The Effects of Economic and Classroom Ecology on Changes in Children's Social Competence and Emotional and Behavioral Problems During First Grade

by

Wendy Lorraine Hoglund

B.Sc., University of Victoria, 1998

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

MASTER OF ARTS

in the Department of Psychology

We accept this thesis as conforming

to the required standard

[redacted]

Dr. B. J. Leadbeater, Supervisor (Department of Psychology)

[redacted]

Dr. C. Costigan, Departmental Member (Department of Psychology)

[redacted]

Dr. M. Reistma-Street, Outside Member (Human and Social Development)

[redacted]

Dr. J. Martin, External Examiner (Educational Psychology and Leadership Studies)



University of Victoria

Supervisor: Dr. Bonnie J. Leadbeater

## ABSTRACT

The environments where children are developing, such as within their families, classrooms, and schools can powerfully influence their emerging social, emotional, and behavioral competencies. The current study investigated whether classroom concentrations of peer pro-social behaviors and victimization (relational and physical) predicted changes in children's social competence and emotional and behavioral problems in first grade, beyond the effects of family-level economic disadvantage (number of household moves and maternal education) and school-level disadvantage (proportion of students on income assistance in the school). Gender differences in social competence and emotional and behavioral problems were also examined. The findings indicate that children's social competence, emotional problems, and behavioral problems are differentially influenced by specific features of their surrounding environments. The implications for future research and policy are discussed in relation to the findings.

Examiners:

[redacted]

Dr. B. J. Leadbeater, Supervisor (Department of Psychology)

[redacted]

Dr. C. Costigan, Departmental Member (Department of Psychology)

[redacted]

Dr. M. Reistma-Street, Outside Member (Human and Social Development)

[redacted]

Dr. J. Martin, External Examiner (Educational Psychology and Leadership Studies)

# Table of Contents

List of Tables

## List of Figures

## Acknowledgments

This research was supported by grants from the B.C. Ministry of Education, the Social Sciences and Humanities Research Council of Canada, and the Canadian Institute of Health Research awarded to the author's supervisor, Dr. Bonnie Leadbeater. I am grateful for the assistance and insight provided by my supervisor, Dr. Bonnie Leadbeater, and committee members, Dr.'s Catherine Costigan and Marge Reitsma-Street, in the development and preparation of this thesis. I also extend my gratitude to the children, parents, teachers, and schools who made this research possible.

This thesis is dedicated to

the children

whose lives this research seeks to better.

## Introduction

Ecological models of children's favorable and unfavorable development maintain that multiple levels of children's surrounding environments should be examined simultaneously to capture how environmental factors influence domains of children's development (Bronfenbrenner, 1977; Jencks & Mayer, 1990; Leventhal & Brooks-Gunn, 2000). The influence of one environmental level on children's development does not necessarily occur in isolation. For example, children from economically disadvantaged families may experience an accumulation of environmental adversities and chronic stressors that exponentially attenuate their potential for successful development in the social (e.g., ability to play well with peers), emotional (e.g., anxious or withdrawn behaviors), and behavioral (e.g., aggressive or disruptive behaviors) domains (Ackerman, Izard, Schoff, Youngstrom, & Kogos, 1999; Attar, Guerra, & Tolan, 1994; Duncan, Brooks-Gunn, & Klebanov, 1994; Kupersmidt, Griesler, DeRosier, Patterson, & Davies, 1995; Sandler, Ayers, Suter, Schultz, & Twohey, in press).

Past research and current theory suggests that adverse environmental factors (e.g., neighborhood poverty, classroom-levels of physical aggressiveness) can create risks for economically disadvantaged children's favorable development through poor socialization patterns, role modeling or adult supervision as well as through inaccessible or limited resources and support systems (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Duncan et al., 1994; Jencks & Mayer, 1990; Kellam et al., 1998; Leventhal & Brooks-Gunn, 2000; McLoyd, 1990). Limited research has, however, examined the cumulative effects of family-, school, and classroom-level adversities on children's competency in

more than one domain. The potential for proximal environmental features, specifically classroom concentrations of peer pro-social behaviors (e.g., helping behaviors), relational victimization (e.g., social exclusion) and physical victimization (e.g., hitting), to effect changes in children's development in the social, emotional, and behavioral domains beyond other proximal (i.e., family-level economic disadvantage) as well as distal (i.e., school-level disadvantage) adversities has not been addressed. There is also limited evidence of whether the effects of classroom-level adversities differentially influence girls and boys.

Most children enter primary school competent in the social, emotional, and behavioral domains and are able to adapt favorably to new environments and challenges (Consortium on the School-Based Promotion of Social Competence, 1996; Masten & Coatsworth, 1998). For young children who are vulnerable to social, emotional, or behavioral problems, however, challenging environments, such as classrooms where high levels of peer victimization are normative, can powerfully weaken their potential for favorable adjustments (Aber, Jones, Brown, Chaudry, & Samples, 1998; Kellam, Ling, Merisca, Brown, & Ialongo, 1998). Identifying characteristics of economic and classroom ecologies that nurture or attenuate economically disadvantaged children's capacities for social, emotional, and behavioral competencies is paramount for generating informed policy recommendations to support vulnerable children's capacities for successful development.

The purpose of the current study was to examine the significance of classroom concentrations of peer pro-social behaviors, relational victimization, and physical

victimization on changes in children's social competence and emotional and behavioral problems in first grade beyond the effects of family-level economic disadvantage (number of household moves and mothers' education) and school-level disadvantage (proportion of students on income assistance). Social competence was defined as competent social behaviors including self-regulation, pro-social skills, and social adjustment; emotional problems were defined as internalizing symptoms such as anxiety, social withdrawal, and depressive symptoms; and behavioral problems were defined as externalizing symptoms such as physical aggressiveness, hyperactivity, and destructiveness (Caldwell & Pianta, 1991).

This research was guided by an ecological systems theory (see Figure 1; Bronfenbrenner, 1977). In an ecological model, children's development is considered to be nested within the multiple levels of their surrounding environments. At the innermost level of the child's environment is the microsystem where the child's family is situated. The second level, the mesosystem, contains environmental support systems that can directly influence the child's development, such as characteristics of the child's family and classrooms. The third level, the exosystem, refers to settings, such as schools or neighborhoods, that encompass and influence the child's more proximal environments. This study hypothesized that children's classroom environments are influenced by elements of their proximal (i.e., family-level economic disadvantage) and distal (i.e., school-level disadvantage) environments. Classroom environments, in turn, exert additional influence on changes in children's social competence and emotional and behavioral problems during first grade.

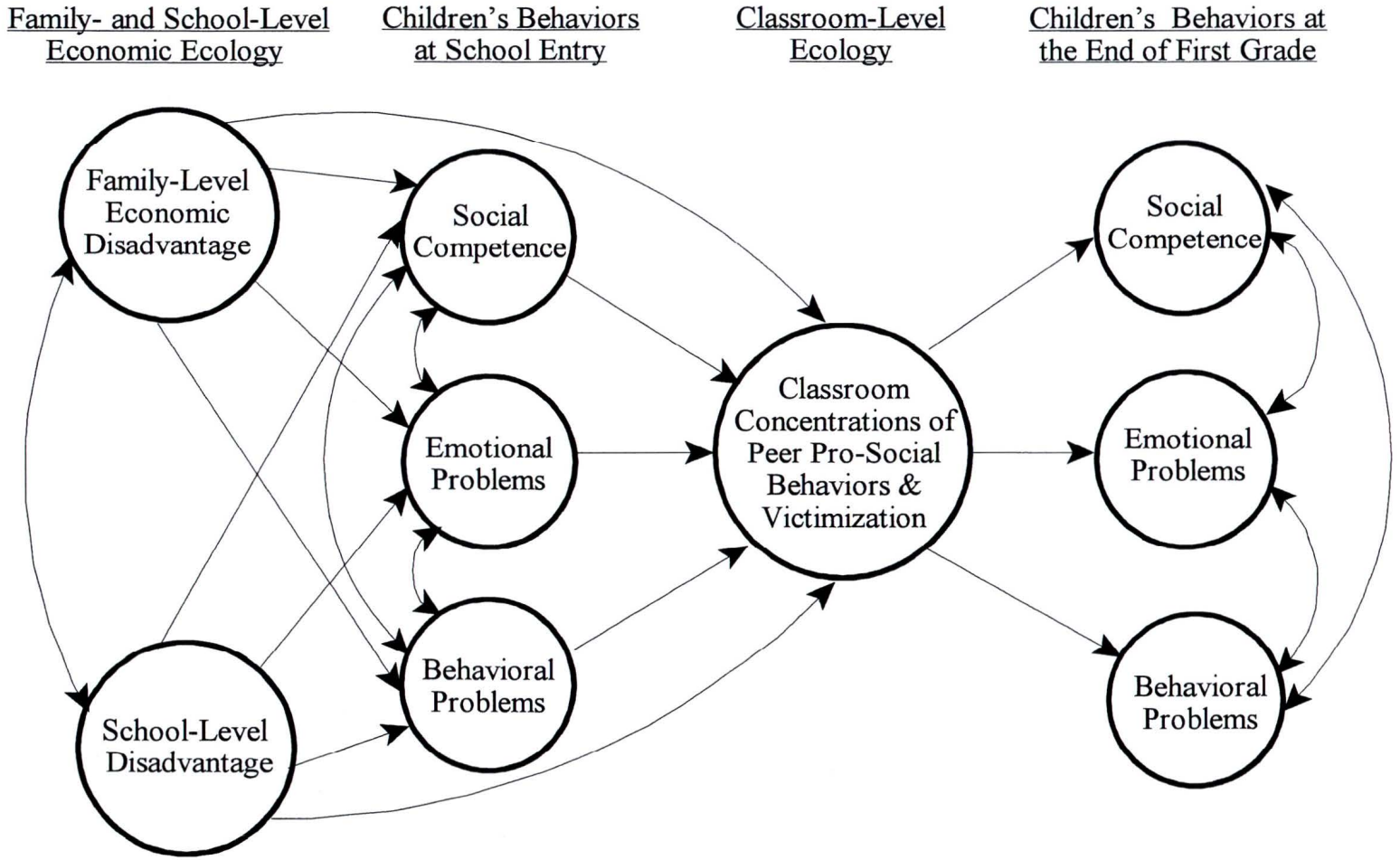


Figure 1. Pathways to First Grade Children's Social Competence and Emotional and Behavioral Problems.

The specific aims of the current study were to examine whether: a) gender differences were apparent in children's social competence and emotional and behavioral problems in first grade; b) classroom concentrations of peer pro-social behaviors and relational and physical victimization contributed to changes in children's social competence and emotional and behavioral problems during first grade, beyond the effects of family-level economic disadvantage and school-level disadvantage; c) school-level disadvantage interacted with family-level economic disadvantage and classroom concentrations of peer pro-social behaviors and relational and physical victimization to heighten children's risk for social, emotional, or behavioral problems; d) classroom concentrations of peer pro-social behaviors and relational and physical victimization interacted with gender to influence changes in children's social competence and emotional and behavioral problems; and e) classroom concentrations of peer pro-social behaviors and relational and physical victimization mediated the relation between family-level economic disadvantage and school-level disadvantage and children's social competence and emotional and behavioral problems.

The Influence of Family-Level Economic Disadvantage

Previous research confirms that children living in economically disadvantaged families are at increased risk for social, emotional, or behavioral problems compared to children living in more affluent families (Canadian Council on Social Development, 2000; DeWit, Offord, & Braun, 1998; Duncan et al., 1994; Pagani, Boulerice, & Tremblay, 1997; Patterson, Kupersmidt, & Vaden, 1990). Characteristics of family-level economic disadvantage that have often been investigated as environmental risks for children's social,

emotional, or behavioral problems include family socio-economic status (SES) and income, persistence of poverty, parental education, and number of household moves (Ackerman, Kogos, Youngstrom, Schoff, & Izard, 1999; Bolger, Patterson, & Thompson, 1995; Boyle & Lipman, 1998; DeWit et al., 1998; Duncan et al., 1994; McLoyd, 1990; Patterson et al, 1990). Parental unemployment, limited formal education, and multiple household moves are often prevalent in economically disadvantaged children's lives (DeWit et al., 1998; Dodge, Pettit, & Bates, 1994; Duncan et al., 1994; Pagani et al., 1997; Patterson et al., 1990). Access to resources (e.g., learning or educational and employment opportunities) and social support systems (e.g., other adults who can perform appropriate parenting functions) that can ameliorate the stressors and adversities associated with poverty are often limited for economically disadvantaged families (Conger, Ge, Elder, Lorenz, & Simons, 1994; McLoyd, 1990, 1998). These economic stressors often indirectly affect young, school-aged children's development, such as when family income limits housing or child care options.

