or to a comprehensive high school. While the impact on youth of moving to a higher level of schooling has been the focus of intense research and debate in the United States, surprisingly little research has been conducted examining how Canadian youth make this transition within the context of Canadian schools. With this in mind, this paper examines the academic, behavioural and emotional adjustment of Canadian adolescents who transfer from an elementary school to a middle or comprehensive high school and compares their outcomes to those of a group of youth who did not change schools. Results of several statistical analyses suggest that changing schools had little systematic association to adolescents' academic outcomes. This held true regardless of whether the school was a middle school or a comprehensive high school. Similarly, transferring to a middle school had little negative association to adolescents' emotional and behavioural outcomes. Indeed, with respect to social aggression, the analyses suggested that students in middle schools may use indirect or socially directed aggression less frequently than students who remained in elementary school. However, transferring directly from an elementary school to a comprehensive high school appeared to have some negative emotional consequences. Youth who moved directly from an elementary school to a high school reported greater symptoms of physical stress. Further, female students who directly transfer to high schools at ages 12 and 13, reported higher levels of depressive affect than female adolescents who remained in an elementary school.

**Keywords:** Educational transitions, academic achievement, psychological adjustment

**JEL Classifications:** I21 I28 I29

## 1. Introduction

Early adolescence is a time of rapid social, cognitive, and physical change. Youth at this age must deal with the physical changes associated with puberty, the desire to make their own decisions, a heightened awareness of their peers, the transfer of their affection from their relatives, and a growth in their cognitive abilities. These changes can make early adolescence a time of stress. At ages 12 to 13, many students are also called to transfer from their elementary school to a middle<sup>1</sup> school or to a high school. Since this transition to another school occurs during a time of many changes, parents, teachers, school administrators and students themselves are keenly interested in this school transition.

Despite this interest, surprisingly little research has been conducted examining how Canadian youth make this transition. Over the last two decades, the impact of moving to a higher level of schooling for youth in the United States has been the focus of intense research and debate (Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, & MacIver, 1993; Seidman & French, 1997; Simmons & Blyth, 1987). In this report, we will highlight some of the findings of these studies. However, as informative and valuable as these studies are, Canadian schools and youth are not directly comparable to those in the United States. With this in mind, this paper examines the impact of transferring from an elementary school to a middle or high school on Canadian adolescents' academic, behavioural and emotional adjustment within the context of Canadian schools.

This paper first presents the three principal types of schools Canadian adolescents can attend and describes their social context. Following this, a brief review of the literature on this transition is presented, followed by a discussion on the methods and results of our analyses.

## 2. The social context of schools

Since the 1970's Canadian educators and school boards have endorsed the notion that young adolescents require an educational system that meets the unique needs of their age and developmental level (Ziegler, 1998). Some school authorities have chosen to extend the grades within elementary schools such that they encompass early adolescence while other school boards have taken a different path by developing separate, stand alone middle schools, feeling that this method is the best approach to dealing with the juxtaposition of life changes. Other provincial and local school authorities send young adolescents directly from elementary schools to large multi-grade high schools. Relatively few national studies have explored how Canadian adolescents cope with educational transitions in the Canadian school system.

### Expanded elementary schools

Expanded elementary schools often span kindergarten to grade eight. These schools are close to students' homes with students assigned to a single classroom for the complete school day. Thus, students in elementary schools are taught by a single teacher and have the opportunity to develop a relationship with their teacher. The smaller size of elementary schools and the closeness to students' homes may bring greater feelings of community or school spirit (Seidman and French, 1997).

---

1. To simplify presentation of material, the term middle school is used to indicate the combined grouping of middle school and junior high school.

Observational research of elementary school classrooms in the U.S. has found that students are given greater autonomy in choosing the type of work they do and the methods that they use to do it (Eccles et al., 1993). As well, elementary school teachers evaluate students' achievements based on the academic and social gains they make rather than their relative ranking in the classroom (Eccles et al., 1993).

### **Middle schools**

Middle schools are seen as an intermediate step between elementary school and high school. It is thought that sending adolescents to middle schools eases the intellectual and social challenges involved in the transition to a higher level of education. These schools often consist of two to three grades, usually spanning some combination of grades seven to ten. Students in middle schools are generally within one or two years of age of each other. Having a homogenous group of adolescents in the same school, who are undergoing the same set of cognitive, social, emotional, and physical changes, away from older youth, allows teachers to be in a better position to meet the unique needs of students.

Typically, middle school students receive their education from a number of teachers, changing classrooms to receive instruction in various topics as their school day progresses. Unlike their elementary school colleagues, teachers in middle schools are often specialists in the education of a specific field, such as mathematics. It is believed that classroom transfers, multiple teachers, and greater distance from students' homes all serve to reduce the feeling of community in middle schools (Seidman and French, 1997).

Numerous studies in the U.S. have noted that middle school classrooms may not provide a positive environment for the developing adolescent. Eccles, et al., (1993) summarizing this work states that middle school classrooms tend to provide fewer opportunities for adolescents' decision making, choice and self-management. In comparison to elementary schools, middle schools emphasise teacher control and discipline; more often utilise ability grouping, academic tracking, public evaluation of work, and whole-group instruction. Further, these schools also involve less cognitively challenging activities where students are taught by teachers who feel they are less effective instructors and who use stricter and more comparatively based standards to evaluate students' work (Eccles, et al., 1993).

### **High schools**

High schools most often include four to five grades starting at either grade seven or grade eight and ending at grade twelve. They typically have large enrolments since several elementary schools feed students into them. Like middle school students, students attending high schools rotate through classrooms as they move from one field of study to another. Also, their teachers specialize in the teaching of a specific topic, sometimes only teaching that subject for one grade. Seidman and French (1997) describe the high school classroom environment as an intensified version of the middle school classroom with larger numbers of students per class, more rigid academic tracking, less emotional and instructional support from teachers, and greater emphasis on high academic achievement than in middle schools. High schools are thought to provide an environment that exposes adolescents to greater pressures to engage in anti-social behaviours and more intense peer pressure than middle schools. Consequently, high schools may have even less of a community feel to them than middle schools.

## What does the research literature show?

Previous research has focused on the transition from elementary school to middle school and from middle school to high school. Both longitudinal and cross-sectional studies have been conducted examining students' adjustment to these new school settings. This research has been conducted almost exclusively within the context of students and schools in the United States (an exception is McDougall and Hymel, 1998). Most of these studies suggest that students experience negative emotional and academic outcomes following the transition from elementary school to middle school. Similar negative consequences have been found for the transition from middle school to high school.

