PEER VICTIMIZATION OF CHILDREN WITH DISABILITIES:
EXAMINING PREVALENCE AND EARLY RISK AND PROTECTIVE FACTORS
AMONG A NATIONAL SAMPLE OF CHILDREN RECEIVING
SPECIAL EDUCATION SERVICES

By

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and approved by

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ABSTRACT OF THE DISSERTATION

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N. Andrew Peterson, Ph.D.

Peer victimization is a serious social problem that can negatively affect a child’s psychosocial development and school adjustment, and may have lasting effects for victims. Previous studies on peer victimization have suggested that children with disabilities (CWD) are likely to be more frequent targets of peer victimization. This longitudinal study analyzed three waves of data from the Pre-Elementary Education Longitudinal Study data (N = 1,268). Using the child-by-environment model as a conceptual framework, the study examined the prevalence, nature, and pathways between child characteristics, family factors, school factors at Wave 1, peer-relation difficulties at Wave 2, and peer victimization at Wave 3. To account for the complex sampling used in the dataset, statistical analyses were conducted using Stata 10 and included descriptive analyses, cross-tabulations, Pearson correlations, and a path analysis with AMOS 17.0.

The findings showed that one quarter to one third of pre-elementary CWD experienced some form of peer victimization in school. Peer victimization increased over the 3-year study period, and there were also substantial rates of multiple victimization
among CWD. The path model showed an acceptable fit to the data. Two pathways explained the influence of risk and protective factors for peer victimization among young CWD. First, children’s environmental factors, such as low family income and spending more time in a special-education classroom setting, were associated with children’s poor social behaviors, which in turn affected peer-relation difficulties, and increased peer victimization. Second, CWD from low-income families and special-education classroom settings were more likely to have poor language development and social skills, which affected children’s peer-relation difficulties and increased peer victimization.

These results suggest the need to provide bullying prevention and intervention strategies for CWD, which have been previously neglected in the context of school-based bullying prevention and intervention programs. Practical implications include developing programs tailored for CWD from low-income families and special-education classroom settings, providing mental health services for pre-elementary CWD, linking parents to available school and community resources to improve children’s language and social skills, and promoting polices to enhance social conditions for CWD.
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Chapter 1: Introduction

Statement of the Problem

Peer victimization is increasingly recognized as a serious social problem that can negatively affect schoolchildren’s psychosocial and academic adjustment (Glew, Fan, Katon, Rivara, & Kernic, 2005; Scholte, Engels, Overbeek, De Kemp, & Haselager, 2007; Sullivan, Farrell, & Kliwewer, 2006). According to Hawker and Bolton (2000), “Peer victimization is the experience among children of being a target of the aggressive behavior of other children, who are not siblings and not necessarily age mates” (p. 441). Peer victimization is often described based on the type of aggression involved (Weiner & Mak, 2009). Physical victimization includes actions such as hitting, kicking, punching, or tripping. Verbal victimization includes threats of physical harm, name-calling, teasing, or general verbal harassment. Relational victimization includes gossip, exclusion from a group, or threatening the withdrawal of a friendship or group acceptance (Crick, 1995).

Cross-national data indicate that up to 1 in 10 youths are targets of physical attacks, hostile words, or indirect social aggression from peers during their school years (Nansel et al., 2004). In the US, national surveys on bullying and crime victimization report that between 10% and 40% of students in schools are targets of peer victimization (Dinkes, Kemp, Baum, & Snyder, 2009; Nansel, Overpeck, Ruan, Simons-Morton, & Scheidt, 2001; Wang, Iannotti, & Nansel, 2009). According to Dinkes and colleagues, 32% of students, ages 12-18 reported having been bullied at school during the school year in 2007 (Dinkes et al., 2009). Among them, 21% said they had experienced bullying that consisted of being made fun of; 18% reported being the subject of rumors; 11% said they were pushed, shoved, tripped, or spat on; 6% said they were threatened with harm;
5% said they were excluded from activities on purpose; and 4% said others had tried to make them do things they did not want to do, or that their property was destroyed on purpose. In addition, 3.7% of these students also experienced cyber-bullying, which includes students who responded that another student posted hurtful information about the respondent on the Internet; made unwanted contact by threatening or insulting the respondent via instant messaging; or made unwanted contact by threatening or insulting the respondent via text (SMS) messaging (Dinkes et al., 2009). Similarly, Wang, Iannotti, and Nansel (2009) investigated four forms of school bullying behavior: physical, verbal, relational, and cyber bullying using a nationally representative sample of grades 6-10. The prevalence rates of victimization occurring at least once in the last 2 months were 12.8% for physical, 36.5% for verbal, 41.0% for relational, and 9.8% for cyber forms. The varied prevalence rates for peer victimization depend on the definition of bullying used, the methods used to measure bullying, and the cutoff point used for reporting the prevalence (Nansel et al., 2004).