The social, emotional, and behavioral domains of children's competencies and problems are, however, potentially influenced by different components of family-level economic disadvantage. For example, family-SES and income are often the strongest predictors of children's emotional and behavioral problems (Boyle & Lipman, 1998; Duncan et al., 1994; Patterson et al., 1990), whereas maternal education better predicts children's social competence (Hanson, McLanahan, & Thompson, 1997). Other research has shown that family instability (multiple household moves, stressful life events, and disruptions in caregivers' relationships) between pre-school and first grade uniquely

predicts children's concurrent emotional but not behavioral problems (Ackerman, Kogos, et al., 1999). Together, these studies suggest that the inclusion of more than one indicator of family-level economic disadvantage could illuminate the mechanisms through which family-level economic disadvantage affects the social, emotional, and behavioral domains of children's development.

Several studies have shown that additional family-level variables, such as parenting practices and parent-child interactions, mediate the effects of economic disadvantage on children's development (Ackerman, Izard, et al., 1999; Dodge et al., 1994; McLoyd, 1990). Yet there is increasing theoretical and empirical support for examining mechanisms and mediation processes outside the family environment that contribute to economically disadvantaged children's developmental outcomes (Leventhal & Brooks-Gunn, 2000; Sinclair, Pettit, Harrist, Dodge, & Bates, 1994; Kupersmidt, Griesler, et al., 1995; Sandler et al., in press). For example, economically disadvantaged children's school and classroom environments all have the potential of heightening or attenuating their risks for unfavorable developmental outcomes.

The Influence of School-Level Disadvantage

Recently researchers have begun to address the effects that distal economic adversities (e.g., school- or neighborhood-level), in addition to proximal (e.g., family-level) economic adversities, have on children's outcomes, such as their emotional and behavioral problems (Boyle & Lipman, 1998; Brooks-Gunn et al., 1993; Kellam et al., 1998; Kupersmidt, Griesler, et al., 1995; Sandler et al., in press). Neighborhood economic characteristics (e.g., proportion of unemployed persons or low-income families), can

directly and indirectly influence children's development through institutional resources and support networks available to both the children and their families and the social organization of the neighborhood (Jencks & Mayer, 1990; Leventhal & Brooks-Gunn, 2000). The availability, accessibility and quality of institutional resources, such as schools, have the potential to mediate the effects of neighborhood-level economic disadvantage on children's development (Jencks & Mayer, 1990). School quality and availability of resources and the proportion of poor children attending the school are, in turn, influenced by neighborhood economic characteristics (Attar et al., 1994; Jencks & Mayer, 1990; Stern, 1998).

Economically disadvantaged children are more likely than their non-economically disadvantaged peers to live in an economically disadvantaged neighborhood, which increases their risk for unfavorable developmental outcomes (Attar et al., 1994; Boyle & Lipman, 1998; Brooks-Gunn et al., 1993; Duncan et al., 1994; Kupersmidt, Griesler, et al., 1995; Wilson, 1987). However, neighborhood-level economic disadvantage often contributes less variance to young, children's emotional or behavioral problems than family-level economic disadvantage (Boyle & Lipman, 1998; Brooks-Gunn et al., 1993; Kupersmidt, Griesler, et al., 1995). In addition, neighborhood-level economic disadvantage is often a stronger predictor of young children's behavioral problems than emotional problems but more consistently predicts children's cognitive and school outcomes than either their emotional or behavioral problems (Leventhal & Brooks-Gunn, 2000). Nevertheless, even a small proportion of the variance in children's outcomes accounted for by neighborhood-level data may be meaningful from a policy perspective

(Duncan & Raudenbush, 1999).

Nationally representative data rather than regional or city samples often shows stronger effects of neighborhood-level economic disadvantage on children's outcomes (Leventhal & Brooks-Gunn, 2000). Interestingly, in research with nationally representative samples in the United States, the presence of low-income neighbors predicted increases in young children's behavioral problems (Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997; Duncan et al., 1994) whereas economically affluent neighborhoods predicted increases in young children's emotional problems (Chase-Lansdale et al., 1997). Clearly, further research on how distal environmental adversities affect children's emotional outcomes is needed. Research using teacher-reports rather than parent-reports of children's emotional or behavioral problems, as in the national samples, may produce more objective ratings of children's developmental outcomes.

Some theory and research has suggests that it is the interaction between family- and neighborhood-level economic characteristics that intensifies economically disadvantaged children's risk for unfavorable outcomes. As children from economically disadvantaged families are likely to live in a disadvantaged neighborhood and to attend a disadvantaged school (i.e., a school with a high proportion of poor students), they are potentially placed in a "double jeopardy" position (Willms, 2001). The double jeopardy comes for economically disadvantaged children comes when they also live in a disadvantaged neighborhood or attend a disadvantaged school. The hypothesis is that economically disadvantaged children will fare better when they live in a more advantaged than a less advantaged neighborhood or attend a more advantaged than less advantaged

school (e.g., Duncan et al., 1994; Willms, 2001).

Kupersmidt and colleagues (Kupersmidt, Griesler, et al., 1995) found that living in a middle-SES compared to a low-SES neighborhood increased the likelihood of being rejected by peers for low-income white children and decreased the likelihood of being aggressive for low-income black children. The outcomes and interaction patterns varied by ethnicity but the significance of the interactions does provide support for the hypothesis that children are indeed influenced by the interaction of their family and neighborhood economic characteristics. Other research with nationally representative data in Canada, however, found no significant interactions between neighborhood- and family-level economic characteristics on children's emotional or behavioral problems (Boyle & Lipman, 1998). Clearly there is a need for further empirical investigations of whether family economic characteristics do indeed interact with neighborhood or school economic characteristics to double poor children's risk for adverse developmental outcomes. This study tested this hypothesis by examining whether school-level disadvantage interacted with family-level economic disadvantage to intensify children's risk for poor outcomes in the social, emotional, or behavioral domains.

Exploring the effects of additional factors (e.g., classroom-level environments) beyond family- and school-level economic characteristics on children's development may advance understanding of the mechanisms by which economic disadvantage influences children's emotional and behavioral problems, as well as their social competence. No studies have examined whether features of children's first grade classroom environments, specifically classroom concentrations of peer pro-social behaviors and relational and

physical victimization, contribute to the influence of family-level economic disadvantage and school-level disadvantage on changes in children's development in the social, emotional, and behavioral domains in first grade.

The Influence of Classroom Concentrations of Pro-Social Behaviors and Victimization

Theoretical models of factors that potentially heighten or mediate the influence of economic disadvantage at the family- and school-levels on children's development point to the power of peer environments (Bandura, 1977). Peers may act as primary socialization agents, and depending on the economic environment in which the peer group is situated, may be particularly detrimental to children's favorable development (Bandura, 1977; Simons, Johnson, Beaman, Conger, & Whitbeck, 1996; Sinclair et al., 1994). Spending large proportions of awake hours surrounded by classroom peers likely influences how children construct socially normative behaviors for getting along with other children through modeling and reinforcement of pro-social or victimizing behaviors (Adler & Adler, 1995; Bandura, 1977). It is conceivable that the proximity of peer behaviors in children's classrooms, in comparison to the more distal nature of economic disadvantage at both the family- and school- levels, largely contributes to children's development (Kellam et al., 1998; Vitaro et al., 1999).

Adverse classroom environments have the potential to increase economically disadvantaged children's risk for social, emotional, and behavioral problems. Research with preschool children has shown that average classroom-levels of physically aggressive children and poor child-teacher relationships in preschool are important predictors of children's physical aggressiveness, disruptiveness (particularly for boys), and emotional

problems in second grade (Howes, 2000). Aber et al. (1998) found classroom-levels of physical aggressiveness (average children's reports of aggression) and neighborhood-level disadvantage (levels of non-elderly poor, low-income families, individuals without a high school diploma, and average homicide rates) interfered with school-based prevention programs that focused on reducing children's aggressive behaviors and improving their interpersonal negotiation strategies. Longitudinal research by Kellam et al. (1998) also demonstrated that first grade classroom-levels of physical aggressiveness (average teachers' reports of aggressive children) and school-level disadvantage (proportion of children eligible for free lunch) significantly affected children's behavioral problems in middle school, after controlling for family-level economic disadvantage. Family-level economic disadvantage added to the risk of being aggressive in sixth grade only for boys who were in aggressive first grade classrooms.

Research has not shown, however, whether classroom-levels of aggressiveness, for example, interacts with school-level disadvantage to increase children's risk for unfavorable outcomes. Similar to the increased risk for developmental problems that being in a disadvantaged school can present for economically disadvantaged children, poor children may be particularly vulnerable to unfavorable outcomes when they are attending a disadvantaged school and are also placed in a classroom characterized by high levels of peer victimization or low levels of peer pro-social behaviors (Willms, 2001). This study explored this hypothesis by examining the interaction between school-level disadvantage and classroom concentrations of peer pro-social behaviors and relational and physical victimization. These interactions tested whether children in disadvantaged schools are at

greater risk for social, emotional, or behavioral problems when they are also in classrooms with a low concentration of pro-social behaviors or classrooms with a high concentration of relational and physical victimization.

Peer relational and physical victimization. Research by Craig and colleagues (Craig & Pepler, 1997; Craig, Pepler, & Atlas, 2000) has demonstrated that episodes of peer relational victimization are more common in the classroom, whereas physical victimization is more pervasive on the playground. These observations suggest that measuring classroom concentrations of peer relational victimization is essential to understanding normative classroom peer environments that potentially influence individual children's emotional and behavioral problems as well as their social competence. Preschool and older school-aged girls are less likely than boys of the same age to experience physical victimization (e.g., hitting) by peers and are more likely to suffer relational victimization (e.g., rumor spreading) by peers (Crick & Bigbee, 1998; Crick, Casas, & Ku, 1999; Crick & Grotpeter, 1996). Inclusion of behaviors at the classroom-level that are more characteristic of girls, such as relationally victimizing behaviors could further illuminate whether high levels of relational or physical victimization in the classroom affect girls' and boys' behavioral problems as well as their emotional problems and social competence.

Past studies have found that emotional and behavioral problems in pre-school and older school-aged children are related to peer relational and physical victimization (Crick et al., 1999; Crick & Grotpeter, 1996; Hanish & Guerra, 2000; Hodges, Boivin, Vitaro, & Bukowski, 1999; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999; Vitaro, Brendgen, Pagani, Tremblay, & McDuff, 1999). Research also indicates that children with

behavioral problems tend to have difficulties interpreting social cues and negotiating effective strategies for dealing with peer conflicts (Dodge & Price, 1994; Hanish & Guerra, 2000; Kupersmidt, Burchinal, & Patterson, 1995; Schwartz et al., 1999; Vitaro et al., 1999). In addition, relational victimization by peers significantly adds to the prediction of emotional problems over and above peer physical victimization in both preschool and older school-aged children (Crick et al., 1999; Crick & Grotpeter, 1996).

Peer pro-social behaviors. It is also important to consider the potential of peer pro-social behaviors to favorably influence children's development in the social, emotional, and behavioral domains. Research has shown that associating with less deviant peers mediates school-based intervention efforts to foster social and problem solving skills in disruptive boys (Vitaro et al., 1999). Aggressive boys who associated with deviant peers were at increased risk for a conduct disorder diagnosis whereas as aggressive boys who affiliated with less deviant peers decreased their risk for conduct disorder. This research highlights the importance of examining group-level behaviors within the classroom on individual children's behavioral trajectories. Increasing aggressive children's exposure to non-disruptive or non-aggressive peers may reduce their risk for later conduct disorder or aggressive behaviors. Howes (2000) also found that preschool classrooms with a high frequency of peer play and high quality child-teacher relationships predicted more competent behaviors in second grade, particularly for girls. Thus, classroom concentrations of pro-social peer behaviors may be an important mechanism through which aggressive children's risk for persistent behavioral problems is lessened.

Children who have a stable group of well-adjusted, non-aggressive peers are more

likely to have a repertoire of socially competent behaviors. Crick and colleagues (Crick, 1996; Crick et al., 1999; Crick & Grotpeter, 1996) found that children who show competent behaviors with peers are more likely be the recipient of pro-social acts from peers whereas children who manifest emotional or behavioral problems are less likely to be treated pro-socially by peers. Classrooms that have high levels of pro-social peer behaviors may heighten children's capacities for social, emotional, and behavioral competencies. These effects may be particularly beneficial for boys (Vitaro et al., 1999) as girls more often than boys possess socially competent skills, engage in more pro-social goals and strategies in friendship conflicts, and are more often the recipient of pro-social peer acts (Crick et al., 1999; Crick & Grotpeter, 1996; Rose & Asher, 1999).