Longitudinal research examining how young adolescents fare across the transition from elementary school to middle school suggests that transferring to middle school produces negative changes in both adolescents' attitudes toward school and achievement motivation (Eccles et al., 1989; Eccles, et al., 1993; Rudolph, Lambert, Clark, & Kurlakowsky, 2001; Seidman, et al., 1994, Simmons, Burgeson, et al., 1987). Transfer to a middle school appears to negatively affect students' grade point average and academic achievement (Grolnick, Kurowski, Dunlap, & Hevey, 2000; Simmons and Blyth, 1987; Simmons, et al., 1991, Seidman et al., 1996). Following the transition to middle school, youth may also reduce their participation in extracurricular activities (Simmons, Burgeson, et al., 1987; Gifford and Dean, 1990). Some studies suggest that the negative effects of moving to a middle school may be particularly bad for females and youth making two sets of transitions: one transition from elementary school to middle school, and a second later transition from middle school to senior high school (Crockett, et al., 1989; Simmons, Burgeson, et al., 1987). The negative impact on students' academic, social and school affairs have been observed for youth of different ethnic and racial groups, as well as youth of the urban poor (Seidman, et al., 1996; Seidman et al., 1994). However, other research suggests that middle schools may have a positive impact on adolescents if these schools have consistently and to a high degree implemented a middle school philosophy<sup>2</sup> (Felner, et al., 1997; Stevenson and Erb, 1998). These positive outcomes include higher scores on standardized tests of mathematics, language, and reading achievement; lower levels of student behavioural problems; fewer students fearing victimization; and students reporting higher levels of self-esteem.

Relatively few studies have examined the transition from middle school to senior high school. Results of these studies suggest that this transition also impacts youth negatively. Effects which have been observed include reductions in students' grade point averages, reduced participation in extra-curricular activities (Gifford and Dean, 1990; Seidman, et al., 1994), and reduced engagement with school (Seidman et al., 1996; Reyes, et al., 1994).

From the previous research, it would appear that there is some evidence that some adolescents may experience negative changes in their academic achievement, behaviour, and emotional health following a transition to middle or high school.

---

2. The middle school philosophy recommends that students receive their education via a team of a few teachers who instruct small, consistent groups of students. In addition, this teaching approach recommends that guidance counselors act as advisors to students rather than teachers. It is thought that this approach will improve the communications and relationships between students and teachers and will produce a sense of community within the school (Ziegler, 1998).

## **The current study**

In Canada, young adolescents have three options with sizeable percentages of youth following one of three educational paths. In addition to transferring to a middle school, or transferring to a high school, youth may stay in their elementary school and transfer to a high school around the age of 14 or 15. The exact timing of this transfer and the specific type of school to which adolescents transfer largely depends on the school board or province in which they live. Thus, the timing and type of school to which adolescents transfer is largely out of students' control.

The present study extends previous research on the educational transitions of young adolescents by examining the impact of transferring from an elementary school directly to a high school, and comparing it to that of transferring to a middle school. The transition directly to a high school is likely to be particularly stressful. Not only are these schools substantially larger than elementary schools and middle schools, but they also expose young adolescents to much older and physically mature youth. Young adolescents may find interacting with these more mature youth to be particularly intimidating. Further, the high school classroom environment is very intense with greater emphasis on high academic achievement, less emotional and instructional support from teachers, and larger classrooms than middle or elementary schools (Seidman and French, 1997). High schools may also expose young adolescents to greater pressures to engage in anti-social behaviours and more intense peer pressure than middle or elementary schools. In combination, these factors can make the transition from an elementary school to a high school very stressful.

This project also extends past research by examining an expanded set of outcomes. Relatively few studies have examined non-academic outcomes such as depression, anxiety, physical complaints and behaviour problems (exceptions are: Grolnick, Kurowski, Dunlap & Hevey, 2000; Roeser & Eccles, 1998; Roeser, Eccles & Sameroff, 1998; and Rudolph, Lambert, Clark, & Kurlakowsky, 2001). All of these negative outcomes could occur as a result of the stress of school transitions, especially for youth moving on to comprehensive high schools.

The questions this study seeks to answer are the following. Given the number and types of changes young adolescents experience, can changing schools negatively impact students' academic, behavioural and emotional functioning? Does the type of school to which students transfer make a difference? Are older students better able to handle the additional stress involved in transferring to a new level of school? Do male and female youth respond in similar ways to different types of schools?

## **3. Method**

### **Sample**

A sub-sample of the 2,269 youth aged 10 and 11 in 1994-95, who took part in the first and second cycles of the National Longitudinal Survey of Children and Youth (NLSCY), were used in this project. Respondents were interviewed first in 1994-95 when they were attending elementary school. These same respondents were re-interviewed in 1996-97 when they were 12 to 13 years of age. They had either remained in their elementary school, transferred to a middle school, or transferred to a high school. Of the original 2,269 youth, 1,730 were selected for inclusion in this project. Nine-hundred and nineteen (53%) of these youth indicated that they had remained in



elementary school, while 550 (32%) had moved from elementary school to middle school, and 261 youth (15%) had changed from elementary school to high school. The remaining 531 students were eliminated from the sample since they had either changed from a middle school to a high school (23 youth), changed schools due to a family move (141 youth), changed schools for an unspecified reason (70 youth) or had not responded to the questions on school changes (305 youth).

The NLSCY is a comprehensive survey examining a number of factors which influence the development of children. The nationally representative sample consists of approximately 16,000 Canadian children and youth 0 to 11 years of age in 1994-95 (Statistics Canada and Human Resources Development Canada, 1995). This survey collects data every two years on the same youth as they mature, as well as information on the environments in which they live, learn and socialise. It gathers information on aspects of their lives such as demographics, health, behaviour, relationships, education, literacy, leisure activities, family functioning, family socio-economic background, parenting, and family custody history. This information is collected through a variety of methods some of which include interviews with the person most knowledgeable about the child (most often the child's mother), standardized achievement tests administered in schools, as well as questionnaires completed by youth (those aged 10 to 13) and by adolescents' teachers and school principals.

NLSCY provides a reasonably good opportunity to examine adolescents' transition to a new level of school. The survey includes a nationally representative sample of young adolescents, many of whom attend the three types of schools discussed earlier. Several of the outcomes influenced by school transitions are measured including academic achievement, emotional health, and behavioural problems. The longitudinal nature of the survey allows for the examination of students' academic achievement, emotional health, and behavioural functioning before and after making the transition to a new school. Finally, due to differences in school board and provincial policies, not all young adolescents in the survey move on to a higher level of education at the same age. As a result, it is possible to compare the academic achievement, emotional health, and behavioural functioning of youth making a change in level of school to those who remain in an elementary school.

## **Research design**

In this project, we follow youth 10 and 11 years of age who in 1994-95 were attending elementary school and note the schools they attended when they were resurveyed for the second cycle of the NLSCY in 1996-97. Some of these youth had remained in elementary school while others had moved on to either middle school or high school. This process and the fact that the exact timing of this transfer and the specific type of school to which adolescents transfer largely depends on the school board jurisdiction or province in which they live, allows for the application of a simple research design (a three group pretest/post test quasi-experiment with a non-equivalent comparison group). For the purposes of this project, youth who attended elementary school in both 1994-95 and 1996-97 serve as a no-transition comparison group for those youth who had changed their school. Adolescents who moved from elementary school to middle school serve as the middle school transition group. Youth who transferred from elementary school to high school serve as the high school transition group.