Studies also show that peer victimization becomes increasingly stable over time, with the same children enduring similarly negative experiences throughout childhood and adolescence (Barker, Boivin, Brendgen, Fontaine, Arseneault, Vitaro, Bissonnette, & Tremblay, 2008; Scholte et al., 2007). Although the frequency of relational victimization compared to physical victimization might be lower during preadolescence, based on a developmental perspective, relational victimization increases steadily across the adolescent years (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992; Bjorkqvist, Osterman, & Kaukiainen, 2000). Empirical longitudinal studies also show a consistent trend such that a smaller proportion of students (high level or the most/chronic peer victimization group)
reported being victimized in later school years regardless of type of peer victimization (Barker et al., 2008; (Nylund, Bellmore, Nishina, & Graham, 2007).

The consequences associated with peer victimization are considerable. Studies show that victimized children are more likely than nonvictimized children to develop depression, loneliness, low self-esteem, physical health problems, social withdrawal, alcohol or drug abuse, school absence and avoidance, a decrease in school performance, self-harm, and suicidal ideation (Brunstein, Marrocco, Kleinman, Schonfeld, & Gould, 2007; Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006; Glew et al., 2005; Hawker & Boulton, 2000; Sourander et al., 2006). Furthermore, this may have long-term effects for victims, especially if this is chronic or severe and has occurred persistently from childhood to adulthood (Gladstone, Parker, & Malhi, 2006; Roth, Meredith, & Heimberg, 2002; Schreier et al., 2009).

Previous studies on peer victimization in schools have suggested that children with disabilities are likely to be more frequent targets of peer victimization and are more vulnerable to victimization by peers who have higher status and more social power. The majority of studies on student victimization document greater verbal abuse (e.g., name-calling, mimicking disability characteristics, teasing), social exclusion, and physical aggression among disabled students compared to nondisabled peers (Rose, Monda-Amaya, & Espelage, 2010). For instance, studies that have examined peer victimization among youth with learning disabilities, hemiplegia, specific language impairments, autism, attention deficit hyperactivity disorder (ADHD), and special health-care needs (Baumeister, Storch, & Geffken, 2008; Knox & Conti-Ramsden, 2003; Svetaz, Ireland, & Blum; Van Cleave & Davis, 2006; Wiener & Mak, 2009) consistently indicate a 3- to 7-
times higher risk of victimization for children with disabilities when compared to their nondisabled peers. Circumstances or manifestations associated with a disability such as problem behaviors, language impairment, or impaired social relations may involve some of the characteristics that have been identified as risk factors for victimization (Sveinsson & Morris, 2006). A child who is physically different is undoubtedly an easy target for victimization. If that child is also easy to provoke, socially immature, or vulnerable, he or she also provides an instant reward for the class bully (Ostrov, 2008).

Despite the urgent need for research on peer victimization among children with disabilities, the subject has received little attention in the social-work literature (Mishana, 2003b). Most previous studies on the subject have focused on the role of the children who perpetrate bullying—the bullies—but give much less emphasis to victimization and why certain children are repeatedly targeted by bullies (Sveinsson & Morris, 2006). Furthermore, although the prevalence of bully–victim problems in school-age children and adolescents has been investigated, only a few studies have been carried out among younger children. However, most children experience their first opportunities for extended peer interaction in preschool and kindergarten. These years are a formative time for the development of peer relationships in general. They are also significant to children’s development in so far as being involved in bully–victim problems in kindergarten may lead to school avoidance and even to a continuous victimization cycle (Alsaker & Valkanover, 2001; Buhs, Ladd, & Herald, 2006; Perren, & Alsaker, 2006). Research shows that the quality, nature, and pattern of peer interactions that emerge at these early stages of life form the building blocks for peer victimization. For instance, Olson (1992) has shown that peer victimization can develop over the course of repeated
interactions with schoolmates as rejected and aggressive preschoolers instigate negative interactions with peers and, after repeated exposure to these aversive exchanges, peers begin to respond by seeking out and victimizing these youngsters.

In an effort to identify early risk and protective factors of peer victimization, most research has focused on the individual characteristics of victimized children and, to a lesser extent, of environmental factors in their family, peer, and school circles. However, both child and environmental factors play a crucial role in peer victimization and in the way victimization affects children’s adjustment or development. Peer victimization is not caused by the child’s characteristics alone; the attributes that children possess or express are embedded in specific environmental contexts, and settings tend to vary in the extent to which they permit or are conducive to peer victimization (Kochenderfer-Ladd, Ladd, & Kochel, 2009). For these reasons, there is merit in considering child and environmental models, which are also termed child-by-environment models as theoretical frameworks for guiding research on peer victimization.

Given the significance of early identification of children's peer victimization for intervention and prevention efforts, this dissertation focuses on the peer victimization of children with disabilities in preschool, kindergarten, and the early elementary-school years. This dissertation examines the prevalence and pathways to peer victimization of young children with disabilities, including risk and protective factors. Specifically, I examine the prevalence and nature of peer victimization (i.e., types of peer victimization, the association among types of peer victimization) among young children with disabilities in school settings. Second, this dissertation investigates the risk and protective factors of peer victimization and the pathways to those factors among young children
with disabilities in school settings. Finally, this dissertation uses a moderated-mediation model that applies a social-ecological framework to examine the different pathways leading to peer victimization, with an eye towards understanding the role of gender.