Further research on gender-linked vulnerabilities to stressful events (e.g., classrooms with high levels of relational or physical peer victimization) in first graders may be important to understand gender differences in social, emotional, and behavioral outcomes (Gore & Eckenrode, 1996). One purpose of this study was to examine whether gender-linked vulnerabilities to specific stressors in children's classroom environments (i.e., classroom concentrations of peer relational or physical victimization) occur in first grade children and how girls and boys manifest these vulnerabilities. This study examined whether gender interacted with classroom concentrations of pro-social behaviors or victimization to test if girls' or boys' vulnerability to social, emotional, or behavioral problems were heightened, for example, when they were in classrooms with low levels of pro-social behaviors or high levels of relational and physical victimization. Investigating the significance of classroom concentrations of peer pro-social behaviors and relational

and physical victimization on changes in children's behaviors in first grade can inform the current literature and policy debates about mechanisms that potentially affect the sequencing of their social competence and emotional and behavioral problems.

## The Current Study

In summary, the purpose of the current study was to examine whether classroom concentrations of pro-social behaviors and relational and physical victimization predicted changes in children's social competence and emotional and behavioral problems in first grade beyond family-level economic disadvantage and school-level disadvantage. The following hypotheses guided this research: a) gender would predict differences in girls' and boys' social competence and emotional and behavioral problems at the end of first grade; b) classroom concentration of pro-social behaviors would predict positive changes in children's social competence and emotional and behavioral problems; c) classroom concentration of relational and physical victimization would predict negative changes in children's social competence and emotional and behavioral problems; d) school-level disadvantage would interact with both family-level economic disadvantage and classroom concentrations of pro-social behaviors and victimization to heighten children's risk for social, emotional, and behavioral problems; e) classroom concentrations of pro-social behaviors and victimization would interact with gender to predict changes in children's social competence and emotional and behavioral problems; and f) classroom concentrations of pro-social behaviors and victimization would mediate the effects of family-level economic disadvantage and school-level disadvantage on changes in social competence and emotional and behavioral problems.

## Methodology

### Participants

The participants in the current study included 432 first grade children, 210 (49%) girls and 222 (51%) boys with a mean age of 6-years and 3-months at the first wave of data collection. At the second wave of data collection there were 423 children (98% of the original sample), 206 girls and 217 boys. The small attrition was due to children moving out of the school district. The children are participants in an ongoing longitudinal study of the onset and development of emotional and behavioral problems in young, school-aged children and evaluation of a peer victimization prevention program (the "W.I.T.S." Rock Solid Primary Program)[1]. The children attended one of 17 schools and were in one of 44 classrooms participating in this study. The schools were representative of the School District's range of the proportion of students receiving income assistance within the schools (3% to 24%) in a medium-sized Canadian city (population over 250,000). The overall consent rate was 64% across all participating schools (range 47% to 91%). Participation rate was 64.6% in the schools with less than 10% of students on income assistance and 62.4% in the schools with more than 10% of students on income assistance.

Parent-reported (86% birth or adoptive mothers) demographic questionnaires indicate that 32% of the children lived in a household with a total household annual income of less than $30,000. Total range of household income was less than $8,500 per

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[1]The W.I.T.S. Primary Program evaluation is being conducted by the author's supervisor, Dr. Bonnie Leadbeater, and is supported through grants from B.C. Ministry of Education, the Social Sciences and Humanities Research Council of Canada, and the Canadian Institute of Health Research awarded to Dr. Bonnie Leadbeater.

annum to $50,000 or more per annum. The average level of mothers' education was "some college or technical training beyond high school" (total range was from eighth grade or less to a graduate degree). Sixty-one percent of the children lived with both parents, 31% had no lifetime housing moves, and 27% had 3 or more lifetime housing moves. Children's ethnicity or race, as reported by parents, was 73% Canadian and European Caucasian (Irish, Scottish, British, Dutch, French), 9% SouthEast and East Asian (Chinese, Korean), 7% Aboriginal (First Nations, Inuit), 4% East Indian (Hindi, Punjabi), 2% African and Caribbean (African American, Somalian, Jamaican), 1% Japanese, 2% Other (Hispanic, Lebanese, Filipino, Persian), and 2% reported no ethnicity or race. Seventy-three percent of parents reported that English was the only language spoken at home and 11% reported speaking a language other than English at home more than half the time or all the time.

Procedure

The first wave (Time 1) of data was collected over a 3-month period (October to December 2000) and the second wave (Time 2) of data was collected over a 2-month period (May to June 2001). Parents who gave consent for their child's participation completed questionnaires assessing family demographics, perceptions of school safety, and children's social competence and emotional and behavioral problems. Parents completed the forms at home and returned these to their child's teacher in a sealed envelope.

For each child in their classroom that had consent, teachers completed questionnaires rating the children's social competence and emotional and behavioral problems. Teachers completed these forms during class time when the children's

questionnaires were being administered.

Children completed questionnaires on peer pro-social behaviors and relational and physical victimization and interpersonal negotiation strategies. Only the victimization questionnaire was used for the current study. Data were collected in groups of 9 to 24 children during class time. Questionnaires were read aloud to the children by the author, her supervisor, or a graduate student with a Masters degree in clinical psychology. Undergraduate research assistants circulated in the classroom to ensure that all children were able to understand the questionnaires and fill them out correctly.

Measures

Children' Behaviors. Children's social competence, emotional problems, and behavioral problems were assessed from teacher reports of children's behaviors on the Early School Behavior Rating Scale (ESBS; Caldwell & Pianta, 1991) at Time 1 and Time 2. The teacher version of the ESBS contains 40 items rated on a four-point likert scale (1 = hardly ever to 4 = almost always). This scale measures children's socially competent behaviors on 14 items (e.g., "gets along with other children", "shares toys or materials"), emotional problems from 17 items (e.g., "appears unhappy or depressed", "is shy or bashful"), and behavioral problems from 9 items (e.g., "fights with other children", "has temper tantrums"). Factor analysis of the ESBS shows modest correlations among the subscales and demonstrates that items assessing social competence measure different aspects of behavior than items assessing emotional or behavioral problems (Caldwell & Pianta, 1991). Internal reliabilities were adequate in the current study for the teacher reports ($\alpha = 0.90$ for social competence, $\alpha = 0.84$ for emotional problems, $\alpha = 0.88$ for

behavioral problems). Teachers' Time 1 and Time 2 reports of children's behaviors were highly correlated ($r$ = .69 to .80), indicating high reliability over the school year.

Classroom Concentrations of Peer Pro-Social Behaviors and Victimization. Children's self-reported peer pro-social behaviors and relational and physical victimization were assessed using a modified version of the Social Experiences Questionnaire (SEQ; Crick & Grotpeter, 1996) at Time 2. The SEQ contains three subscales with five items each that assess children's receipt of pro-social peer behaviors (e.g., "How often does another kid help you when you need it?") and experiences of peer relational victimization (e.g., "How often does another kid say they won't play with you unless you do what they want you to do?") and peer physical victimization (e.g., "How often do you get hit by other kids at school?"). Children rated on a three-point likert-type scale how often the events occurred (0 = never, 1 = sometimes, or 2 = almost all the time). A three-point scale was adapted from the original five-point scale as a five-point scale was not considered appropriate for first grade children (the SEQ was developed for use with children in grades three and older). The current study demonstrated adequate internal reliabilities for each of the subscales ($\alpha = 0.73$ for pro-social behaviors, $\alpha = 0.72$ for relational victimization, and $\alpha = 0.76$ for physical victimization).

Children's Time 2 reports of peer pro-social behaviors, relational victimization, and physical victimization were averaged across the children in each classroom to measure classroom concentration of pro-social behaviors, classroom concentration of relational victimization, and classroom concentration of physical victimization, respectively. To eliminate the potential of an individual child's ratings having undue influence on the

classroom mean in estimating the effects of the classroom-level predictors for that particular child, classroom means were computed for each individual child without their own individual ratings of peer pro-social behaviors and victimization. Thus, each child potentially received a different value for the classroom concentration variables that did not incorporate their individual rating of peer pro-social behaviors or victimization.

Family-Level Economic Disadvantage. The level of economic disadvantaged experienced by children's families was derived from two demographic variables at Time 1; the reported number of lifetime household moves the child had experienced by the beginning of first grade and level of mothers' education. Previous research has demonstrated the influence of household moves and mothers' education on children's development (Ackerman, Kogos, et al., 1999; Hanson et al., 1997). Mothers' education was chosen over family income due to the low response rate ($n = 372$) for family income, possibly due to the perceived intrusiveness of this question. Family income was moderately correlated with mother's education ($r = .44$, $p < .001$) and number of household moves ($r = -.36$, $p < .001$). Number of household moves and mothers' education were entered as separate indicators of family-level economic disadvantage to assess whether distinct sources of family-level economic risks differentially predicted children's social competence, emotional problems, or behavioral problems.

Number of household moves was moderately correlated with marital status ($r = -.42$, $p < .001$), whether the father lived with the child ($r = -.48$, $p < .001$), fathers' education ($r = -.21$, $p < .001$), and teacher reports at Time 2 of whether the child had good friends ($r = -.18$, $p < .001$). Mothers' education was positively correlated with

marital status ($r$ = .24, $p$ < .001), whether the father lived with the child ($r$ = .22, $p$ < .001), fathers' education ($r$ = .54, $p$ < .001), and teacher reports at Time 2 of whether the child had good friends ($r$ = .15, $p$ < .001).

School-Level Disadvantage. School-level disadvantage was assessed as the proportion of students receiving income assistance in the school at Time 1. The total range of proportion of students on income assistance was 3% to 24%. School district average was 10% of students on income assistance. Estimates of school-level disadvantage were provided by the School District, from where the schools were sampled, that were reproduced from 1998 Ministry of Human Resources Administrative Files (Hoyle, 1998). To validate whether the proportion of students receiving income assistance within the schools was an adequate measure of a distal environmental adversity, its redundancy with a composite of schools' neighborhood-level disadvantage (school neighborhood census tract data of percent of low-income economic families, single-parent families, unemployment, persons 15 years and older without a high school certificate, rented dwellings, and average household income in 1996; Capital Regional District Regional Planning Services, 1999) was assessed. The bivariate correlation between school-level disadvantage and schools' neighborhood disadvantage was high ($r$ = .88, $p$ < .001). School-level disadvantage was also negatively associated with marital status ($r$ = -.30, $p$ < .001), whether the father lived with the child ($r$ = -.25, $p$ < .001), and fathers' education ($r$ = -.41, $p$ < .001).

# Results

## Bivariate Correlations

Table 1 displays the correlation matrix for the dependent (i.e., children's social competence, emotional problems, and behavioral problems at the end of first grade) and independent variables (i.e., children's behaviors at school entry, family-level economic disadvantage, school-level disadvantage, and classroom concentrations of peer pro-social behaviors and victimization). Children's social competence at the end of first grade was negatively correlated with emotional and behavioral problems at the end of first grade. Social competence was also strongly associated with gender (i.e., higher for girls) and moderately correlated with mothers' education and number of household moves. There was a moderate association between children's emotional and behavioral problems. Emotional problems were also moderately correlated with number of household moves, mother's education, and school-level disadvantage. Behavioral problems were also moderately associated with gender (i.e., lower for girls), number of household moves, mothers' education, school-level disadvantage, and classroom concentrations of peer relational and physical victimization.

As expected, classroom concentrations of peer relational and physical victimization were highly correlated ($r = .76$, $p < .01$; see Table 1). Due to the interest in the distinct effects of these different forms of victimization on children's behaviors they were retained as separate measures for multivariate analyses of variance of gender differences. However, the strong association between classroom concentrations of relational and physical victimization necessitated that they be combined as one measure of classroom

Table 1

Bivariate Correlations between Children's Social Competence and Emotional and Behavioral Problems at the End of First Grade and Child-, Family-, School-, and Classroom-Level Predictors

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Children's Behaviors at the End of First Grade & Gender | | | | | | | | | |
| 1. Social Competence | | | | | | | | | |
| 2. Emotional Problems | -.48** | | | | | | | | |
| 3. Behavioral Problems | -.70** | .37** | | | | | | | |
| 4. Gender (being a girl) | .21** | .01 | -.26** | | | | | | |
| Family-Level Economic Disadvantage | | | | | | | | | |
| 5. Number of Household Moves | -.26** | .24** | .33** | -.06 | | | | | |
| 6. Mothers' Education | .11* | -.17** | -.13** | -.02 | -.14** | | | | |
| School-Level Disadvantage | | | | | | | | | |
| 7. Proportion of Students on Income Assistance in School | -.05 | .21** | .19** | .05 | .19** | -.42** | | | |
| Classroom Concentrations of Pro-Social Behaviors & Victimization | | | | | | | | | |
| 8. Pro-Social Behaviors | .07 | -.05 | .02 | .03 | .04 | .02 | .08 | | |
| 9. Relational Victimization | .05 | .07 | .15** | .05 | .17** | -.23** | .50** | .28** | |
| 10. Physical Victimization | -.01 | .08 | .20** | -.01 | .16** | -.24** | .46** | .19** | .76** |

Note. * $p < .05$, ** $p < .01$.

victimization for hierarchical regression analyses. In addition, classroom concentrations of peer relational and physical victimization were each moderately correlated with number of household moves and mothers' education. The strongest correlation of both classroom victimization measures rated by the children at the end of first grade was with the measure of school-level disadvantage.