Applying the logical structure of a research design to the two cycles of NLSCY data, and the inclusion of a no-transition comparison group, allows us to address several alternative explanations for any statistically significant results that our data analyses may uncover. First, we are able to

address the issue of changes due to normal development in adolescents' academic, behavioural and emotional outcomes (maturation). Second, we can address the issue of an external factor which occurs between cycles one and two which is responsible for any observed changes in the three clusters of students' outcomes (history). Third, it is possible that merely asking respondents the same set of questions across the two cycles of data collection may have changed their scores (testing). Fourth, it is possible that the properties of the outcome measures have changed in some way across cycles one and two (instrumentation). All of these alternative explanations for our results can be examined by comparing scores on the outcome variables in 1994-95 and in 1996-97 for the transition groups to the no-transition comparison group. If any of these alternative explanations were responsible then we would see a general trend for the mean scores on the outcome variables to change in the same direction across both cycles one and two for both the no-transition comparison group (stayed in elementary school) and for the transition groups. However, if scores on the outcome measures do not change across cycles one and two in the no-transition comparison group and the specific contrasts of one or more of the transition groups versus the no-transition comparison group is significant then we can rule out these changes as an alternative explanation for the results.

The purpose of applying the logic of quasi-experimentation to this project is not to determine causality, but rather to rule out alternative explanations for the findings. Indeed, the research design used is able to assess all but one possible threat to internal validity: selection into types of schools. In Canada, students are not randomly assigned to a specific type of school but instead are assigned to a particular type of school structure largely on the basis of their geographic location (selection effects). Thus, selection into types of school structures can not be ruled out as an alternative interpretation of any statistically significant results.

## **Measures**

A variable indicating the type of transition adolescents made was created through use of two related questions: "Are you in the same school that you were in two years ago, that is in 1994/95?", and "For your most recent change in schools why did you change schools?" Youth who reported they were in the same school as they were two years ago were assigned to the no transition group (termed "Remained in Elementary School"). Adolescents who indicated that they had changed schools were assigned to one of two categories; the middle school transition group, or the high school transition group, depending on the type of school to which they indicated having been transferred.

The association of age and gender on the three clusters of outcomes was examined using two dummy coded predictors. The first dummy coded variable represented children's gender with scores of 1 representing female youths and 0 representing males. Age was dummy coded such that 0 represented 13-year-old youths and 1 represented 12-year-old youths.

## **Outcome variables**

Outcome measures for the project include standardized measures of mathematical computations as well as abbreviated scales of behaviour problems (indirect aggression, emotional problems, physical aggression, and hyperactivity), depression, and physical symptoms of stress.

Adolescents' academic achievement in mathematics in 1994-95 and in 1996-97 was assessed using a shortened version of the Mathematics Computation subtest of the Canadian Achievement Test/2 CAT/2; (Canadian Test Centre, 1992). This shortened version of the test was created by the

Canadian Test Centre specifically for the NLSCY. The Mathematics Computation test assesses students' ability to do basic mathematical calculations involving whole numbers, fractions, decimals, integers, percentages and algebraic expressions. Higher scale scores on the Mathematics Computation Test indicate greater knowledge of mathematics.

### Behavioural outcomes

Measures of hyperactivity, emotional disorder, physical aggression, and indirect aggression were created from 27 items on questionnaires completed by youth 10 to 13 years of age.<sup>3</sup> These items originally appeared in several previous surveys including the Ontario Child Health Study (Boyle, et al., 1987), the Montreal Longitudinal and Experimental Study (Tremblay, et al., 1991), and in studies of aggressive children (Lagerspetz, Bjorkqvist and Peltonen, 1988). With the exception of indirect aggression, many of the items are originally from the Child Behaviour Checklist (Achenbach and Edelbrock, 1981). Those items forming the indirect aggression scale were from measures created by Lagerspetz, Bjorkqvist and Peltonen (1988). For each of the 27 items, youth were asked to read the item and indicate if it was “never or not true”, “sometimes or somewhat true”, or “often or very true” of themselves. Division of the items into scales was based on the analysis of a series of principal components using the first cycle of NLSCY data. All measures had acceptable levels of internal consistency reliability across both cycles of the study (Table 1). Higher scores on all problem behaviour measures indicate higher levels of the problem behaviour which is assessed.

**Table 1**  
**Internal consistency reliability for the behavioural and emotional outcomes**

Outcome Variable	Coefficient Alpha Score	
	Cycle One	Cycle Two
<b>Behavioural Outcomes</b>		
Hyperactivity	0.75	0.77
Emotional disorder	0.76	0.79
Physical aggression	0.74	0.79
Indirect aggression	0.73	0.74
<b>Emotional Outcomes</b>		
Physical symptoms of stress <sup>a</sup>	--	0.79
CES-D Depression <sup>a</sup>	--	0.81

Note: <sup>a</sup> Coefficient alpha statistics are not available for this measure for Cycle One as the measure was introduced for completion exclusively by youth 12 to 13 years of age in Cycle Two.

- The hyperactive behaviours measure assesses such symptoms as inattentiveness, distractibility, restlessness, and impulsivity. The emotional disorder scale assessed symptoms of both depression and anxiety including fear, worry, sadness, crying, and unhappiness. The physical aggression measure assessed behaviours which involve threatening or actually causing direct physical harm to other youth such as fighting, attacking people, threatening, bullying and physical attacks. Indirect aggression involves the use of social interactions or statements by one youth to turn another youth against a third person. Many of the behaviours examined in the measure of indirect aggression serve to isolate, embarrass, or produce anger in a third party.

A brief index of physical symptoms of stress was created using nine items from the self-completed questionnaire answered by youth 12 and 13 years of age. Eight of these items were derived from the World Health Organisation's Health Behaviours in School Children Survey (World Health Organisation, 1985). An additional item on rashes or other skin problems was added to the measure by the NLSCY content development team (Statistics Canada and Human Resources Development Canada, 1997). Youth were asked to report how frequently in the last six months they experienced each of the nine physical symptoms of stress using a five point Likert type format (seldom or never, about once a month, about once a week, more than once a week, most days). The index based on these items has an acceptably large internal consistency reliability coefficient ( $\alpha = 0.79$ ). Scores on this measure were available only for students' post-transition experience. Higher scores on the physical symptoms of stress scale indicate more frequent and severe symptoms of stress.

A 12 item version of the CES-D depression scale (Radloff, 1977) was used to measure adolescents' feelings of depression. The original 20 item CES-D scale was developed to assess the frequency of depressive symptoms among adults in the general population of the United States of America. Radloff (1991) reports that the CES-D can be reliably administered to young adolescents and can validly separate depressed and non-depressed youth. Information on adolescents' level of depression was available only for youth when they reached 12 to 13 years of age as the measure is introduced into the self-completed questionnaire at this age. Adolescents were asked to report how often during the past week they felt or behaved in the manner described in each of the 12 items using the following response options: "Rarely or none of the time (less than 1 day)", "Some or a little of the time (1 to 2 days)", "Occasionally or a moderate amount of the time (3 to 4 days)", or "Most or all of the time (5 to 7 days)". Based on analysis of the second cycle of data, the abbreviated measure of depression appears to have an acceptable level of internal consistency reliability ( $\alpha = 0.81$ ). Higher scores on the abbreviated CES-D measure indicate higher levels of depressive symptoms.