**Conceptual Framework for Bullying and Peer Victimization**

Dan Olweus, widely regarded as the foremost pioneer of bullying research, has shaped a conceptual framework that identifies individual characteristics of boys who are bullies and those who are victims (Olweus, 1978; Sveinsson & Morris, 2006). Olweus’s work emerged from a personality perspective and revealed special individual characteristics that predisposed students to become bullies or victims. The results from his longitudinal studies in Sweden (Olweus, 1978) showed that aggressive behavior was highly stable over time despite various changes in the environment (e.g., teachers, schools, classmates). Olweus (1984) later increased the importance of personality traits or individual differences in his model, which argued that bullies are “characterized by an aggressive personality pattern and a tendency to react aggressively in many different situations, with fairly weak controls or inhibitions against aggressive tendencies, and with a positive attitude to violence” (p. 67). Similarly, Olweus (1984) postulated that victims have certain characteristics that contribute to peer rejection, which in turn make them vulnerable to bullying. These characteristics include sensitivity and anxiousness, lack of assertiveness, insecurity, low self-esteem, and isolation among peers and are often found in combination with relative physical weakness (Olweus, 1978, 1984, 1994).

However, Olweus’s later work recognized situational factors, such as peer-group processes, as important determinants of child victimization. This perspective emphasizes the “social psychological mechanisms” in bullying, meaning that bullying is not always a
dyad between the bully and the victim, but often a group process involving several bullies (Sveinsson & Morris, 2006). Thus, group processes may play a more important role in understanding bullying (Olweus, 1999). Despite these advancements, the core of Olweus’s conceptual model continues to focus on the personality and characteristics of the bully (Sveinsson & Morris, 2006).

Other researchers have held a broader view related to bullying based on Olweus’s conceptual model (Craig & Pepler, 1997; Mishna, 2003b; Swearer & Doll, 2001; Swearer & Espelage, 2004). They have argued that bullying must be considered within an ecological perspective, taking into account the contributions of peers, teachers, physical characteristics of the school grounds, family factors, and cultural characteristics, as well as the individual characteristics of the child who bullies. This social-ecological framework is particularly useful for understanding peer victimization in schools. This framework suggests that both individual and environmental factors influence peer victimization (Swearer, Espelage, Vaillancourt, & Hymel, 2010). According to Swearer and colleagues (2010),

the social-ecological perspective provides a theoretical framework for helping us to understand the combined impacts of social contexts and influences on behavioral development. Within this framework, the systems directly affecting children include families, schools, peer groups, teacher–student relationships, parent–child relationships, parent–school relationships, neighborhoods, and cultural expectations. (p. 42)

In addition, recently, researchers have acknowledged the importance of environmental factors such as the family, school, peers, community, and cultural contexts as well as individual characteristics that predict peer victimization (Benbenishty & Astor, 2005; Khoury-Kassabri, Benbenishty, Astor, & Zeira, 2004; Khoury-Kassabri, Benbenishty, & Astor, 2005; Monks et al., 2009; Swearer et al., 2010). For instance,
based on the social-ecological perspective, Khoury-Kassabri and colleagues (2004) examined the risk factors for student victimization using a sample of 10,400 students in Grades 7–11 in 162 schools across Israel. The findings indicated that the variables of male gender, high-school junior, low socioeconomic status, schools designated by one religion, crowded classrooms, and school climate were all significantly related to engagement in school violence (Khoury-Kassabri et al., 2004). Although the research is not extensive, the roles of the school, family, and peer contexts suggest the importance of considering the child’s developmental environment when analyzing peer victimization (Swearer et al., 2010). Therefore, multiple levels of children’s contexts influence their peer-victimization experiences (Card & Hodges, 2008; Rodkin & Hodges, 2003).

Although the field is giving more attention to environmental factors such as the family, school, peers, community, and cultural contexts that predict peer victimization, previous research has focused less on the environmental factors than on the individual characteristics of victimized children. However, both individual and environmental factors play a crucial role in peer victimization and in the way that victimization affects children’s school adjustment or development. For these reasons, there is merit in considering child and environmental models (also termed child-by-environment models) for guiding research on risk for peer victimization (Kochenderfer-Ladd, Ladd, & Kochel, 2009). Specifically, the mediator model, a child-by-environment model, is a method of examining whether the links between distal-child factors, environmental-level factors, and peer victimization are mediated by other, more proximal risk factors such as adverse family environment and school settings. The mediator model is often designed to demonstrate cause-effect linkages (Kochenderfer-Ladd et al., 2009). In addition, the
effect of children’s gender can be examined as a moderator. Therefore, the present study used a moderated-mediation model based on the social-ecological framework to examine the pathways to peer victimization. The moderated-mediation model is the simplest statistical model with both moderator and mediation effects (MacKinnon, Fairchild, & Fritz, 2007). According to MacKinnon and colleagues, “in this model, a variable mediates the effect of an independent variable on a dependent variable, and the mediated effect depends on the level of a moderator. Thus, meditational mechanism differs for subgroups of participants” (MacKinnon et al., 2007, p. 12).