It was expected that classroom concentration of pro-social behaviors would be negatively associated with classroom concentrations of relational and physical victimization. However, it was found that classroom concentration of pro-social behaviors was positively correlated with classroom concentrations of relational victimization ($r$ = .28, $p < .01$) and physical victimization ($r$ = .19, $p < .01$). Classroom concentration of pro-social behaviors did not show any bivariate correlation with any of the dependent or independent variables (see Table 1).

Multivariate Analyses of Variance of School-Level Disadvantage and Gender Differences

Multivariate analyses of variance (MANOVA) was used to investigate 1) school-level disadvantage differences (comparing schools below and schools above the district average of 10% of students on income assistance) and 2) gender differences in mean levels of social competence and emotional and behavioral problems at the end of first grade, individual-levels of peer pro-social behaviors and victimization, and classroom concentrations of peer pro-social behaviors and victimization at the end of first grade.

At the end of first grade, children in schools with less than 10% of students on income assistance had significantly lower mean levels of emotional and behavioral problems than children in schools with more than 10% of students on income assistance, $F$

(1, 421) = 15.40 and 21.30, $p < .001$, respectively (see Table 2). At the individual-level, children in schools with less than 10% of students on income assistance reported fewer episodes of peer relational victimization and physical victimization at the end of first grade than did children in schools with more than 10% of students on income assistance, F (1, 421) = 12.13 and 9.18, $p < .01$, respectively. Similarly, mean levels of classroom concentrations of relational victimization and physical victimization, as reported by children, were significantly lower in schools with less than 10% of students on income assistance, F (1, 421) = 86.13 and 66.98, $p < .001$, respectively. There were no mean level differences between schools in children's social competence, individual-levels of peer pro-social behaviors, or classroom concentration of peer pro-social behaviors.

As shown in Table 3, mean levels of social competence were significantly higher for girls ($\bar{x} = 45.33$) than boys ($\bar{x} = 42.07$), F (1, 421) = 19.46, $p < .001$. Boys had significantly higher mean levels of behavioral problems than girls ($\bar{x} = 13.67$ and 11.32, respectively), F (1, 421) = 30.08, $p < .001$. Girls and boys did not significantly differ in their mean levels of emotional problems. At the individual-level, girls reported being the recipient of significantly more peer pro-social behaviors than boys ($\bar{x} = 7.16$ and 6.26, respectively), F (1, 421) = 15.78, $p < .001$. No gender differences in mean levels of children's reports of being victimized by peers relationally or physically were significant. At the classroom-level, girls and boys did not significantly differ in mean levels of classroom concentrations of peer pro-social behaviors or relational or physical victimization.

Table 2

Multivariate Analyses of Variance of School-Level Disadvantage Differences in Mean Levels (and Standard Deviations) of Social Competence and Emotional and Behavioral Problems and Individual-Levels of and Classroom Concentrations of Pro-Social Behaviors and Victimization

| Model | Less than 10% Students on Income Assistance (N = 213) | | | More than 10% Students on Income Assistance (N = 210) | | |
|---|---|---|---|---|---|---|
| 1) Children's Behaviors at the End of First Grade | M | (SD) | Range | M | (SD) | Range |
| Social Competence | 44.19 | (0.53) | 21-56 | 43.11 | (0.54) | 15-56 |
| Emotional Problems | 23.75[a] | (0.42) | 17-45 | 26.49 | (0.42) | 17-52 |
| Behavioral Problems | 11.68[a] | (0.31) | 9-31 | 13.39 | (0.31) | 9-33 |
| Multivariate F (3, 419) = 12.62[b] | | | | | | |
| 2) Individual-Levels of Pro-Social Behaviors and Victimization | M | (SD) | Range | M | (SD) | Range |
| Peer Pro-Social Behaviors | 6.67 | (0.16) | 0-10 | 6.72 | (0.16) | 0-10 |
| Peer Relational Victimization | 2.23[a] | (0.16) | 0-10 | 3.03 | (0.16) | 0-10 |
| Peer Physical Victimization | 2.33[a] | (0.16) | 0-10 | 3.02 | (0.16) | 0-10 |
| Multivariate F (3, 419) = 4.31[c] | | | | | | |
| 3) Classroom Concentrations of Pro-Social Behaviors and Victimization | M | (SD) | Range | M | (SD) | Range |
| Peer Pro-Social Behaviors | 6.67 | (0.01) | 4-8.33 | 6.72 | (0.06) | 5.17-8.63 |
| Peer Relational Victimization | 2.22[a] | (0.06) | .88-4 | 3.02 | (0.06) | 1.27-5.78 |
| Peer Physical Victimization | 2.33[a] | (0.06) | .75-3.67 | 3.01 | (0.06) | 1.29-5.13 |
| Multivariate F (3, 419) = 31.80[b] | | | | | | |

Note. [a]Univariate F is significant at $p < .001$. [b]Multivariate F is significant at $p < .001$. [c]Multivariate F is significant at $p < .01$.

Table 3

Multivariate Analyses of Variance of Gender Differences in Mean Levels (and Standard Deviations) of Social Competence and Emotional and Behavioral Problems and Individual-Levels of and Classroom Concentrations of Pro-Social Behaviors and Victimization

| Model | Girls (N = 206) | | | Boys (N = 217) | | |
|---|---|---|---|---|---|---|
| 1) Children's Behaviors at the End of First Grade | M | (SD) | Range | M | (SD) | Range |
| Social Competence | 45.33[a] | (7.04) | 25-56 | 42.07 | (8.08) | 15-56 |
| Emotional Problems | 25.17 | (6.19) | 17-51 | 25.05 | (6.33) | 17-52 |
| Behavioral Problems | 11.32[a] | (3.22) | 9-27 | 13.67 | (5.27) | 9-33 |
| Multivariate F (3, 419) = 13.33[b] | | | | | | |
| 2) Individual-Levels of Pro-Social Behaviors and Victimization | M | (SD) | Range | M | (SD) | Range |
| Peer Pro-Social Behaviors | 7.16[a] | (2.14) | 0-10 | 6.26 | (2.51) | 0-10 |
| Peer Relational Victimization | 2.73 | (2.33) | 0-10 | 2.53 | (2.43) | 0-10 |
| Peer Physical Victimization | 2.55 | (2.35) | 0-9 | 2.78 | (2.35) | 0-10 |
| Multivariate F (3, 419) = 6.84[b] | | | | | | |
| 3) Classroom Concentrations of Pro-Social Behaviors and Victimization | M | (SD) | Range | M | (SD) | Range |
| Peer Pro-Social Behaviors | 6.72 | (0.82) | 4-8.63 | 6.67 | (0.84) | 4-8.63 |
| Peer Relational Victimization | 2.66 | (0.93) | .75-5.13 | 2.57 | (1.01) | .75-5.13 |
| Peer Physical Victimization | 2.65 | (0.91) | .88-5.78 | 2.67 | (0.96) | .88-5.78 |
| Multivariate F (3, 419) = 1.08 | | | | | | |

Note. [a]Univariate F is significant at $p < .001$. [b]Multivariate F is significant at $p < .001$.

Hierarchical Regression Analyses of the Effects of Economic and Classroom Ecology

Hierarchical multiple regression analyses was used to predict changes in children's social competence, emotional problems, and behavioral problems during first grade. Gender was entered in the first step to control for gender differences. Children's behaviors (social competence, emotional problems, and behavioral problems) at Time 1 were entered in the second step to control for initial levels of behaviors. Family-level economic disadvantage was entered in the third step, school-level disadvantage was entered fourth, and classroom concentrations of peer pro-social behaviors and victimization were entered in the fifth step. (Classroom concentrations of relational and physical victimization were summed to create one measure of victimization due to their high bivariate correlation and model instability when entered as separate measures.) The goal of the block order was to determine whether children's classroom environments significantly predicted changes in their social competence and emotional and behavioral problems in first grade beyond the effects of family-level economic disadvantage and school-level disadvantage.

Three series of hypothesized interactions were independently entered as the final step in each regression model: 1) school-level disadvantage X number of household moves and school-level disadvantage X mothers' education interactions tested whether the effects of school-level disadvantage on children's behaviors were moderated by number of household moves or mothers' education; 2) school-level disadvantage X classroom concentration of pro-social behaviors and school-level disadvantage X classroom concentration of victimization interactions assessed whether classroom concentrations of pro-social behaviors and victimization moderated the effects of school-level disadvantage

on changes in children's behaviors; and 3) gender X classroom concentration of pro-social behaviors and gender X classroom concentration of victimization interactions assessed whether gender moderated the effects of classroom concentrations of pro-social behaviors and victimization on changes in children's behaviors. Only significant interactions in each model were retained for that specific model. As recommended by Aiken and West (1991), predictor variables for each interaction were centered (i.e., put in deviation score form where their means were equal to zero). Significant interaction terms were probed by plotting a series of the significant interactions at particular values (i.e., at the mean and one standard deviation above and below the mean) of a criterion variable (e.g., classroom concentration of victimization) and post hoc statistical testing (Aiken & West, 1991). For example, a significant interaction between school-level disadvantage and classroom concentration of victimization on emotional problems was probed by regressing emotional problems on school-level disadvantage at three values of classroom concentration of victimization (i.e., at the mean, one standard deviation below the mean, and one standard deviation above the mean).

The effects of economic and classroom ecology on social competence. As shown in Table 4, the full hierarchical regression model predicting changes in children's social competence was significant and accounted for 53% of the total variance in social competence at the end of first grade, $F$ (7, 385) = 64.03, $R^2$ = .53, $p < .001$. None of the interactions were significant in this model and were therefore omitted. The first (gender), second (social competence at school entry), and fifth (classroom concentrations of pro-social behaviors and victimization) steps accounted for significant changes in $R^2$ in social

Table 4

Hierarchical Regression Analysis of The Effects of Classroom Concentrations of Peer Pro-Social Behaviors and Victimization on Changes in Children's Social Competence

| | | Social Competence | | | |
|---|---|---|---|---|---|
| Step Variable | End β[a] | $R^2$ | $R^2\Delta$ | df | FΔ |
| Step 1. Gender | | .04 | | 1,391 | 15.81*** |
| Gender | .12*** | | | | |
| Step 2. Children's Behavior at School Entry | | .51 | .48 | 1,390 | 382.08*** |
| Social Competence | .68*** | | | | |
| Step 3. Family-Level Economic Disadvantage | | .51 | .00 | 2,388 | 1.76 |
| Number of Household Moves | -.07 | | | | |
| Mothers' Education | -.01 | | | | |
| Step 4. School-Level Disadvantage | | .51 | .01 | 1,387 | 2.27 |
| Proportion of Students on Income Assistance in the School | -.12** | | | | |
| Step 5. Classroom Concentrations of Pro-Social Behaviors & Victimization | | .53 | .02 | 2,385 | 6.77*** |
| Pro-Social Behaviors | .05 | | | | |
| Physical + Relational Victimization | .12** | | | | |
| Model | | .53 | | 7,385 | 64.03*** |

Note. [a]β values are standardized.
* $p < .05$, ** $p < .01$, *** $p < .001$

competence at the end of first grade. The set of classroom concentrations of pro-social behaviors and victimization contributed 2% of the variance to the increment in $R^2$ after accounting for all other predictors in the model.

Gender, social competence at school entry, school-level disadvantage, and classroom concentration of victimization each contributed unique variance to the prediction of changes in children's social competence. All independent contributions were in the expected directions with the exception of classroom concentration of victimization. That is, gender (i.e., being a girl) and social competence at school entry predicted increases in social competence at the end of first grade whereas school-level disadvantage predicted decreases in social competence. In contrast to the hypothesis, classroom concentration of peer victimization predicted increases in social competence during first grade. In post hoc hierarchical regression analyses classroom concentration of relational victimization was entered in one model and classroom concentration of physical victimization was entered in a second model and only classroom concentration of relational victimization predicted increases in social competence.