### **Analytic approach**

Data were analysed via multiple regression using a sequential (hierarchical) regression model (Cohen and Cohen, 1983; Tabachnick and Fidell, 1996). Control variables and main effect predictors were entered on the first step of the regression equation with the two-way interactions between the main effect predictors entered on the second step. This strategy separates adolescents' previous outcomes from their current outcomes while exploring the unique association of changing schools, gender and age to the outcomes. The effects of changing school on adolescents' outcomes were explored via two *a priori* contrasts. Youth who transferred to high schools were compared to those who remained in elementary schools. Similarly, youth who transferred to middle schools were compared to those who remained in elementary schools. Differences in the adjustment of males and females to changing schools, and between 12 and 13 year olds to changing schools were explored via two-way interactions of gender-by-changing school and age-by-changing school. Interactions of gender-by-changing schools and of age-by-changing schools were created by multiplying the dummy coded variables representing gender and age by the dummy coded variables representing type of school change. This strategy resulted in four *a priori* contrasts which examine the interaction of gender by transferring to a middle school, gender by transferring to a high school, age by transferring to a middle school and age by transferring to a high school.

In most of the analyses, adolescents' scores on the outcome variables in 1994-95 served as control variables for their outcomes in 1996-97. For example, adolescents' scores on the standardized test of mathematics achievement in 1994-95 were used as the control variable for analyses involving

mathematics achievement in 1996-97. However, data on levels of depression and physical symptoms of stress were only available for youth 12 and 13 years of age in 1996-97. To control for previous levels of emotional functioning, adolescents' scores on the scale of emotional disorder in 1994-95 were used as the control variable for all analyses involving adolescents' levels of depression and physical symptoms of stress in 1996-97. Emotional disorder was chosen as the control variable for depression and physical symptoms of stress as it assessed feelings of sadness and anxiety similar to those found in the measures of symptoms of depression and physical symptoms of stress.

The NLSCY uses a highly complex, household based sampling design necessitating the use of sophisticated statistical software for data analyses. To appropriately address the complexity of the sampling design, the regression analyses and calculation of mean scores and standard errors were conducted using WestVar PC 3.0 and a set of jack-knife replicate weights specially created for these analyses.

## 4. Results

### How many young adolescents change schools?

By the second follow-up in 1996-97, youth who took part in the first cycle of the NLSCY 1994-95 at 10 and 11 years of age were attending a variety of schools (Table 2). Slightly more than one-third of all youth 12 and 13 years of age in 1996-97 had remained in their elementary school while one-fifth of youth had moved from an elementary school to a middle school, and approximately one-sixth of youth had changed from an elementary school to a high school. The remaining students<sup>4</sup> had either changed from a middle school to a high school, changed schools due to a family move, changed schools for an unspecified reason, or did not respond to the questions on school changes.

**Table 2**  
**School change for youths 12 to 13 years of age**

Reason for school change	Number of youth	Percent
No change, remained in elementary school	295,000	38
Transferred to middle school	162,000	21
Transferred to high school	123,000	16
Transferred from middle to high school	--	--
Changed school due to family move	49,000	6
Unspecified reason for school change	34,000	4
No response to questions on school changes	107,000	14

-- Data are suppressed due to the unreliability of the estimate

4. As the focus of this paper is on the effects of moving to a higher level of education, the following analyses do not include these respondents.

## Did changing schools negatively impact adolescents' academic achievement?

Unlike adolescents in the United States, changing schools was not associated with negative changes in Canadian adolescents' academic achievement. Results of regression analyses suggest that transferring to either a middle school or to a high school did not significantly affect adolescents' mathematics achievement (Table 3). In comparison to youth who remained in elementary schools, those who moved on to middle school or to high school showed similar levels of growth in mathematics achievement. Thus, for Canadian youth, it appears moving on to a higher level of education, whether it be to middle school or to high school, did not negatively or positively alter their growth in academic achievement.

Did changing schools have the same associations with academic achievement for male and female youth? In contrast to research conducted in the United States (Crockett, et al. 1989; Simmons, Burgeson, et al., 1987), results of the regression analyses suggest that the mathematics achievement of male and female youth was similar no matter what type of transition was made. Tests of the interactions of gender by changing to a middle school and gender by changing to a high school were non-significant (Table 3). Interpreting these results, it appears that once adolescents' previous levels of achievement had been taken into account, female and male students who moved to either middle school or to high school showed similar gains on the mathematics tests as did their male and female counterparts who remained in elementary school.

**Table 3**  
**Transferring to a higher level of school and students' academic achievement**

Predictor variable	Mathematics achievement	
	<i>B</i>	<i>SE B</i>
Step 1		
Cycle one test scores	0.71*	0.063
Middle school vs. elementary	-5.98	6.608
High school vs. elementary	14.80	15.113
Gender	-4.15	7.363
Age	14.86*	7.519
Step 2		
Gender by middle school interaction	-22.82	12.981
Gender by high school interaction	4.41	29.404
Age by middle school interaction	2.16	12.768
Age by high school interaction	13.34	28.767

Note: Mathematics achievement  $R^2 = 0.369$ ,  $p \leq 0.001$

\*  $p \leq 0.05$

B is the unstandardized regression weight

SE B is the standard error of the unstandardized regression weight

Not all youth make the transition to a higher level of school at the same age. Some youth make this transition at the age of 12, while for others this transition occurs at 13 or 14 years of age. The question then arises: Do older students handle the transition to high school or middle school better than younger students? Answers to this question are provided by the interactions of adolescents' age and type of school transition. Looking at the results of the regression analyses, it appears that being older at the time of the transition does not improve adolescents' academic achievement in mathematics. Results of the tests of the age by middle school transition and the age by high school transition interaction terms were non-significant (Table 3). Interpreting these results, it appears that once adolescents' previous levels of achievement had been taken into account, 12- and 13-year-old students who moved to either a middle school or to a high school showed similar gains on the mathematics tests as did their 12- and 13-year-old counterparts who remained in elementary school.

### **Do youth who move on to a higher level of school report more behavioural problems?**

Overall, moving to a new level of schooling had little association with adolescents' self-reports of behaviour problems (Tables 4 and 5). Indeed, transferring schools was significantly associated with only one behavioural outcome: indirect aggression. Youth who moved on to middle schools reported using significantly less indirect aggression than youth who remained in elementary schools. However, this was not true for adolescents who transferred to high schools. Apart from the effect on indirect aggression, transferring to middle school or high school did not significantly increase or decrease adolescents' self-reported symptoms of hyperactivity, emotional disorder, or use of physical aggression (Table 4).