**Theoretical Perspectives for Bullying and Peer Victimization**

Within this social-ecological framework, both Craig and Pepler (1997) and Swearer and Doll (2001) applied social learning theory to explain peer contributions to bullying. They recognized the role of the peer group as a reinforcing agent of attention and engagement in the bullying cycle. Social learning theory also suggests that family-background characteristics such as risk factors relate to involvement in bullying at school. The effect of family variables on bullying behavior may occur via social learning, with individuals learning bullying behaviors through observation, role modeling, and reinforcement (Baldry, 2003; Monks, Smith, Naylor, Barter, Ireland, & Coyne, 2009; Twemlow & Fonagy, 2005). Peer victimization can also be explained by social learning theory: The effects of adverse family and school environment (e.g., insufficient family income, family violence, special-education settings) on peer victimization through its effect on children’s social behaviors and language development, which also can affect children’s peer-relation difficulties. For example, children from low-income families might have fewer opportunities to develop prosocial behaviors, interpersonal skills, and
language skills due to their environmental stressors. Thus, the adverse family environment could block the opportunities to develop appropriate social skills and protective friendship, which can decrease the likelihood of being victimized by peers (Barker et al., 2008).

Researchers have also used attachment theory to explain bullying. Attachment theory hypothesizes that the quality of attachment to parents or caregivers influences the development of an internal working model of relationships, which in turn impacts how an individual subsequently relates to others (Bowlby, 1969). Having an insecure attachment may result in an individual responding to others with unexpectedly high levels of hostility and aggression. A few studies have related the presence of an insecure attachment to the likelihood of the child being involved in bullying (Monks, Smith, & Swettenham, 2005; Myron-Wilson, 1998; Troy & Sroufe, 1987). Attachment theory proposes that the internal working model maintains a relative continuity over time (Goldberg, 2000). Therefore, this perspective has considerable potential for examining the continuity or discontinuity of the bullies’ (and perhaps victims’) behavior across different age ranges (Monks et al., 2009).

Using social cognitive theory, Sutton (2001) argued that bullying is strongly regulated by social cognition and environmental factors. Focusing on those factors, researchers have recently developed theoretical frameworks to explain why bullying occurs. In particular, two theories have been strongly emphasized: social-information-processing theory and the theory-of-mind framework (Sanders, 2004). Social-information-processing theory was originally developed by Dodge (1986) and redefined by Crick and Dodge, (Crick & Dodge, 1994). It offers a detailed six-stage model of how
children process and interpret cues in social situations to arrive at competent behavior. In Step 1 the individual encodes sensory information being taken into the “system.” In Step 2 the individual attempts to make sure of or interpret the sensory information. In Step 3 clarification of the information and goal setting occurs. Step 4 involves the individual seeking ideas for possible responses or developing unique responses on his or her own. In Step 5 a decision about which response is most appropriate is made. Finally, the individual follows through with the behavioral responses (Crick & Dodge, 1994).

Based on social-information-processing theory, Crick and Dodge (1994) claimed that bullying occurs as a result of social-information-processing biases or deficits at one or more of the six stages (Sanders, 2004). Empirical research has supported this idea (Camodeca, Goossens, Schuengel, & Terwogt, 2003; Randall, 1997). In particular, the findings have shown that victims of bullying experience deficits in social-processing processes and thus exhibit lower social competence than children not directly involved in bullying episodes. However, this perspective on bullying has been challenged by other researchers (Sutton & Smith, 1999). Sutton and Smith (1999) argued that successful bullying may be a result of superior mental skills (what they call “theory-of-mind skills”) instead of a lack of social competence as implied by social-information-processing theory. According to Sutton (2001), the theory of mind is explained as “the ability of individuals to attribute mental states to themselves and others to explain and predict behavior” (p. 530). They suggested that being able to understand the mental states of others and predict their behaviors can be utilized to manipulate the minds of others, and that this could be a potentially useful skill in all aspects of bullying. In particular, this framework explains how well-developed theory-of-mind skills can support the engagement of the individual
in indirect methods of bullying (Björkqvist et al., 1992; Baron-Cohen & Hammer, 1996). In support of this idea, empirical findings have shown a significant positive correlation between social intelligence and indirect aggression (Björkqvist et al., 2000; Sutton, 2000). However, this framework was criticized by some scholars, who argued that advanced theory-of-mind skills can also lead to highly prosocial behavior as well as various types of bullying; in other words, “having a superior Theory of Mind says nothing about how the knowledge will be utilized” (Arsenio & Lemerise, 2001).