The effects of economic and classroom ecology on emotional problems. As shown in Table 5, the overall hierarchical regression model predicting changes in children's emotional problems was significant and explained 52% of the total variance in emotional problems at the end of first grade, $F$ (10, 383) = 40.59, $R^2 = .52$, $p < .001$. The interactions between school-level disadvantage X classroom concentrations of pro-social behaviors and victimization were retained. The second (emotional and behavioral problems at school entry), third (family-level economic disadvantage), and sixth (interactions) steps accounted for significant change in $R^2$ in children's emotional problems. The school-level disadvantage X classroom concentrations of pro-social behaviors and victimization interactions contributed 2% of the variance to the increment in

Table 5

Hierarchical Regression Analysis of The Effects of Classroom Concentrations of Peer Pro-Social Behaviors and Victimization on Changes in Children's Emotional Problems

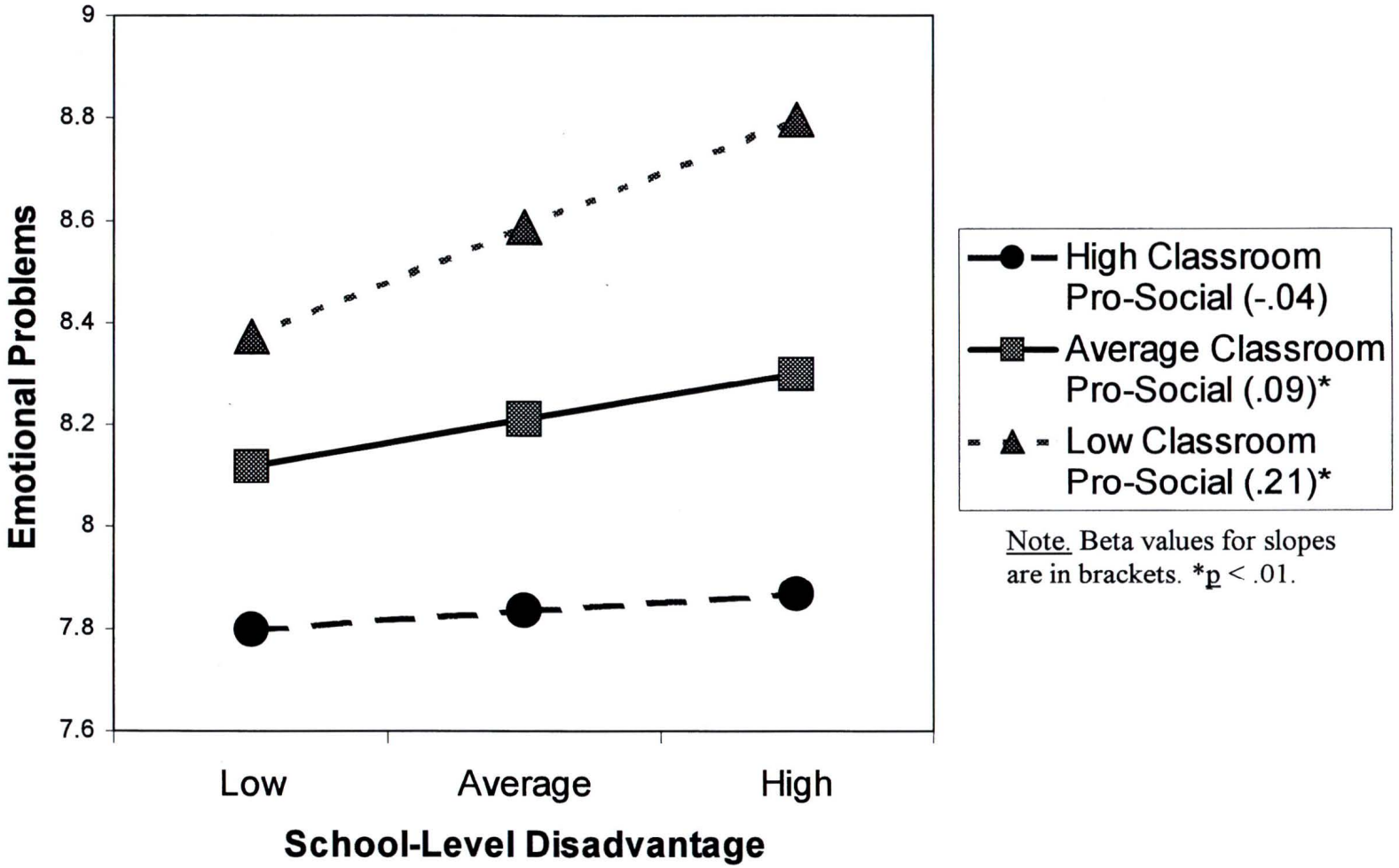
| | | Emotional Problems | | | |
|---|---|---|---|---|---|
| Step Variable | End β[a] | $R^2$ | $R^2\Delta$ | df | FΔ |
| Step 1. Gender | | .00 | | 1,392 | 0.20 |
| Gender | .03 | | | | |
| Step 2. Children's Behaviors at School Entry | | .48 | .48 | 2,390 | 181.85*** |
| Emotional Problems | .63*** | | | | |
| Behavioral Problems | .08* | | | | |
| Step 3. Family-Level Economic Disadvantage | | .49 | .01 | 2,388 | 4.62** |
| Number of Household Moves | .09* | | | | |
| Mothers' Education | -.02 | | | | |
| Step 4. School-Level Disadvantage | | .50 | .01 | 1,387 | 2.99 |
| Proportion of Students on Income Assistance in the School | .10* | | | | |
| Step 5. Classroom Concentrations of Pro-Social Behaviors & Victimization | | .50 | .00 | 2,385 | 0.71 |
| Pro-Social Behaviors | -.08* | | | | |
| Physical + Relational Victimization | -.03 | | | | |
| Step 6. School-Level Disadvantage X Classroom Concentrations | | .52 | .02 | 2,383 | 5.51** |
| School-Level Dis. X Pro-Soc. Beh. | -.11** | | | | |
| School-Level Dis. X Victimization | .10* | | | | |
| Model | | .52 | | 10,383 | 40.59*** |

Note. [a] β values are standardized.
* $p < .05$, ** $p < .01$, *** $p < .001$

$R^2$ after all other predictors in the model were accounted for.

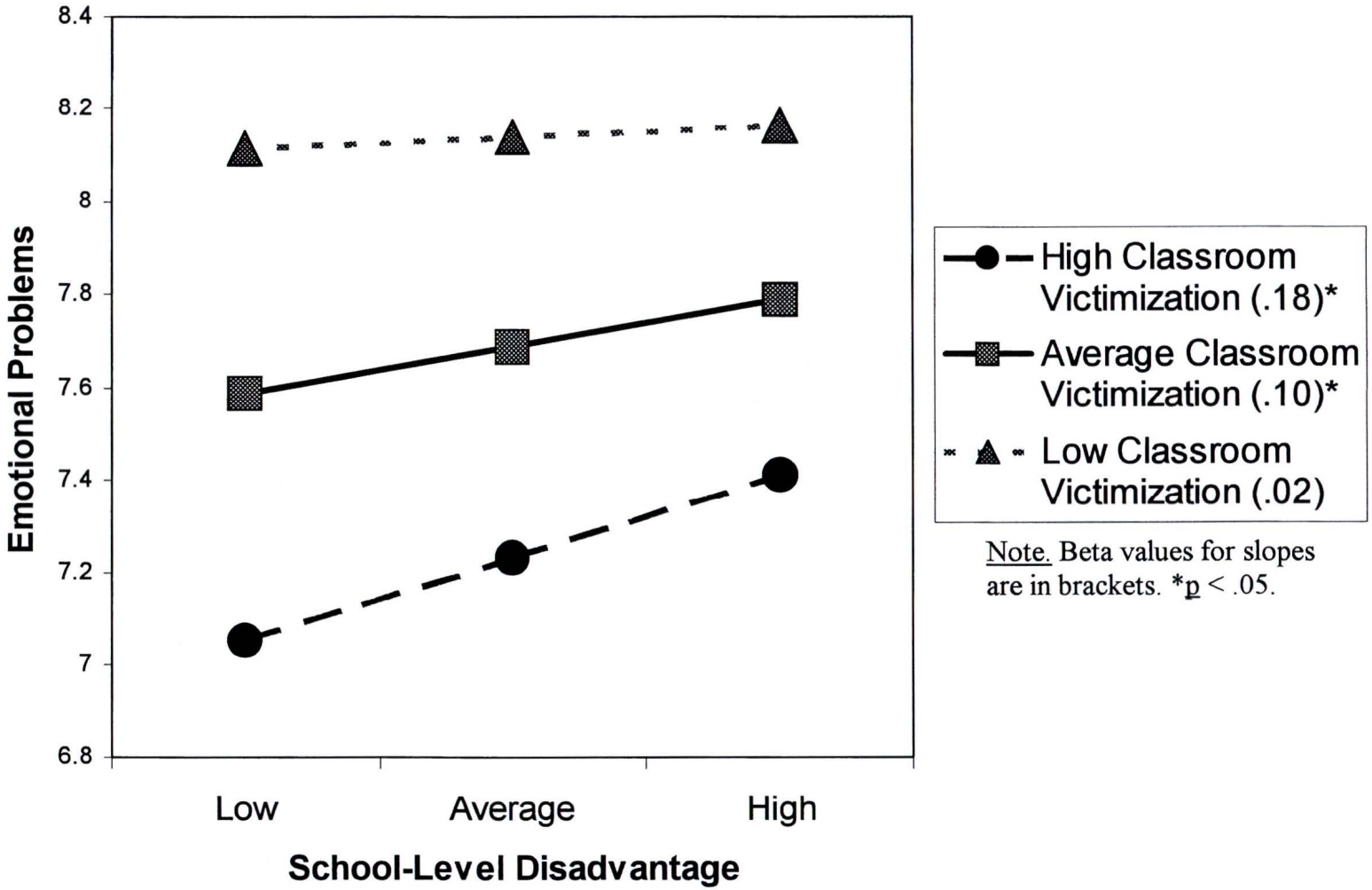
Children's emotional and behavioral problems at school entry, number of household moves, school-level disadvantage, classroom concentration of pro-social behaviors, and the school-level disadvantage X classroom concentrations of pro-social behaviors and victimization interactions each independently contributed to changes in children's emotional problems. These effects were all in the expected directions. That is, emotional and behavioral problems at the beginning of school, number of household moves, and school-level disadvantage predicted increases in emotional problems whereas classroom concentration of pro-social behaviors predicted decreases in emotional problems. In addition, school-level disadvantage predicted increases in emotional problems for children when they were also in classrooms with a low or average concentration of peer pro-social behaviors (see Figure 2) or classrooms with an average or high concentration of peer victimization (see Figure 3). There were significant changes in the slopes for low ($\beta = .21$, $p < .01$) and average ($\beta = .09$, $p < .05$) classroom concentrations of pro-social behaviors on emotional problems between schools with a high level of disadvantage and schools with a low level of disadvantage. Changes in slopes were also significant for average ($\beta = .10$, $p < .05$) and high ($\beta = .18$, $p < .01$) classroom concentrations of peer victimization on emotional problems between schools with a high level of disadvantage and schools with a low level of disadvantage.

The effects of economic and classroom ecology on behavioral problems. As shown in Table 6, the full hierarchical regression model predicting changes in children's behavioral problems was significant and accounted for 66% of the variance in behavioral




Note. Beta values for slopes are in brackets. *p < .01.

Figure 2. The Effects of School-Level Disadvantage on Emotional Problems by Classroom Concentration of Pro-Social Behaviors




Note. Beta values for slopes are in brackets. *p < .05.

Figure 3. The Effects of School-Level Disadvantage on Emotional Problems by Classroom Concentration of Victimization

Table 6

Hierarchical Regression Analysis of The Effects of Classroom Concentrations of Peer Pro-Social Behaviors and Victimization on Changes in Children's Behavioral Problems

| | | Behavioral Problems | | | |
|---|---|---|---|---|---|
| Step Variable | End β[a] | $R^2$ | $R^2\Delta$ | df | FΔ |
| Step 1. Gender | | .06 | | 1,392 | 27.05*** |
| Gender | -.08** | | | | |
| Step 2. Children's Behaviors at School Entry | | .64 | .57 | 2,390 | 311.93*** |
| Emotional Problems | -.05 | | | | |
| Behavioral Problems | .75*** | | | | |
| Step 3. Family-Level Economic Disadvantage | | .65 | .01 | 2,388 | 8.95*** |
| Number of Household Moves | .10** | | | | |
| Mothers' Education | -.03 | | | | |
| Step 4. School-Level Disadvantage | | .66 | .01 | 1,387 | 5.88* |
| Proportion of Students on Income Assistance in the School | .08* | | | | |
| Step 5. Classroom Concentrations of Pro-Social Behaviors & Victimization | | .66 | .00 | 2,385 | 0.28 |
| Pro-Social Behaviors | -.02 | | | | |
| Physical + Relational Victimization | .01 | | | | |
| Model | | .66 | | 8,385 | 94.12*** |

Note. [a] β values are standardized.
* $p < .05$, ** $p < .01$, *** $p < .001$

problems at the end of first grade, $F(8, 385) = 94.12$, $R^2 = .66$, $p < .001$. The school-level disadvantage X lifetime moves interaction only marginally contributed to the increment in $R^2$ and was omitted from the model. The first (gender), second (emotional and behavioral

problems at school entry), third (family-level economic disadvantage), and fourth (school-level disadvantage) steps accounted for significant change in $R^2$ in behavioral problems.