Little or no research has examined the impact of changing schools on male and female youth levels of emotional problems. It appears that for Canadian youth attending Canadian schools, gender does not help or hinder behavioural responses to changing schools. Tests of the interactions of gender by type of school change were found to be statistically non-significant (Table 4). What this indicates, is that regardless of the type of school transition made, male and female youth reported similar levels of indirect aggression, hyperactivity, emotional disorder, and physical aggression as did their male and female counterparts who remained in elementary school.

It seems plausible to suggest that older adolescents, as a product of their greater maturity, may be better able to adjust behaviourally to school transitions. Indeed, this explanation has been advanced by advocates of extended elementary schools. Contrary to this common sense notion, being older does not appear to offer an advantage in adjusting to a new level of school. Tests of the interactions of age by type of school change were non-significant (Table 4). Consequently, it appears that delaying the transition from elementary school to either middle school or high school does not improve or reduce young adolescents' ability to cope behaviourally with a new school environment. Twelve- and 13-year-old youth, who moved on to either a middle school or to a high school, reported similar levels of emotional disorder, hyperactivity, indirect aggression and physical aggression as did their elementary school peers.

**Table 4**  
**Moving to a middle school and students' use of indirect aggression**

Variable	Type of behaviour							
	Hyperactivity		Emotional disorder		Physical aggression		Indirect aggression	
	<u>B</u>	<u>SE B</u>	<u>B</u>	<u>SE B</u>	<u>B</u>	<u>SE B</u>	<u>B</u>	<u>SE B</u>
<b>Step 1</b>								
Cycle one score	0.48*	0.038	0.42*	0.040	0.39*	0.059	0.36*	0.047
Middle school vs. elementary	0.36	0.247	-0.24	0.231	0.10	0.150	-0.47*	0.157
High school vs. elementary	0.01	0.342	0.28	0.286	0.11	0.203	-0.01	0.241
Gender	0.12	0.195	0.86*	0.202	-0.25	0.140	0.16	0.144
Age	0.26	0.227	0.08	0.209	-0.09	0.119	-0.09	0.144
<b>Step 2</b>								
Gender by middle school interaction	0.13	0.447	-0.38	0.488	0.17	0.317	0.20	0.284
Gender by high school interaction	0.55	0.645	0.13	0.585	0.38	0.410	0.18	0.476
Age by middle school interaction	0.04	0.462	0.40	0.470	0.00	0.253	-0.14	0.287
Age by high school interaction	0.24	0.613	-0.16	0.651	0.08	0.345	-0.02	0.444

Note:

Hyperactivity  $R^2 = 0.236$ ,  $p \leq 0.001$ ;

Emotional disorder  $R^2 = 0.210$ ,  $p \leq 0.001$ ;

Physical aggression  $R^2 = 0.171$ ,  $p \leq 0.001$ ;

Indirect aggression  $R^2 = 0.165$ ,  $p \leq 0.001$ .

\*  $p \leq 0.05$

B is the unstandardized regression weight

SE B is the standard error of the unstandardized regression weight



**Table 5**  
**Youth who transfer to middle schools and levels of indirect aggression**

Type of school change	Cycle one (1994-1995)		Cycle two (1996-1997)	
	<u>M</u>	<u>SE</u>	<u>M</u>	<u>SE</u>
Remained in elementary school	1.98	0.120	1.93	0.105
Transferred to middle school	1.75	0.147	1.38	0.120
Transferred to high school	2.03	0.240	1.91	0.263

Note: M is the mean score  
SE is the standard error of the mean score

### **Do youth who move on to a higher level of school report more physical symptoms of stress?**

Changing to a higher level of school did not affect students' levels of stress equally. Youth who transferred to comprehensive high schools reported significantly greater symptoms of physical stress than those who remained in elementary schools (Table 6). In contrast, adolescents who moved on to middle school did not significantly increase or decrease their levels of physical symptoms of stress compared to those who remained in elementary schools (Table 6). Of the three groups of youth, adolescents who transferred to high schools reported the highest levels of stress (Table 7).

While female students generally reported more physical symptoms of stress than males (Tables 6 and 8,  $p = 0.004$ ), being male or female did not appear to help or hinder students' adjustment to a new level of school. Regardless of the type of schools to which they transferred, male and female students' physical symptoms of stress were not significantly different (Table 6).

Being older at the time of changing levels of school also did not appear to aid students in making the transition. Regardless of the type of transition made, 12 and 13 year olds reported similar levels of physical symptoms of stress as suggested by the non-significant interactions of age by type of school transition (Table 6).

### **Does transferring to a higher level of school increase students' feelings of depression?**

On its own, moving on to a higher level of education did not increase or decrease students reported levels of depression. On average, youth who transferred to high schools or to middle schools reported levels of depression similar to those experienced by their peers who remained in elementary school, as indicated by the non-significant statistical tests of these effects (Table 6).

However, this is not the complete story. Adolescents' gender does appear to play a role in significantly reducing or increasing levels of depression for youth who transferred from elementary school to high school (Table 6). Indeed, it appears that transferring to a comprehensive high school may have opposite effects on male and female adolescents' levels of depression. The interaction of gender by transferring to a high school was statistically significant. Using the table of mean scores

to help interpret this effect (Table 9), it appears that male adolescents, who transferred to a comprehensive high school, experience significantly fewer symptoms of depression than male adolescents who remain in elementary school. Contrasting this, female adolescents who transfer to a comprehensive high school reported significantly more depressive symptoms than female adolescents who remain in elementary school.

Gender, however did not appear to play a role in the levels of depression reported by youth transferring to middle schools. While female youth who transferred to middle schools did report lower levels of depression than female students remaining in elementary schools (Table 9), the test of the interaction of gender by moving to a middle school was statistically non-significant (Table 6)

## **5. Summary and discussion**

This project has explored the association between transferring to middle or high schools and adolescents' academic, behavioural and emotional outcomes. Changing schools at the age of 12 or 13 appears to have little systematic association to adolescents' academic outcomes. This holds true regardless of whether the school is a middle school or a high school. Similarly, transferring to a middle school seems to have little negative association to adolescents' emotional and behavioural outcomes. Indeed, with respect to social aggression, the analyses suggest that students in middle schools may use indirect or socially directed aggression less frequently than students who remained in elementary schools. However, transferring directly from an elementary school to a comprehensive high school may be associated with some negative emotional experiences. Youth who have moved directly from an elementary school to a high school reported greater symptoms of physical stress. Further, female students who directly transfer to high schools at the age of 12 or 13 reported higher levels of depressive affect than female adolescents who remained in elementary schools. In contrast, male students directly transferring to high schools reported lower levels of depression than those male students who continued in elementary schools.