Recently, researchers tried to explain why certain children became victims in bullying situations based on social information processing (Espelage & Swearer, 2009; Swearer & Espelage, 2004; Woods, Wolke, Nowicki, & Hall, 2009). Woods and her colleagues (2009) conducted research to investigate physical and relational bullying involvement in relation to basic emotion-recognition abilities and empathic styles in children using social information processing. They found that previous research on social-information-processing theory had concentrated on the biases and deficits that aggressors use in social situations but had not considered in detail the social-information-processing styles of victims. Thus, in particular, Woods et al. attempted to understand the role of emotions and emotion recognition within a social-information-processing framework. The results revealed that poor emotional regulation shown by relational victims may be one of the contributors for repeated targets of victimization by peers at school. Compared to physical victimization, relational victimization relies heavily on understanding the dynamics of the peer group and the subtle manipulation of social behavior. Therefore, the results from Woods et al. provide some initial support that the social-information-processing model could provide a useful framework for further
understanding the social-processing abilities of victims. According to their findings, relational victims appear to have problems in the initial stages of the model, with the correct encoding and interpretation of cues (Crick & Dodge, 1994). These problems could in turn lead them to make incorrect judgments about the motivations of others, have poor access to appropriate responses, and, ultimately, to make poor action decisions (Camodeca et al., 2003). Therefore, the peer victimization of children with disabilities can be explained by both social-cognition theory such as social-information-processing and theory of mind. In particular, children who have specific disabilities in which developmental capacities are impaired (e.g., autism, intellectual disabilities, and behavior disorder) are more likely to have poor emotional regulation, which could be related to repeat victimization by peers at school. In addition, children with language impairment might also be at high risk for peer victimization because their language impairment could negatively affect social-information processing, which they need to interact appropriately with their peers, and therefore could increase the likelihood of being victimized by peers (Conti-Ramsden & Botting, 2004).

Recently, Monks and colleagues (2009) reviewed psychological theories that explain the bullying phenomenon. Through reviews of existing theories such as evolutionary theory, attachment theory, social-learning theory, social-cognitive theory, and sociocultural theories, they also suggested theoretical models that have attempted to integrate individual factors and situational factors using different psychological theories. Therefore, the present study used a social-ecological framework to conceptualize the analysis and the psychological theories to generate potential explanatory mechanisms that can be used for future research.
Purpose of the Study

The purpose of this study was to examine the prevalence and pathways to peer victimization of young children with disabilities in school settings. Specifically, I examined the prevalence and nature of peer victimization. Second, I investigated risk and protective factors associated with peer victimization and the pathways to it. Finally, I applied a moderated-mediation analytic model to examine the usefulness of the social-ecological framework in understanding pathways to peer victimization and the role of gender in this process.

By focusing on children with disabilities in preschool, kindergarten, and the early-elementary school years, I was able to investigate the prevalence of each type of victimization (i.e., physically attacked, bullied, and teased by peers) as well as the overall types of peer victimization, the association among types of peer victimization, the risk and protective factors associated with peer victimization, and the pathways to peer victimization of children with disabilities. I used a nationally representative, longitudinal survey sample of 1,268 children from 258 school districts, ages 3 through 5, who were receiving special-education services in the 2003–2004 academic year. The survey included the characteristics of children receiving preschool special education, the services they received, the transitions across educational levels, their experiences with peer victimization, and their performance over time on academic and adaptive-skills assessments. By using a nationally representative sample, this dissertation was able to provide a better understanding of peer victimization of children with disabilities in school settings across the United States.
First, I examined how the characteristics of children with disabilities, such as age, disability type, language ability, social skills, and problem behaviors affected the peer victimization experience. Second, I investigated how family income affects the experience of victimization of children with disabilities. Third, I explored how the special-education classroom setting (as compared to the regular classroom setting) affect the victimization of children with disabilities. Fourth, I investigated how the peer-relation difficulties of children with disabilities affect the experience of victimization by peers. Fifth, I examined how children’s peer-relation difficulties mediate the relationships between the child’s characteristics, family background, and classroom settings and the peer victimization of children with disabilities. Finally, I analyzed how gender moderates these relationships. Figure 1 presents a conceptual model for studying the risk of peer victimization.
Figure 1. Child-by-environment model for studying the risk of peer victimization (Kochenderfer-Ladd et al., 2009).
Research Questions

This study included three main research questions and several subquestions, as outlined below.

1. Prevalence of Peer Victimization
   a) What is the prevalence of the peer victimization (including physical, relational, and verbal) reported by parents among children with disabilities in a nationally representative sample of schoolchildren who were receiving special-education services?
   b) What is the nature of the peer victimization among children with disabilities?
      i. Which type of peer victimization is the most prevalent?
      ii. Which pattern of peer victimization is the most prevalent (1 type only: physical, relational, or verbal; 2 types: physical + relational, physical + verbal, relational + verbal; and 3 types: physical + relational + verbal)?
      iii. What are the associations among each type of peer victimization (e.g., physical and relational, physical and verbal, relational and verbal) among children with disabilities who have experienced peer victimization?

2. Path Model: Mediation
   a) Does the path model fit the data?
   b) Do characteristics of children with disabilities (i.e., age, developmental delay, language ability, social skills, internalizing problem behavior, and externalizing problem behavior) affect children’s peer-relation difficulties (i.e., trouble making or playing with friends), which is related to peer victimization?
c) Does family income affect children’s peer-relation difficulties (i.e., trouble making or playing with friends), which is related to peer victimization?

d) Do school factors (i.e., classroom settings) affect children’s peer-relation difficulties (i.e., trouble making/playing with friends), which is related to peer victimization?