Gender, behavioral problems at school entry, number of household moves, and school-level disadvantage each independently contributed significant variance to changes in children's behavioral problems. All effects were in the expected directions. Specifically, gender (i.e., being a girl) was associated with decreases in behavioral problems whereas behavioral problems at school entry, number of household moves, and school-level disadvantage predicted increases in children's behavioral problems in first grade. In post hoc hierarchical regression analyses without the family- and school-level predictors, classroom concentration of peer victimization significantly predicted increases in behavioral problems.

Mediation of classroom concentrations of pro-social behaviors and victimization. Classroom concentrations of pro-social behaviors and victimization were hypothesized to mediate the effects of family-level economic disadvantage and school-level disadvantage on changes in children's social competence and emotional and behavioral problems According to the three mediation criteria recommended by Baron and Kenney (1986), only classroom concentrations of peer relational and physical victimization met the specifications for testing mediation between children's behavioral problems and family-level economic disadvantage and school-level disadvantage. Hierarchical regression analyses found no support for the mediation hypotheses. Classroom concentrations of relational and physical victimization did not significantly reduce the effects of the family- and school-level economic predictors on changes in children's behavioral problems.

## Discussion

This study applied an ecological model to examine the influence of three environmental levels - the family, school, and classroom - on children's development in the social, emotional, and behavioral domains (Bronfenbrenner, 1977). Specifically, this study explored how economic (family-level economic disadvantage and school-level disadvantage) and classroom (classroom concentrations of peer pro-social behaviors and victimization) ecologies affected 6-year old children's social competence (e.g., ability to play well with other children), emotional problems (e.g., anxious or withdrawn behaviors), and behavioral problems (e.g., aggressive or disruptive behaviors) over the course of first grade.

Children's initial behaviors (social competence and emotional and behavioral problems) at school entry were the most significant predictors of their behaviors the end of first grade, explaining 48%-57% of the variance. The magnitude of this finding highlights the significance of children's early behaviors for their successful development in first grade. This finding also underscores the importance of early childhood and pre-school prevention programs, like high quality child care or Head Start programs, that can nurture at risk children's readiness for school and enhance their competencies in the social, emotional, and behavioral domains (e.g., Leadbeater, Way, & Hoglund, 2000; Ramey, 1999). Nevertheless, hierarchical regression analyses demonstrated that other factors were also significant and meaningful predictors of changes in children's social competence and emotional and behavioral problems in first grade. Gender, number of household moves, school-level disadvantage (proportion of students on income assistance), and classroom

concentrations of peer pro-social behaviors and relational and physical victimization all contributed to changes in one or more domains of children's development. The research findings suggest that multiple environmental changes are necessary to foster the favorable development of young, school-aged children in the social, emotional, and behavioral domains. The research and policy implications of this study's findings are discussed below.

Gender Differences

Vulnerabilities to relational and physical peer victimization, the likelihood of being the recipient of pro-social peer behaviors, and the social, emotional and behavioral domains of development are related to gender, even for young, school-aged children. Previous research has shown that young, school-age girls are more often rated as socially competent, receive more pro-social acts from peers than boys, and are more likely to be relationally than physically victimized by peers (Crick et al., 1999; Crick & Grotpeter, 1996; Howes, 2000; Rose & Asher, 1999). Boys, on the other hand, are more often rated as manifesting behavioral problems than are girls and are more likely to be physically than relationally victimized by peers (Crick et al., 1999; Crick & Grotpeter, 1996; Howes, 2000; Kellam et al., 1998; Pianta & Caldwell, 1990; Zahn-Waxler, 1993). Conversely, emotional problems do not tend to be significantly different between young, school-aged girls and boys (Nolen-Hoeksema & Girgus, 1994; Olson & Rosenblum, 1998; Zahn-Waxler, 1993). However, some research suggests that emotional problems evidence more stability in young, pre-school-aged girls than in young boys (Olson & Rosenblum, 1998).

Consistent with previous research, in this study multivariate analyses of variance showed significant gender differences in social competence and behavioral problems, but

not emotional problems. Mean levels of social competence were significantly higher for girls than for boys whereas mean levels of behavioral problems were significantly higher for boys than for girls. These means for girls' and boys' social competence and behavioral problems were within the average range reported in past studies using this measure (Caldwell & Pianta, 1991; Pianta & Caldwell, 1990).

Children's social interactions and the contexts of these interactions play a large role in how girls and boys are socialized to develop and the behaviors they are taught to express and value (Leaper, 2000; Reitsma-Street, 1998; Zahn-Waxler, 1993). Social interactions that reinforce dominant gender stereotypes are found within multiple levels of children's surrounding environments. For example, in the classroom and on the playground girls and boys are more often reinforced by both peers and adults for engaging in gender-typed play than when they participate in gender non-normative play (Thorne, 1993). Societal expectations and assumptions for gendered behaviors (e.g., politeness for girls, aggressiveness for boys) may obstruct illumination of factors associated with children who engage in non-normative behaviors for their gender (e.g., girls who are physically aggressive, boys who are withdrawn). Hence, it is important to test gender differences when examining social competence and emotional and behavioral problems even in young, school-aged children as it can shed some light on both the onset and sequencing of social, emotional, or behavioral difficulties.

Family-Level Economic Disadvantage

Children who enter first grade competent in the social, emotional, and behavioral domains who come from economically affluent families are less likely to have experienced

multiple household moves and more likely to have parents whose formal education extends beyond high school (DeWit et al., 1998; Duncan et al., 1994; Pagani et al., 1997). These favorable features of children's family economic environment and the individual skills and abilities that competent children often possess increase the likelihood that they will thrive when faced with environmental adversities (Masten & Coatsworth, 1998). In contrast, less developed social competence and emotional and behavioral problems in young, school-aged children are predicted by multiple, adverse family-level economic indicators, including family instability or multiple household moves, low family income or unemployment, households headed by single parents, and low parental educational levels (Ackerman, Kogos, et al., 1999; Canadian Council on Social Development, 2000; DeWit et al., 1998; Dodge et al., 1994; Duncan et al., 1994; Pagani et al., 1997; Patterson et al., 1990). These family-level economic risk factors increase children's likelihood of entering first grade possessing few socially competent skills and showing high levels of emotional and behavioral problems. Furthermore, children who manifest high levels of problems in the emotional or behavioral domains often show comorbid problems in the other domain, as well as lower levels of social competence (Compas & Hammen, 1996; Olson & Rosenblum, 1998).

Similar to previous research, this study found family-level economic disadvantage, particularly number of household moves, demonstrated significant effects on children's development. In addition, number of household moves was also associated with low average household income, marital status (i.e., more moves in single parent households), and households where the father did not live with the child. These associations imply that

children who had experienced multiple household moves were predominately living in low-income, single parent households that were most often headed by a mother. Thirty-nine percent of the children in this study lived in a single parent household and one-third of all the children lived in a household with a total annual income of less than $30,000. Number of household moves held as a significant predictor of changes in children's emotional and behavioral problems in first grade, even after the effects of school-level disadvantage and classroom concentrations of peer pro-social behaviors and victimization were entered into the model. Number of household moves was also negatively correlated with social competence at the end of first grade, but was not significant after the contribution of school-level disadvantage and classroom concentrations of pro-social behaviors and victimization to the model.

This study demonstrates that household moves, even the amount experienced prior to the entry of first grade, adversely affects children's development in the emotional and behavioral domains. Experiencing multiple household moves by entry into first grade potentially operates as a risk factor for children's favorable development through the numerous transitions that children must negotiate as they move from household to household and possibly from neighborhood to neighborhood. Number of household moves at school entry was also negatively associated with teacher reports at the end of first grade of whether the child had good friends. Children who often transition from neighborhood to neighborhood before formally entering school have fewer opportunities to develop or sustain close friendships or to be associated with a peer group. Children with few friends are more likely to feel lonely and isolated and are at increased risk for being victimized by

peers, which further heightens their risk for emotional or behavioral problems (Boulton, Trueman, Chau, Whitehand, & Amatya, 1999; Hodges et al., 1999; Kochenderfer-Ladd & Wardrop, 2001; Ladd, Kochenderfer, & Coleman, 1997).

Contrary to research by Hanson et al. (1997), this study found mothers' education was only weakly correlated with children's social competence at the end of first grade and that this association did not hold in the regression analyses. Similarly, mothers' education was moderately correlated with emotional and behavioral problems but did not retain its significance after the school- and classroom-level predictors were entered into the model. Therefore, the significance of family-level economic disadvantage on emotional and behavioral problems was predominately driven by the number of household moves children had experienced prior to entering first grade.

Research and policy implications. Research needs to better understand the reasons why these families are shifting households so often prior to children's first grade. It can be hypothesized that the driving force behind economically disadvantaged families' household transitions is dissatisfaction with their current housing situations (e.g., feeling the house or neighborhood is unsafe), shifts in roommates, limited household incomes, or family disruptions through divorce, separation or unemployment that necessitate moves to more affordable housing. However, only through more in depth analyses with these families, such as through qualitative methods, can research truly understand the nature of these multiple household transitions and whether the household moves are better options than their alternatives. What factors precipitate these families' moves? Are these families also shifting neighborhoods? How do the children understand the motives or reasons behind

the household moves? What additional difficulties do these children experience in adjusting to their new household or neighborhood environments? Are children who have multiple households moves prior to first grade able to develop meaningful or lasting pro-social relationships with their peers?

The adverse effects of number of household moves on children's emotional and behavioral problems both prior to school entry and over the course of first grade is a central issue for policy. Clearly there is a need to identify the factors that force families to move numerous times prior to children's first grade. The effects of the levels of competencies in the social, emotional, and behavioral domains that children enter into school with on their development outcomes at the end of first grade certainly has implications for policies and strategies that foster competence in young, pre-school aged children. The association of number of household moves with a single parent household, lower levels of mothers' and fathers' education, and teacher reports of children having few good friends suggests that poverty and family disruptions may be at the root of household moves. The positive association between number of household moves, school-level disadvantage and classroom concentrations of relational and physical victimization also suggests an important link between family-, classroom-, and school-level adversities.

Policies that can provide affordable, safe and stable housing for single parents' and parents' with low education levels may be an essential ingredient to reducing children's risks for unfavorable developmental outcomes. When children are relocated from neighborhood to neighborhood or school to school their likelihood of developing close friendship networks diminishes. Close friendships provide children with a powerful

resource to circumvent the adverse effects of peer victimization (Hodges et al., 1999; Ladd et al., 1997). Neighborhood and housing initiatives that support and enable families and children to remain within their neighborhoods or school districts could foster children's more favorable development. In addition, economic barriers that exclude economically disadvantaged families from the institutional and social resources available to more affluent families should be an additional target for policy development (Canadian School Boards Association, 1999). Economically disadvantaged children's risk for behavioral problems significantly decreases when they live in neighborhoods where there are more affluent neighbors (Duncan et al., 1994). Developing strategies to increase poor families' accessibility to affluent neighborhoods, such as through affordable housing initiatives, may prove necessary to improve children's potential for favorable development.

School-Level Disadvantage

Research has shown that economic environments more distal to children's development than their family economic environment, like neighborhoods and schools, are important predictors of children's development (Attar et al., 1994; Boyle & Lipman, 1998; Brooks-Gunn et al., 1993; Kellam et al., 1998; Kupersmidt, Griesler, et al., 1995; Sandler et al., in press). Few studies, with the exception of work by Kellam and colleagues, have examined how the economic environment of the school - measured from students' overall economic characteristics - affects young, school-aged children's development. Children from economically disadvantaged families are likely to attend a school where a high proportion of the students are also from economically disadvantaged families (Attar et al., 1994; Brooks-Gunn et al., 1993). The economic milieu of the school can increase

children's exposure to peers who demonstrate few socially competent behaviors and peers who show high levels of emotional or behavioral problems (Brooks-Gunn et al., 1993; Duncan et al., 1994; Kellam et al., 1998). This "double jeopardy" factor further heightens economically disadvantaged children's risk for unfavorable outcomes (Willms, 2001). Clustering children who are at risk for unfavorable developmental outcomes within a school environment potentially jeopardizes these children's opportunities for optimal social learning experiences with their school peers (Bandura, 1977).