### **Academic achievement**

Unlike their American counterparts, the transfer to a middle school during this vulnerable period in Canadian adolescents' lives is not associated with negative achievement outcomes. Results of this study suggest that Canadian youth do not experience the post-transition reductions in academic achievement experienced by American youth. Indeed, the results of the current project suggest that Canadian students have similar academic achievement regardless of the type of school they transfer to or remain in. Similarly, unlike the results of some studies which use U.S. students, Canadian male and female students who transfer to middle schools do not significantly differ in their levels of academic achievement.

**Table 6**  
**Changing schools and adolescents' symptoms of stress and levels of depression**

Predictor variable	Type of emotional outcome			
	Physical stress		Depression	
	<u>B</u>	<u>SE B</u>	<u>B</u>	<u>SE B</u>
<b>Step 1</b>				
Cycle one emotional disorder score	0.64*	0.097	0.57*	0.086
Middle school vs. elementary	0.23	0.448	-0.56	0.393
High school vs. elementary	1.70*	0.680	-0.04	0.452
Gender	1.19*	0.417	0.42	0.328
Age	0.56	0.422	0.13	0.314
<b>Step 2</b>				
Gender by middle school interaction	-0.82	0.995	-0.59	0.815
Gender by high school interaction	0.57	1.305	2.50*	0.883
Age by middle school interaction	-0.35	0.904	-0.92	0.774
Age by high school interaction	0.49	1.462	-1.61	0.848

Note: Physical symptoms of stress  $R^2 = 0.134$   $p \leq 0.001$ , CES-D Depression  $R^2 = 0.140$ ,  $p \leq 0.001$

\*  $p \leq 0.05$

B is the unstandardized regression weight

SE B is the standard error of the unstandardized regression weight

**Table 7**  
**Moving to a high school and physical symptoms of stress**

Type of school change	<u>M</u>	<u>SE</u>
Remained in elementary school	15.80 <sup>a</sup>	0.332
Transferred to middle school	16.13	0.364
Transferred to high school	17.60 <sup>a</sup>	0.651

Note: M is the mean score  
SE is the standard error of the mean score  
<sup>a</sup> Difference between the mean scores is statistically significant.

**Table 8**  
**Physical symptoms of stress by gender**

Gender	<u>M</u>	<u>SE</u>
Females	16.87 <sup>a</sup>	0.343
Males	15.58 <sup>a</sup>	0.333

Note: M is the mean score  
SE is the standard error of the mean score  
<sup>a</sup> Difference between the mean scores is statistically significant.

**Table 9**  
**Levels of depression by type of school change and by gender**

Type of school change	Males		Females	
	<u>M</u>	<u>SE</u>	<u>M</u>	<u>SE</u>
Remained in elementary school	6.20 <sup>a</sup>	0.308	6.38 <sup>b</sup>	0.371
Transferred to middle school	6.23	0.546	5.59	0.410
Transferred to high school	4.71 <sup>a</sup>	0.601	7.87 <sup>b</sup>	0.735

Note: M is the mean score  
SE is the standard error of the mean score  
<sup>a</sup> Mean cores are significantly different  
<sup>b</sup> Difference between the mean scores is statistically significant.

This study finds no general effect for transferring to a higher level of education, a result that is at odds with much of the previous research. This past research has found that following the transition to middle school or high school, students' academic achievement and grade point average decrease (Simmons and Blyth, 1987; Simmons, Black and Zhou, 1991; Seidman, Aber, Allen & French, 1996). However, these studies are not directly comparable to the current study as they rely on students' grade point average as a measure of academic achievement. Past research suggests that middle school teachers evaluate students differently than elementary school teachers (Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan and MacIver, 1993). Middle school teachers rely more on normative ranking within a classroom rather than mastery of material in assigning students grades. Seidman and French (1997) have argued that these processes intensify in high school. Thus, it is possible that the incongruity between the current study's results and those of past research may be due to the use a standardized measure of academic achievement in mathematics rather than students' grade point averages. Providing further support to this explanation, Eccles et al. (1993) in their review of previous research noted that studies using standardized test scores have not found a general decline in students' academic achievement following the transition to a higher level of school.

### **Emotional and behavioural outcomes**

In this project, we considered a wide range of emotional and behavioural difficulties youth could experience following the normative transition to a higher level of education. These included symptoms of depression, stress, hyperactivity, and emotional disorder, as well as problems with physical and social aggression.

The project has extended previous work on school transitions by exploring the impact of educational transitions on adolescents' emotional and behavioural functioning. Remarkably little attention has been paid by researchers to the emotional consequences of such transitions, especially given the occasional unpleasant changes in classroom environments. The results of this project suggest that Canadian youth who transfer to middle schools do not report significantly higher levels of hyperactivity, emotional disorder, physical aggression, depression or physical symptoms of stress. Indeed, transferring to middle schools for Canadian youth was associated with reductions in levels of social aggression.

The absence of negative emotional and behavioural effects is especially noteworthy given the change in school environments. Numerous studies have noted the unpleasant changes in classroom environment that can accompany a change to middle school. Eccles, et al. (1993) summarizing this work, state that middle school classrooms tend to provide fewer opportunities for adolescents' decision making, choice and self-management; emphasise teacher control and discipline; more often utilize ability grouping, academic tracking, public evaluation of work, and whole-group instruction; involve less cognitively challenging activities; and are taught by teachers who feel they are less effective instructors, and who use stricter and more socially based standards to evaluate students' work. All in all, given the dramatic and unpleasant shift in classroom environment, it is remarkable that adolescents transferring to middle schools do not report an increase in negative emotional and behavioural symptoms. Indeed, it is a testament to the resiliency and adaptability of young adolescents.

Students transferring to comprehensive high schools are not as fortunate as their middle school peers. Adolescents who transfer from elementary schools directly to comprehensive high schools

reported greater physical symptoms of stress. Interestingly, female students reported being more depressed following the transition to comprehensive high schools than female youths who remained in elementary schools. In contrast, male students who moved on to comprehensive high schools reported feeling less depressed than their counterparts who remained in elementary schools.

One possible explanation for the increase in physical symptoms of stress concerns the intensity of the high school environment. Seidman and French (1997) suggest that the environments of comprehensive high schools are more intense than those of middle schools or elementary schools. Supporting this assertion, youth in this project who transferred to comprehensive high schools attended larger schools with less positive social climates, tended to rotate through classes more often, and were taught using more rigid instructional approaches than their middle school peers. As well, because of the larger grade span, young adolescents who transferred to comprehensive high schools were exposed to much older and physically mature students than youth who moved on to middle schools. In combination, these factors may make the change to a comprehensive high school substantially more stressful than the change to a middle school.

### **Theoretical interpretations**

Two alternative explanations have been advanced for why some youth experience problems following a transition to middle or high school: The stage-environmental fit theory and the cumulative stress perspective. Either of these theories may be applied to the results of this project.<sup>5</sup> In the following paragraphs, both theories are presented and their implications for the results of this project are briefly discussed.