3. Path Model: Moderated Mediation

a) Does gender moderate the above relationships between child characteristics, family factors, school factors, peer-relation difficulties, and peer victimization?
Chapter 2: Literature Review

Definition and Types of Peer Victimization

Peer victimization involves the receipt of any act of aggression from similar-aged peers, as opposed to victimization from parents or other adults, siblings, or specific members of the community (Finkelhor & Dziuba-Leatherman, 1994). However, no one standard definition of peer victimization exists in either the research literature (Hawker & Boulton, 2000) or emerging state laws and policies to address bullying in schools (Limber & Small, 2003). The most commonly used definition of peer victimization or bullying is a constellation of behaviors that can be characterized as (a) aggressive or intended to harm, (b) performed repeatedly and over time, and (c) occurring in interpersonal relationships in which a power imbalance exists (Olweus, 1993; Olweus, 1999).

The types of peer victimization involve overt (direct) aggression and relational (indirect or social) aggression. The classifications are based on the behavior of the aggressor (Crick & Grotpeter, 1995; Crick & Bigbee, 1998). Overt victimization indicates the systematic verbal or physical harassment of a weaker child by a stronger one. It includes extortion, name-calling, hitting and kicking, threatening, and sexual harassment. These types of peer victimization most typically involve boys, who tend to view physical aggression as most hurtful, and the rates of overt victimization tend to decline with age among both boys and girls (Björkqvist et al., 1992; Monks et al., 2005).

In contrast, relational victimization involves the deliberate and hurtful manipulation of peer relationships or friendships. It includes slandering, spreading rumors, and manipulating classroom friendships. Research has suggested that girls are most typically
involved in this type of aggressive behavior, tend to view this type of victimization as more upsetting and distressful, and are more affected than boys by this type of victimization in early and middle childhood (Rivers & Smith, 1994). Researchers have also suggested that this relational aggression increases as children mature because their verbal and social skills develop and children learn to analyze and manipulate situations to their advantage (Björkqvist et al., 1992; Rose et al., 2010).

A third type of peer victimization is sexual harassment. Sexual harassment includes sexually explicit language or sexually abusive actions (American Association of University Women Educational Foundation, 2001). Additionally, victimization by cyber bullying or electronic bullying is emerging as a new form of victimization as computers and cell phones are rapidly becoming popular among adolescents (Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). “Cyber bullying can be defined as a form of aggression that occurs through personal computers (e.g., e-mail and instant messaging) or cell phones (e.g., text messaging)” (Wang et al., 2009, p. 369). Although relational bullying, sexual harassment, and cyber bullying have increasingly been the focus of research on the whole school population, the majority of the extant special-education literature addresses verbal and physical victimization (Rose et al., 2010).

Previous studies on the rates of each form of peer victimization of youth have suggested that the most frequent form of peer victimization was relational victimization, and verbal/physical, sexual harassment, respectively. For instance, Wang et al. (2009) has investigated four forms of school bullying behaviors: physical, verbal, relational, and cyber bullying using a nationally representative sample of 6th to 10th graders (N = 7,182). The prevalence rates of victimization at least once in the last 2 months were 12.8% for
physical, 36.5% for verbal, 41.0% for relational, and 9.8% for cyber forms. Felix and McMahon (2002) explored rates of chronic victimization among urban middle school students of Grades 6 to 8 ($N = 111$) and found that approximately 16% of students were sexually harassed, 21% experienced relational victimization, and 18% experienced direct physical or verbal victimization. Their findings also showed that most students reported experiencing multiple forms of victimization during the current school term, with almost half of the victimized students stating that they experienced all three forms of victimization (Felix & McMahon, 2006).

**The Prevalence of Peer Victimization of Children With Disabilities**

Nansel et al. (2001) conducted a nationally representative survey on bullying among American schoolchildren and revealed that a total of 29.9% of adolescents are involved in bullying either as a bully (13.0%), victim (10.6%), or both (6.3%). In addition, the National Center for Educational Statistics (School Crime Supplement to the National Crime Victimization Survey) indicated that in 2007, about 32% of students reported having been bullied at school during the school year. Of these students who had been bullied, 63% said that they had been bullied once or twice during the school year, 21% had experienced bullying once or twice a month, 10% reported being bullied once or twice a week, and 7% said that they had been bullied almost daily (Dinkes et al., 2009). Studies also indicated that approximately 10% to 15% of youth experience chronic victimization (Juvonen & Graham, 2001; Olweus, 1994; Storch, Lewin, Geffken, Silverstein, Heidgerken, Strawser, & Baumeister, 2004).