Consistent with previous research on neighborhood- and school-level disadvantage, school-level disadvantage was found to be a significant risk factor for children's favorable development and held as the strongest predictor in the regression analyses across all three domains of children's development. In the social domain, the regression analyses suggests that school-level disadvantage adversely affects children's social competence in first grade. The significance of school-level disadvantage on changes in social competence was not apparent until it was examined within the context of the family- and classroom-level predictors, suggesting that family or classroom factors operated as a suppressor variable to reduce variance associated with school-level disadvantage that was irrelevant to the prediction of social competence (Pedhazur, 1997). Further investigations of how school-level disadvantage (i.e., the level of student poverty) influences young, school-aged children's social competence, particularly for children from economically disadvantaged families, are necessary to clarify whether the proportion of poor students within a school is indeed a risk for these children's social competence.

School-level disadvantage remained a strong predictor of changes in emotional and

behavioral problems during first grade. Children in schools that had more than 10% of students on income assistance evidenced significantly higher mean levels of emotional and behavioral problems than did children in schools with less than 10% of poor students. In addition, children in schools that had a high proportion of students on income assistance experienced significant increases in their emotional and behavioral problems during first grade, particularly children who had also experienced multiple household moves by the time they entered first grade. The unfavorable effects of experiencing family- and school-level economic adversities on children's emotional and behavioral problems underscores the importance of addressing multiple economic factors that attenuate children's capacity for favorable development in the emotional and behavioral domains. Schools with a high proportion of students from economically disadvantaged families may need to provide additional support for these children, such as through school-wide initiatives that focus on nurturing the emotional and behavioral competencies of all students (Cauce, Comer, & Schwartz, 1987).

School-level disadvantage also interacted with classroom concentrations of pro-social behaviors and victimization in effecting changes in children's emotional problems. Children in schools with a high proportion of students on income assistance had higher levels of emotional problems than children in schools with a low proportion of students on income assistance when they were also in classrooms rated as having low to average levels of peer pro-social behaviors or average to high levels of peer victimization. This finding suggests that the aggregate classroom behaviors of children are more unfavorable for children's emotional competencies in schools with high proportions of poor students than

for children in schools with low proportions of poor students and supports the double jeopardy hypothesis. In addition, average individual- and classroom-levels of peer relational and physical victimization were significantly higher in schools that had more than 10% of students on income assistance than in schools with less than 10% of poor students. Combining school-level adversity with classroom-level adversity limits at-risk children's opportunities to engage in pro-social peer interactions and to develop the skills necessary for overcoming emotional problems. The anxiety or fearfulness, for example, that vulnerable children potentially experience when they enter classrooms perceived as more hostile, particularly when they are in schools where several of the students may also be vulnerable to social, emotional, or behavioral problems, demands further attention. Clearly the effects of school-level disadvantage on children's development is multifaceted and cannot be examined or dealt with in isolation.

Research and policy implications. The literature on the influence of the school environment, as defined by the level of student poverty, on children's development in the social, emotional, and behavioral domains needs to be expanded. Additional research examining how school-level disadvantage affects young, school-aged children's development both independently and in conjunction with other levels of environmental adversities would extend the current knowledge of multiple environmental influences of children's developmental trajectories. Future research also needs to consider additional features of the school that contribute to multiple levels of disadvantage. For example, expanding the definition of school-level disadvantage to also include measures of school social climate, presence of school-wide prevention programs, level of resources that are

external to School Board allocations, and presence and implementation of school policies that address student poverty and peer victimization would paint a more holistic picture of how the school environment affects children's development (Battistich, Solomon, Kim, Watson, & Schaps, 1995; Cauce et al., 1987; Kasen, Johnson, & Cohen, 1990; Kuperminc, Leadbeater, & Blatt, 2001; Solomon, Battistich, Watson, Schaps, & Lewis, 2000). How do characteristics of the school environment, such as student-teacher or teacher-principal relations affect children's development in the social, emotional, and behavioral domains or features of the classroom? What supplemental resources, from both the School Board and private campaigns, are accessible to disadvantaged schools and how do these resources in turn affect classroom environments and children's development? What are the most effective school-wide strategies for promoting children's emotional and behavioral competencies in more disadvantaged schools?

The consistent, adverse effects of school-level disadvantage stresses the importance of re-analyzing current practices and policies that address the needs of economically disadvantaged children in schools with high levels of poor students. These findings suggest that extra resources or funding, in addition to those already provided by School Boards to "inner-city" schools, to ameliorate the harmful effects of poverty or promote poor children's social, emotional, and behavioral competencies are necessary. Additional funding could, for example, provide for special teacher training on identifying and attending to emotional problems in young, school-aged children and enhancing children's social competence and classroom-levels of pro-social behaviors. The Canadian School Boards Association (1999) reports that funding allocation models used by some

School Boards include the mobility of students, average household income, and percent of single parents. It is unclear, however, what resources are available to schools who fall just below the cut-off for designation as a high risk school.

The Canadian School Board Association (1999) recommends that schools implement policies and establish strategies to address the requirements of students who live in poverty, both at the family and community levels. However, not all school boards have formalized or explicit policies for meeting the needs of poor students (Canadian School Boards Association, 1999). Schools designated as "inner city" schools (i.e., schools with a high proportion of students on income assistance) may have a Social Equity Program in place to provide some additional resources (e.g., lunch programs) to the children (Greater Victoria School District No. 61). Additional resources that School Boards could also provide to inner-city schools include non-financial resources, such as the allocation of the most experienced teachers to these schools (Stern, 1998). More seasoned teachers may be more likely than new teachers to have the skills necessary to juggle the demands of the school curriculum and the social, emotional, and behavioral needs of economically disadvantaged students. In addition to school policies that address the effects of family poverty on children's development or readiness for school, school policies should also recognize the significance of aggregate behaviors within the classroom on children's development.

Targeting school-level environments has implications for change that is directed at the social rather than individual level. Initiatives and policies that focus on changing the school environment provide long-term benefits to numerous children and families and can

reduce long-term social costs associated with unfavorable outcomes (e.g., depression, antisocial behavior). Furthermore, the costs associated with relatively simple and inexpensive school-wide initiatives (e.g., involving students and their families in curriculum and policy development, connecting aspects of the curriculum to children's daily lives, allocating experienced teachers to schools with more poor students) may prove to be a better use of tax payers' money than policies directed at the individual- or family-level (Canadian School Boards Association, 1999; Stern, 1998). Schools that can and do adapt to the changing needs of the students through school policies and programming practices may prove more competent at offering an enriched environment that can promote the favorable development of all students (Canadian School Boards Association, 1999).

Classroom Concentrations of Peer Pro-Social Behaviors and Victimization

Characteristics of children's first grade classrooms, like the level of peer pro-social behaviors and victimization, have the potential to affect both favorable and unfavorable changes in young, school-aged children's development. To date the research on the classroom environment with young, school-aged children has predominately focused on aggregate levels of physically aggressive children within the classroom or the quality of teacher-child relations (Aber et al., 1998; Howes, 2000; Kellam et al., 1998; Pianta, Steinberg, & Rollins, 1995). The quality of classroom-levels of peer relations, particularly pro-social behaviors and relational and physical victimization, has not received the attention it warrants. The expanding literature on the adverse outcomes associated with individual-levels of peer victimization underscores the importance of examining how both

favorable and unfavorable peer behaviors at the classroom-level influence children's development (Boulton et al., 1999; Craig et al., 2000; Crick & Grotpeter, 1996; Hanish & Guerra, 2000; Hodges et al., 1999; Kochenderfer-Ladd & Wardrop, 2001; Ladd et al., 1997; Vitaro et al., 1999). Children who evidence emotional or behavioral problems are at higher risk for being victimized by peers which in turn increases their levels of emotional or behavioral problems (Hodges et al., 1999). Classroom-levels of pro-social peer behaviors and a stable group of well-adjusted, pro-social peers in the classroom may also increase the likelihood that children who are at-risk for social, emotional or behavioral problems will be exposed to more positive social learning experiences and reduce their risk for heightened problems (Bandura, 1977; Howes, 2000; Vitaro et al., 1999)

This study hypothesized that classroom concentration of peer pro-social behaviors (e.g., helping another child when they need help) would favorably affect children in the social, emotional, and behavioral domains, whereas classroom concentration of peer relational (e.g., social exclusion, rumor spreading) and physical (e.g., hitting) victimization would adversely affect children's development. The classroom-level factors showed the strongest effects on children's emotional problems. Classroom concentration of pro-social behaviors, independently and interaction with school-level disadvantage, predicted significant changes in emotional problems. Children in classrooms with low to average levels of peer pro-social behaviors experienced increases in emotional problems. Children vulnerable to emotional problems may be particularly prone to perceiving classrooms low in peer pro-social behaviors as unfriendly or unsafe and may feel alienated by their peers. The effects of low classroom concentration of pro-social behaviors were heightened for

children who were in schools with a high level of disadvantage compared to children in schools with a low level of disadvantage, suggesting school-level disadvantage intensifies children's vulnerability to unfavorable classroom environments. Classroom concentration of victimization also interacted with school-level disadvantage in effecting significant changes in children's emotional problems. Classrooms with an average to high concentration of peer victimization predicted increased levels of emotional problems for children in schools with a high level of disadvantage compared to children in schools with a low level of disadvantage. Children at risk for emotional problems may be overly sensitive to the peer hostilities associated with classroom-levels of peer victimization and experience these collective acts as purposeful and targeted at themselves. Some research suggests that episodes of peer victimization are perceived as less targeted and more transitory by young, school-aged children than their older peers (Hanish & Guerra, 2000).

The significance of the interaction between the classroom-level environment and the school-level environment on children's emotional problems indicates that when children are nested within these two unfavorable environments their vulnerability to emotional problems is intensified. This finding also demonstrates the importance of moving beyond family-level factors and addressing the ecology of both the classroom and the school when investigating risks for emotional problems in young, school-aged children. Additional information on these children who were particularly vulnerable to their classroom environment also needs to be elucidated in future work. How do children who are vulnerable to emotional problems perceive the environments in their classrooms or schools compared to less vulnerable children?

Support for the hypothesis that classroom concentrations of pro-social behaviors victimization would contribute to changes in children's behavioral problems was not found. This finding should not be taken as conclusive evidence that average levels of favorable and unfavorable peer behaviors in the classroom do not affect children's behavioral problems. There was a moderate correlation between behavioral problems at the end of first grade and classroom concentrations of relational and physical victimization. However, these relationships were not significant in the context of family- and school-level adversities. Other research has found classroom-levels of physical aggressiveness in kindergarten and first grade are predictive of children's, predominately boys, behavioral problems in second and sixth grades, respectively (Howes, 2000; Kellam et al., 1998). The effects of first grade classroom concentration of peer victimization on children's behavioral problems may not be evident until later grades. Furthermore, as the likelihood of behavioral and antisocial problems persisting throughout adolescence and into adulthood is increased for children who show behavioral problems at an early age (Dishion, French, & Patterson, 1995; Moffit, Caspi, Dickson, Silva, & Stanton, 1996), it is meaningful for future work to continue to monitor the relation between the classroom environment and children's behaviors. Further research on the effects of classroom ecologies characterized by peer victimization on children's behavioral problems over time is needed. Are there clusters of children that are indeed vulnerable in the behavioral domain to classroom-level peer victimization? What are the mechanisms by which these children are negatively affected?

Contrary to the hypothesis, classroom concentration of peer relational

victimization was found to predict increases in social competence, even after controlling for gender, social competence at school entry, and the family- and school-level predictors. The significance of classroom concentration of relational victimization on changes in social competence was not apparent until it was examined within the context of the family- and school-level economic predictors, suggesting that the economic factors operated as suppressor variables to reduce variance associated with classroom-levels of victimization that was irrelevant to the prediction of social competence (Pedhazur, 1997). Some research suggests that young, socially competent children command more power in peer situations and that socially dominant children are more cognitively mature than their less dominant peers (Adler & Adler, 1995; Hawley & Little, 1999; Pettit, Bakshi, Dodge, & Coie, 1990). Socially competent children may be more cognitively skilled at identifying relational victimization than their less socially competent peers. The effects of classroom concentration of peer victimization on changes in children's social competence warrants further attention before these findings can be reliably interpreted. It is also possible that children who enter first grade competent in the social domain are able to adapt and continue to gain social competence even in an adverse classroom environment (Masten & Coatsworth, 1998). Interactions between factors associated with social competence at school entry (e.g., low levels of poverty) and the classroom environment may also operate to affect the sequencing of social competence throughout first grade. Future research is necessary to test these hypotheses. Does the level of social competence that children enter school with insulate them against classroom-level adversities?