The stage-environmental fit theory (Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, and MacIver, 1993) has often been used to explain why some youth experience problems following a transition to middle or high school. According to the proponents of this theory (Eccles, et al., 1993; Seidman and French, 1997) two key, but independent trajectories influence young adolescents' adjustment to a new level of school; one trajectory which corresponds to young adolescents' physical, social and psychological development and a second trajectory which corresponds to changes in the school environment. Under this theory, when changes in the school environment match the pace and timing of changes in young adolescents' development, positive growth in motivation occurs, and the negative consequences of school transitions will not occur. However, when changes in the school environment do not match changes in young adolescents' capabilities, especially when changes in the school environment lag adolescents' development or provide fewer opportunities for adolescents' continued growth than earlier environments, young adolescents will experience declines in motivation and negative psychological and academic outcomes. Based on observational studies of the classrooms of elementary and junior school students, Eccles et al., (1993) suggest that some schools do not provide an environment which is developmentally appropriate for young adolescents. Specifically, these authors argue that some junior high schools are structured in such a way as to under-challenge and discourage the burgeoning abilities of young adolescents. As a result, when young adolescents are most sensitive to social comparison, schools increasingly use socially based grading systems which emphasize classroom rankings and comparisons between youth. When young adolescents have increased cognitive capabilities which allow for greater abstraction, the classroom and teaching environment degrades intellectual challenges through academic work which requires lower levels of cognitive skills. When youth

---

5. Recent work on the transition from elementary to secondary school has emphasized the stage-environmental fit perspective over the cumulative stress perspective.

have a burgeoning need for independence and autonomy, classrooms and teaching practices discourage the development of autonomy through greater teacher control, an increased emphasis on whole group instruction and reduced emphasis on small group and independent learning. The products of this fundamental mismatch are negative motivational outcomes such as reduced interest in school, reduced interest in attaining high levels of academic achievement, decreased identification with school, and increased propensity to drop out of school. Students who have academic problems or problems with academic success at school are hypothesized to be at greatest risk to experience negative outcomes.

An important implication of the stage-environmental fit perspective is that school transitions themselves are not responsible for the negative motivational and socio-emotional outcomes which some youth experience. Rather, it is the mismatch between students' development and their classroom environments which produces these negative outcomes.

Interpreting our findings in terms of the stage-environmental fit theory, it is possible that had we directly examined the match between students' level of development and the characteristics of the school environment, we may have found that changing schools may have had negative effects for some students, especially those who were experiencing academic and social-emotional difficulties prior to the transition. However, in order to directly test the precepts of the stage-environmental fit theory, high quality data on both school environments and students' levels of development are required. While the NLSCY does collect some information on school and classroom environments, as well as information on the development of young adolescents, it is not sufficiently detailed to directly test this theory.

The stage-environmental fit perspective also suggests that negative motivational changes, such as disengagement from school, can occur when young adolescents' classroom environments do not match their developmental level. It is possible that had young adolescents' school motivation been examined, negative changes in school motivation may have been found for those youth whose new classroom environments did not match their level of social and cognitive development. Unfortunately, the NLSCY does not contain well developed, valid and comprehensive measures of school motivation or school engagement.<sup>6</sup>

The cumulative stress perspective draws heavily on life stress research. Proponents of this perspective (Simmons, Burgeson, Carlton-Ford, and Blyth, 1987) argue that both the number and the timing of life events have important impacts on young adolescents' adjustment. Youth who must simultaneously deal with several life changes and who must also make a transition to a middle school or a high school are at particular risk for poor academic, psychological and social functioning.

An underlying assumption of the cumulative stress perspective is that youth have a finite capacity to cope with change. The simultaneous occurrence of physical, social and cognitive changes during puberty strains young adolescents, drawing down their coping resources. Adding the disruption associated with a change in school to the changes associated with puberty overwhelms the coping capacity of some young adolescents. Thus, the negative consequences associated with changing schools are the direct result of exceeding the coping resources of young adolescents. This theory

---

6. Some work on developing a measure of school engagement using NLSCY data has been done (Norris, Pignal, and Lipps, 1998). However, a satisfactory instrument which measures both academic and social engagement with school could not be created.

strongly suggests that young adolescents should remain in their elementary schools until they have had time to cope with the physical, social and cognitive changes faced in puberty.

This paper has not examined the role of multiple, simultaneously experienced strains on young adolescents' academic, emotional and behavioural outcomes. Nor has a measure of pubertal status been included in these analyses. It is possible that youth who experienced several life event changes between the first and second cycles of the NLSCY, and who were also undergoing pubertal changes, may have demonstrated more negative academic and emotional outcomes following a change in schools. However, the absence of a good measure of pubertal status for both sexes makes an exploration of the cumulative stress perspective difficult. While a clear indication of the onset of puberty does exist for female adolescents, a commonly agreed upon and easily measured, survey based indicator for males does not. The NLSCY, however, does allow for a number of life stress changes to be assessed. These include changes in family status (divorce or separation of parents, addition of a family member through birth or adoption), movements to new geographic locations, the initiation of dating, as well as changes in the school attended by the child. Future research examining school transitions using the NLSCY may wish to examine the moderating role of multiple stressors on young adolescents' academic and psychological adjustment.

## **Limitations**

The logic of a quasi-experimental research design has been explicitly applied to the project. While this is an improvement over previous research, it does not allow causal inferences to be made. Instead, use of a quasi-experimental research design only allows several plausible, alternative explanations for the findings to be evaluated. Further, youth were not randomly assigned to types of schools. Consequently, the impact of selection into types of schools can not be ruled out as an alternative explanation for the current set of results. Taken together, these two limitations suggest that policy decisions regarding the best types of schools for young adolescents should not be made solely on these findings.

A second, important limitation of this research concerns the time span between survey cycles. Two years elapsed between the first and second cycles of the NLSCY. This creates a number of problems. First, it is possible that the negative effects of changing schools may have dissipated. In effect, youth may have accommodated to their new school environment and may no longer be feeling the emotional strain associated with transferring schools. Further, for a sizeable portion of those children who make a school transition, this change in schools may have occurred the year immediately following the first cycle of the NLSCY, while for the remaining youth, this change may have occurred during the current year. This could account for the absence of negative academic and behavioural outcomes. Children who changed schools last year may not be as severely strained as those for whom this change has just occurred. By combining both recent and not-so-recent school changers together, the negative consequences associated with a change in school may have been masked.



## 6. Conclusion

Results of this project suggest that moving from elementary school to middle school is not a general problem for young adolescents, while transferring directly from an elementary school to a high school may have some negative consequences for young adolescents' emotional health, especially for female youth. However, this study has not examined the mediating and moderating roles of school environment and multiple stressors on the relationship between school transitions and young adolescents' academic and psychological adjustment. Thus, conclusions regarding the role of multiple stressors and the school environment in hindering or promoting young adolescents' academic and psychological development can not be made from this work. Future research may wish to explore the role of these two factors on students' post-transition adjustment.

Data from the third cycle of the NLSCY have been released and are available for analysis. With this data, researchers will be able to examine the long-term adjustment of youth to different types of school transitions. As well, cycle three data will allow researchers to replicate these findings using a new cohort of youth.