Generally, a majority of bullying/peer victimization research has been reported in a whole school context, but research has neglected to report findings for individual
subgroups (Rose, Espelage, & Monda-Amaya, 2009). However, when the survey was conducted by individual subgroups, in particular for children with disabilities, it became clear that students with disabilities were at higher risk for peer victimization compared to typically developing children. For example, based on 32 articles reviewed by Rose and colleagues (2009), several studies including children with disabilities reported victimization rates in excess of 50% (Rose et al., 2010). In addition, empirical evidence suggests that the rates of victimization among students with disabilities are much higher compared to the rates of victimization of their nondisabled peers (Baumeister et al., 2008; Knox & Conti-Ramsden, 2003; Sabornie, 1994; Wiener & Mak, 2009; Yude, Goodman, & McConachie, 1998). Wiener and Mak (2009) investigated peer victimization in a sample of children diagnosed with ADHD. To examine children’s experiences of peer victimization at school, they used the Bully–Victim Questionnaire (BVQ), which was adapted by Boer-Hersh (2002) from Craig (1998) and based on a survey developed by Olweus (1991, 1993). The survey is a self-report measure consisting of 14 items with Likert scales. Specifically, the victim scale (Cronbach’s alpha = .83), which is a subset of BVQ, is composed of the seven items assessing victimization. Higher scores indicate more self-reported victimization (Wiener & Mak, 2009). The results showed that children with ADHD ($n = 52, M = 13.65$: mean of the BVQ victim scale) were more likely than comparison children ($n = 52, M = 9.92$) to report being victimized by peers, and this was especially problematic for girls with ADHD. Children with ADHD also reported that they were subjected to verbal, physical, and relational victimization more often than their counterparts without ADHD.
Sabornie (1994) compared students with learning disabilities (LD) in a self-contained, American (limited integration) class of 38 LD students with demographically matched peers without disabilities in Grades 6 and 7. The results showed that students with LDs were 3.5 times more likely to be victimized. According to Baumeister and his colleagues (2008), the frequency of peer victimization with comorbidity. Specifically, the results indicated that among the clinical sample, children with LDs who experience comorbid psychiatric diagnoses reported a significantly higher amount of peer victimization than children without a comorbid psychiatric condition. Children experiencing LDs in addition to psychiatric diagnoses may stand out as targets more so than nondiagnosed peers. For example, children with attention problems may be bullied because of social-skills deficits or academic difficulties secondary to attention difficulties. Alternatively, overtly anxious or distressed children may be targeted due to observable symptoms. Similarly, Yude and his colleagues (1998) compared 55 children with hemiplegia (i.e., a type of cerebral palsy that results from damage to the parts of the brain that control muscle movements) in an inclusive education setting with matched controls in primary schools in the United Kingdom. The findings indicated that children with hemiplegia were significantly more victimized than the matched controls, with 45% of children with hemiplegia being moderately or severely victimized compared to 13% of the matched controls (Yude et al., 1998).

However, the degree to which having a disability increases the risk of victimization remains unclear because reported rates of victimization vary from one study to another. Rose et al. (2010) state that “these variations may be attributed to ambiguity in the definition, differences in data collection procedures, the settings in which the
bullying occurs, the populations of students examined, and/or demographics” (p. 7). In addition, the field lacks empirical evidence about whether children having a particular disability have a higher likelihood of being bullied (Sveinsson & Morris, 2006). Furthermore, of the relatively few studies addressing victimization across several disability categories (Doren et al., 1996; Sweeting & West, 2001; Whitney, Smith, & Thompson, 1994) the findings were inconsistent in regard to which disability presented the highest risk for victimization (Sveinsson & Morris, 2006).

In this dissertation I used a nationally representative sample with multiple disability categories to investigate the topic of peer victimization among children with disabilities, a subgroup neglected in a majority of the related bullying and peer-victimization research. My goal was to provide new information about the prevalence and nature of peer victimization among children with disabilities.

Peer Victimization and Disabilities

Empirical evidence has suggested certain subgroups of students are at risk for peer victimization. Specifically, studies have suggested that students with disabilities are more likely to be the victims when compared with their typically developing counterparts (Rose et al., 2009; Wiener & Mak, 2009; Conti-Ramsden & Botting, 2004). Research findings specific to victims of bullying have shown certain characteristics that indicate an increased risk of victimization, such as social isolation, low levels of prosocial and socially skilled behaviors, and physical weakness (Card & Hodges, 2008). Studies have indicated that students with disabilities in school settings are less interactive and receive lower peer-rating scores (Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996), have fewer reciprocal friendships (Guralnick, Neville, Hammond, & Connor, 2007), and
are rejected more often (Odom, Zercher, Li, Marquart, Sandall, & Brown, 2006) than typically developing children. Furthermore, physical weakness could also be a risk factor for the peer victimization of students with disabilities. Tattum described bullying as focusing on vulnerable children regarded as being different because of factors such as physical characteristics or special educational needs (Tattum, 1997). Sweeting and West (2001) also suggested that characteristics of appearance and disability increase the likelihood that a child would experience the additional burden of being bullied. Thus, students with disabilities may have some of the characteristics identified as risk factors for victimization based on circumstances or manifestations associated with having a disability in a school setting (Sveinson, 2005).

Few empirical studies have examined bullying and victimization rates among American schoolchildren within special-education programs. Recently, Rose and colleagues examined the rates of bullying and fighting perpetration and victimization among middle-school students \((n = 7,331)\) and high-school students \((n = 14,315)\) enrolled in general education and special-education programs. The findings show that students in special-education programs reported greater rates of bullying, fighting perpetration, and victimization than general-education students. Additionally, students who were in self-contained classrooms reported more perpetration and victimization than those in inclusive settings (Rose et al., 2009).

Although a small body of research on victims of bullying exists (Humphrey, Storch, & Geffken, 2007; Rose et al., 2009; Whitney et al., 1994), bullying research has focused relatively little attention on children with disabilities, particularly young children
with disabilities. The dataset used in my dissertation was able to address this gap in the literature.