Research and policy implications. To make informed school policy

recommendations, developmental research could better understand what additional factors influence classroom concentrations of pro-social behaviors and victimization. Additional information on these children who were particularly vulnerable to their classroom environment also needs to be elucidated in future work. Is the relationship between classroom concentrations of pro-social behaviors and victimization and young, school-aged children's social competence and emotional and behavioral problems mediated by additional environmental factors? Is there some feature of these children's family or peer environments, for example, that would better explain why adverse classroom environments had the strongest effects on emotional problems? Are children who are vulnerable to emotional problems more likely than other children to experience classroom aggregates of peer victimization or few pro-social peer behaviors as hostile, purposeful and targeted at themselves? Are children at risk for behavioral problems less vulnerable to low classroom concentrations of pro-social behaviors or high classroom-levels of victimization because they are less skilled at identifying social cues and appropriate interpersonal interactions than their more competent peers? How do socially competent children respond to classroom-level adversities over time? Do teacher-child relations contribute to classroom concentrations of pro-social behaviors or victimization and do these relations differ by school-level disadvantage?

The significance of adverse classroom environments on emotional problems, in particular, for children who were attending a school with a high proportion of poor students suggests that monitoring the aggregate levels of peer pro-social behaviors and victimization in classrooms is necessary. Implementing programs and policies that create

classroom environments characterized as pro-social and non-victimizing, particularly in schools with a high proportion of poor students, may prevent vulnerable children from manifesting high levels of emotional problems. Programs that offer training for teachers, particularly teachers in schools with high levels of poor students, in identifying and reducing children's vulnerability to emotional problems and in creating classroom environments that nurture children's emotional health would be valuable. Effective programs could also reduce the long-term social costs associated with indicators of emotional problems that persist throughout adolescence and adulthood, such as anxiety problems or depression.

Offering classroom-level programs that are implemented school-wide would be a constructive focus of future strategies. Programs that focus on changing the classroom and school environment, such as strengthening interpersonal helping behaviors while reducing aggressive and victimizing behaviors at the school-level, have the potential of fostering children's favorable development (Boyle et al., 1999; Cauce et al., 1987). High quality, warm teacher-child relationships, for example, are important for children's favorable development in the early school years (Howes, 2000; Pianta et al., 1995). Offering workshops, for example, on creating non-aggressive, pro-social classroom and school environments to the teachers and personnel in the schools with high levels of poor students could encourage the implementation of positive interpersonal relations strategies that are supported school-wide.

The School Board that the participating schools belong to has specific policies for developing "self control" in students and fostering safe environments for students, staff,

and parents (Greater Victoria School District No. 61). Schools may also, at the discretion of the principal, practice school-specific policies that create violence-free school environments. However, these often seem to fall into the category of disciplining individual "aggressors" through suspensions or placement into "severe behavior" classrooms. Policies that focus on supporting children's emotional health and well-being are rare and unspecified. Contrary to what is suggested by this study, there is no policy connection to the level of student poverty within the school and the level of peer pro-social behaviors and victimization within the classrooms. Creating classroom and school environments that foster children's favorable development while reducing their risks for unfavorable outcomes can only be achieved through the implementation of school-level policies that consider the classroom environment and that are also directed at ameliorating the harmful effects of poverty at both the individual- and school-level.

Identifying mechanisms and factors of children's surrounding environments that heighten or undermine their capacity for competence in the social, emotional, and behavioral domains is meaningful for developmental research and policy debates and decisions. This study's findings suggest that strategies and initiatives that can reduce the adverse, multi-level environmental stressors associated with poverty, few pro-social peer behaviors, and peer victimization are essential for nurturing young, school-aged children's development in the social, emotional, and behavioral domains.

Limitations of the Current Study

For research and policy to build on the findings of the current study, the limitations of this study should be addressed. Firstly, the total amount of variance in children's social

competence, emotional problems, and behavioral problems that was explained by gender and the family-, school-, and classroom-level predictors was fairly small. Children's behaviors at school entry contributed to the largest variance in measured behaviors at the end of the school year (41%-58%). Clearly, the stability in children's behaviors over the 7-8 month time-lag in assessment suppressed some of the predictive ability of the variables of interest. Longitudinal follow-up with these children will illuminate whether classroom-level mechanisms are indeed strong predictors of children's social competence and emotional and behavioral problems over time.

Secondly, the current findings may not be generalizable to communities with a higher concentration of poverty. While the sample of schools were representative of the range of proportion of students on income assistance in the school in this medium-sized city, the average economic affluence of this city is much higher than what might be found in other urban communities (Hatfield, 1997; Lee, 2000; Reitsma-Street, Hopper, & Seright, 2000). Higher concentrated poverty within a community means that there would likely be greater disparities in the economic characteristics of the participants and schools they attend, increasing the ability to tease out the effects of economic status on children's development. However, one third of the children in this study were from families with annual household incomes of less than $30,000. Thirdly, these findings may also not be generalizable to rural communities or communities where ethnic minorities comprise the majority of the population as this study was conducted in a city of over 250, 000 with 73% of the participants being of European, Caucasian heritage.

In summary, this study represents one step towards understanding how the

economic and classroom ecology of young, school-aged children's lives affects their social competence and emotional and behavioral problems. This study underscores the importance of examining characteristics of the multiple levels of children's environments to identify factors that can nurture children's social competence and reduce their risks for emotional or behavioral problems. The findings urge further attention from researchers and policymakers be directed at examining the effects of family- and school-level economic environments and classroom-level peer environments on young, school-aged children's favorable development in the social, emotional, and behavioral domains. Strategies that support young children to effectively manage challenging environments may promote their capacities for successful developmental trajectories. Identifying environmental characteristics that are amenable to change is a necessary direction for future research and for informed policy recommendations to support the healthy development of economically disadvantaged children.

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Zahn-Waxler, C. (1993). Warriors and worriers: Gender and psychopathology. *Development and Psychopathology, 5,* 79-90.

# Wendy L. Hoglund
Curriculum Vitae

**Contact Information:** Department of Psychology
University of Victoria
P.O. Box 3050 Stn CSC
Victoria, BC Canada V8W 3P5

Telephone: 250-721-7526
Fax: 250-721-8929
Email: whoglund@uvic.ca

**Citizenship:** Canadian

**Educational Experience:**

| | | |
|---|---|---|
| 1999-Present | Graduate Program<br>Life-span Developmental Psychology | University of Victoria,<br>Victoria, BC, Canada |
| 1996-1998 | Bachelor of Science<br>Psychology | University of Victoria,<br>Victoria, BC, Canada |

**M.A. Thesis:** *The Effects of Economic and Classroom Ecology on Changes in Children's Social Competence and Emotional and Behavioral Problems During First Grade*

**Research Experience:**

1999-Present *Graduate Assistant, Bonnie Leadbeater, Ph.D.*

Evaluation of the W.I.T.S. Rock Solid Primary Program, a peer victimization prevention program for primary grade children. Examining program effects on children's social competence, internalizing and externalizing symptoms, and use of effective interpersonal negotiation strategies. Responsible for data collection with over 250 children in nine schools, as well as data management and analyses for full sample of 432 children in 17 schools. Supervision of undergraduate research assistants.

1998-1999 *Research Assistant, Bonnie Leadbeater, Ph.D.*

Data analysis and co-author on the effects of day-care experiences on child competence and problem behaviors among children of adolescent mothers.
Theory of mind research with pre-school children.
Coping strategies research with high school students.

1997-1999 *Research Assistant, Elizabeth Brimacombe, Ph.D.*

Interviewer for project examining interviewer effects on young and old adults' eyewitness accuracy and perceived credibility.
Interviewer for perceived credibility as a function of crime setting project.

**Work Experience:**

1999-Present *Project Co-Ordinator, Youth & Society Research Group*

Inviting research projects that focus on the health and well-being of children and youth from community agencies for the "Counting on Research and Making Research Count" program. Linking university students and faculty sponsors to the community research projects. Providing students with project planning and editorial assistance. Co-ordinating a student forum. Preparation of a program manual. Attending meetings with community agencies.

1999-2001 *Teaching Assistant, Department of Psychology*

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| Infant and Child Development | Facilitating weekly discussion groups; grading and invigilating exams; grading term papers. |
| Adolescent Development | Facilitating study groups; grading and invigilating exams; grading term papers. |
| Research Methods in Psychology | Grading and invigilating exams. |

1999-2000 *Lab Instructor, Department of Psychology*

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| Research Methods in Psychology | Taught weekly labs on issues in research methods in psychology. |

1996-1998 *Family Support Worker, Drake Medox Health Services*

Worked with children and families connected to the Ministry for Children and Families, as well as families who had previously been residents at the Victoria Women's Transition House.

**Publications and Reports:**

Hoglund, W. (in press). Socioeconomic disadvantage among Canadian Aboriginal children and social development. In C. Nelson & C. Nelson (Eds.), *Racism eh? A critical inter-disciplinary anthology on race in the Canadian context.* Toronto, ON: Captus Press.

Hoglund, W. (2001, November). Advocacy and public policy: How graduate students can promote the health and well-being of children and families. *Advocate, 24,* 6-7.

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competence and problem behaviors. In B. Leadbeater & N. Way, *Growing up fast: Transitions to adulthood for inner-city adolescent mothers* (pp. 138-166). Mahwah, NJ: Lawrence Erlbaum Associates.

Leadbeater, B., & Hoglund, W. (2001). *The W.I.T.S. Rock Solid Primary Program Evaluation: Final Report to the Ministry of Education Sponsored Research Program.* Report prepared for the British Columbia Ministry of Education.

Hoglund, W., & Leadbeater, B. (2001). *"Counting on research and making research count: Program Manual".* Program manual prepared for the Canadian Health Services Research Foundation.

**Manuscript Submitted for Publication:**

Hoglund, W. L., & Leadbeater, B. J. (2001). *Pathways to Aboriginal youths' school outcomes: Socio-cultural, community, and family influences.* Manuscript submitted for publication.

**Refereed Conference Presentations:**

Leadbeater, B., & Hoglund, W. (2002, April). *Understanding and influencing contexts to prevent peer victimization.* Paper to be presented at biennial meeting of the Society for Research on Adolescence, New Orleans, LO.

Hoglund, W. L., & Leadbeater, B. J. (2001, April). *The role of depressive symptoms, social support, and stress in adolescent mothers' educational attainment.* Poster session presented at the biennial meeting of the Society for Research on Child Development, Minneapolis, MN.

Hoglund, W., & Leadbeater, B. (2000, April). *Children's competence and problem behaviors and child-care experiences.* Poster session presented at the biennial meeting of the Society for Research on Adolescence, Chicago, IL.

**Research Interests:**

- Resilience in economically disadvantaged and Aboriginal children and adolescents.
- Contextual influences (e.g., neighborhood poverty) of children's social and emotional development.
- Socio-cultural influences of Aboriginal youths' school outcomes.
- Social policy on the health and welfare of economically disadvantaged and Aboriginal children and families.

**Volunteer Activities:**

1996-2000 *Victoria Women's Transition House*
Crisis line counselor for women in abuse situations.
Programming with resident children.

1997-1998 *Victoria Youth Corrections Centre*
Worked with youth during leisure activities.

1995-1996 *Victoria Youth Empowerment Society*
Worked with street youth during night-time activities.

**Graduate Awards:**

2001-2003 *Graduate Student Fellowship Training Award*
Youth & Society Research Group
University of Victoria
*"Healthy Youth in a Healthy Society: A Community Alliance for Reducing Risks for Injury in Children and Adolescents"*

2001 *Graduate Student Summer Fellowship Training Award*
Center for Children and Families
Teachers College, Columbia University
*"Putting Children First Fellowship Program in Child and Family Policy"*

**Professional Affiliation:**

1999-Present Graduate Student Member of the Society for Research on Adolescence
1999-Present Graduate Student Member of the American Psychological Association
2001-Present Graduate Student Member of the Society for Research on Child Development
2001-Present Graduate Student Member of Division 37, APA

**Committee Members:**

Dr. Cathy Costigan
Assistant Professor, Department of Psychology
University of Victoria, BC
P.O. Box 3050 Stn CSC
Victoria, BC, Canada V8W 3P5
Phone: (250) 721-7529
Fax: (250) 721-8929
E-mail: costigan@uvic.ca

Dr. Bonnie J. Leadbeater
Professor, Department of Psychology
University of Victoria, BC
P.O. Box 3050 Stn CSC
Victoria, BC, Canada V8W 3P5
Phone: (250) 721-7523
Fax: (250) 721-8929
E-mail: bleadbea@uvic.ca

Dr. Marge Reitsma-Street
Professor, Studies in Policy and Practice
Human and Social Development
P.O. Box 3010
Victoria, BC, Canada V8W 3N4
Phone: (250) 721-6468
Fax: (250) 721-7067
E-mail: mreitsma@uvic.ca

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Title of Thesis:

The Effects of Economic and Classroom Ecology on Changes in Children's Social Competence and Emotional and Behavioral Problems During First Grade

Author 

Wendy Lorraine Hoglund

December 7th, 2001