## Bibliography

- Achenbach, T.M. and C.S. Edelbrock. 1981. "Behavioral problems and competencies reported by parents of normal and disturbed children aged 4 through 16." *Monographs of the Society for Research in Child Development*. 46, 1, no. 188: 1-78.
- Boyle, M.H., D.R. Offord, H.G. Hofmann, G.P. Catlin, J.A. Byles, D.T. Cadman, J.W. Crawford, P.S. Links, N.I. Rae-Grant and P. Szatmari. 1987. "Ontario Child Health Study: I Methodology." *Archives of General Psychiatry*. 44: 826-831.
- Canadian Test Centre. 1992. *CAT/2: Canadian Achievement Tests Second Edition: Technical Bulletin*. Markham, Ontario, Canada: Author.
- Cohen, J. and P. Cohen. 1983. *Applied Multiple Regression/Correlation Analysis for the Behavioural Sciences*. Hillsdale, New Jersey: Lawrence Erlbaum and Associates.
- Crockett, L.J., A.C. Petersen, J.A. Graber, J.E. Schulenberg and A. Ebata. 1989. "School transitions and adjustment during early adolescence." *Journal of Early Adolescence*. 9 (3): 181-210.
- Eccles, J.S. and C. Midgley. 1989. "Stage-environmental fit: Developmentally appropriate classrooms for young adolescents." In R. E. Ames & C. Ames (Eds.), *Research on motivation in education*. 3: 139-186. New York: Academic Press.
- Eccles, J.S., C. Midgley, A. Wigfield, C.M. Buchanan, D. Reuman, C. Flanagan and D. Mac Iver. 1993. "Development during adolescence: The impact of stage-environment fit on young adolescents' experiences in schools and families." *American Psychologist*. 48 (2): 90-101.
- Felner, R.D., A.W. Jackson, D. Kasak, P. Mulhall, S. Grand and N. Flowers. 1997. "The impact of school reform for the middle years." *Phi Delta Kappan*. 78 (7): 528-550.
- Gifford, V.D. and M.M. Dean. 1990. "Differences in extracurricular activity participation, achievement, & attitudes toward school between ninth-grade students attending junior high school and those attending senior high school." *Adolescence*. 25 (100): 799-802.
- Grolnick, W.S., C.O. Kurowski, K.G. Dunlap and C. Hevey. 2000. "Parental resources and the transition to junior high school." *Journal of Research on Adolescence*. 10 (4): 465-488.
- Lagerspetz, K.M.J., K. Bjorkqvist and T. Peltonen. 1988. "Is indirect aggression typical of females - Gender differences in aggressiveness in 11 year old to 12 year old children." *Aggressive Behavior*. 14 (6): 403-414.
- McDougall, P. and S. Hymel. 1998. "Moving into middle school: Individual differences in the transition experience." *Canadian Journal of Behavioural Science*. 30 (2): 108-120.
- Norris, C., J. Pignal and G. Lipps. 1998. "Measuring School Engagement in the National Longitudinal Survey of Children and Youth: Using Factor Analysis as a Tool in Content Development." Paper presented at the Annual Meeting of the American Statistical Association, June 1998.

- Radloff, L.S. 1977. "The CES-D Scale: A self-report depression scale for research in the general population." *Applied Psychological Measurement*. 1: 385-401.
- Radloff, L.S. 1991. "The use of the Center for Epidemiologic Studies Depression Scale in adolescents and young adults." *Journal of Youth and Adolescence*. 20 (2): 149-166.
- Reyes, O., K. Gillock and K. Kobus. 1994. "A longitudinal study of school adjustment in urban, minority adolescents: Effects of a high school transition program." *American Journal of Community Psychology*. 22: 341-369.
- Roeser, R.W. and J.S. Eccles. 1998. "Adolescents' perceptions of middle school: Relation to longitudinal changes in academic and psychological adjustment." *Journal of Research on Adolescence*. 8 (2): 123-158.
- Roeser, R.W., J.S. Eccles and A.J. Sameroff. 1998. "Academic and emotional functioning in early adolescence: Longitudinal relations, patterns, and prediction by experience in middle school." *Development and Psychopathology*. 10: 321-352.
- Rudolph, K.D., S.F. Lambert, A.G. Clark and K.D. Kurlakowsky. 2001. "Negotiating the Transition to Middle School: The Role of Self-Regulatory Processes." *Child Development*. 72, (3): 929-946.
- Seidman, E., J.L. Aber, L. Allen and S.E. French. 1996. "The impact of the transition to high school on the self-system and perceived social context of poor urban youth." *American Journal of Community Psychology*. 24 (4): 487-516.
- Seidman, E., L. Allen, J.L. Aber, C. Mitchell and J. Feinman. 1994. "The impact of school transitions on the self-system and perceived social context of poor urban youth." *Child Development*. 65: 507-522.
- Seidman, E. and S.E. French. 1997. "Normative school transitions among urban young adolescents: When, where, and how to intervene." In *Children and youth: Interdisciplinary perspectives*. 166 - 189. Thousand Oaks, CA: Sage.
- Simmons, R.G., A. Black and Y. Zhou. 1991. "African-American versus White children and the transition to junior high school." *American Journal of Education*. 99: 481-520.
- Simmons, R.G. and D. A. Blyth. 1987. *Moving into adolescence: The impact of pubertal change and school context*. New York: Aldine De Gruyter.
- Simmons, R.G., R. Burgeson, S. Carlton-Ford and D. A. Blyth. 1987. "The impact of cumulative change in early adolescence." *Child Development*. 58: 1220-1234.
- Statistics Canada and Human Resources Development Canada. 1995. *National Survey of Children and Youth: Overview of Survey Instruments for 1994-95, Data Collection, Cycle 1*. Statistics Canada Catalogue no. 95-01. Ottawa.

Statistics Canada and Human Resources Development Canada. 1997. *National Survey of Children and Youth: Overview of Survey Instruments for 1996-97, Data Collection, Cycle 2*. Statistics Canada Catalogue No. 89F0078XPE, no. 2. Ottawa.

Stevenson, C. and T.O. Erb. 1998. "How implementing "Turning Points" improves student outcomes." *Middle School Journal*, September: 49-52.

Tabachnick, B.G. and L.S. Fidell. 1996. *Using multivariate statistics*. Third Edition. New York, New York: Harper Collins College Publishers.

Tremblay, R.E., R. Loeber, C. Gagnon, P. Charlebois, S. Larivée and M. LeBlanc. 1991. "Disruptive boys with stable and unstable high fighting behaviour patterns during junior elementary school." *Journal of Abnormal Child Psychology*, 19: 285-300.

World Health Organisation. 1985. *Health behaviour in school children. A cross-national survey. Protocol*. Copenhagen:

Ziegler, S. 1998. "Meeting the educational needs of young adolescents: The significance of grade span, school organisation, and program." Paper prepared for the Royal Commission of Learning.