**The Risk and Protective Factors of Peer Victimization of Children With Disabilities**

**Child-level risk and protective factors.** Certain individual characteristics of the child can increase their vulnerability to victimization. According to Card and Hodges’s (2008) synthesis of the literature,

> children who are victimized by their peers tend to be physically weak, exhibit low levels of pro-social and socially skilled behaviors, suffer internalizing problems, and experience some externalizing problems (e.g., hyperactivity, emotional dysregulation, and delinquency, but not especially high or low levels of aggression). (p. 453)

Circumstances or manifestations associated with a child’s disability may involve some of the characteristics that have been identified as risk factors for the peer victimization of typically developing children, such as physical weakness, behavioral problems, poor social skills, and impaired social relations (Odom et al., 2006; Sveinsson & Morris, 2006). Furthermore, the characteristics of children with disabilities undoubtedly affect the quality of social participation, which in turn may be associated with the formation of peer relations (Odom et al., 2006; Perren & Alsaker, 2006), and poor peer relations may related to victimization by peers (Buhs & Ladd, 2001; Hanish, Ryan, Martin, & Fabes (2005). Therefore, these children’s individual characteristics serve as an antecedent for peer relations and peer victimization.

**Problem behaviors.** Research on the risk factors of peer victimization has indicated that children’s problem behaviors, such as internalizing problems and externalizing problems, are predictors of peer victimization (Card & Hodges, 2008). Previous studies on the predictors of peer victimization have consistently demonstrated that children’s externalizing problem behaviors are a strong risk factor for peer
victimization (Barker et al., 2008; Garner & Lemerise, 2007; Knox & Conti-Ramsden, 2007). Similarly, internalizing problem behaviors, such as anxiety and social withdrawal, are also correlates of victimization by peers (Hodges & Perry, 1999; Swearer & Espelage, 2004; Weiner & Mak, 2009). The field disagrees as to whether children who are anxious and socially withdrawn are more likely to be victimized because of the bully’s perception that they are weaker and less likely to defend themselves or whether being bullied leads to anxiety and social withdrawal (Card & Hodges, 2008; Weiner & Mak, 2009). However, the findings of longitudinal studies (Goldbaum, Craig, Pepler, & Connolly, 2003; Hodges & Perry, 1999; Siegel et al., 2009) suggest that anxiety and social withdrawal are both risk factors for chronic victimization by peers and a consequence of it. Empirical studies suggest that children’s early problem behaviors could lead to peer victimization (Garner & Lemerise, 2007; Hodges, Boivin, Vitaro, & Bukowski, 1999; Keane & Calkins, 2004; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999; Wood, Cowan, & Baker, 2002). For example, Garner and Lemerise (2007) examined 94 low- and middle-income preschoolers (48 boys and 46 girls) recruited from two sites in a large southwestern city and found that externalizing behavior problems were positively predicted both types of victimization. Similarly, Hodges and his colleagues (1999) revealed that externalizing behaviors (e.g., aggressive, argumentative, and disruptive behavior, dishonesty, and a pushy peer entry style) and internalizing behaviors (e.g., withdrawal, anxiety, depression, and a hovering peer entry style) predicted victimization concurrently and over time.

Difficulties shared by young children with disabilities, such as externalizing and internalizing problems, are often cited as risk factors for being bullied (Mishna, 2003a). Of the studies that have investigated the factors predicting peer victimization risk of
children with disabilities or special health-care needs, one of the strongest predictors was children’s externalizing and internalizing problem behaviors (Humphrey et al., 2007; Knox & Conti-Ramsden, 2007; Van Cleave & Davis, 2006). For instance, Knox and Conti-Ramsden (2007) investigated the bullying experiences of a population of 139 young people with specific language impairment and a comparison group of 124 typically developing young people, both at 16 years and retrospectively. They found that the behavioral and social-emotional problems (i.e., conduct problems, emotional problems, and hyperactivity) predicted the likelihood of young people with a specific language impairment being bullied, whereas measures of IQ, language, literacy, friendship and prosocial ability had no significant predictive effects. Similarly, Van Cleave and Davis’s (2006) study, which used the National Survey of Children's Health, a nationally representative telephone survey conducted by the National Center for Health Statistics of 102,353 U.S. households (children aged 0 to 17 years), found that having a chronic behavioral, emotional, or developmental problem was associated with bullying others and with being a bully–victim of children with special health-care needs.

Particularly, children with developmental delays manifest heightened behavior problems, which may lead to peer victimization. In fact, several studies have indicated a heightened risk of behavioral problems for children with developmental delays (Baker, Blacher, Crnic, & Edelbrock, 2002; Baker et al., 2003; Eisenhower, Baker, & Blacher, 2009). According to Baker and colleagues (2003), parents (e.g., mothers and fathers) rated children with developmental delays as having more behavioral problems than their nondelayed peers, and developmentally delayed children were 3 times as likely to score in the clinical range. Similarly, Eisenhower et al. (2009) found that children with
developmental delays were significantly more likely to have clinical behavior problems than children with typical developmental trajectories. Therefore, children with developmental delays may be a high-risk population due to their heightened behavioral problems.

*Language development.* Another important aspect of development that can have a significant impact on peer relations (i.e., peer acceptance or peer rejection) and peer victimization during the childhood years is language development. Researchers have found that children with better language abilities are more socially connected with their peers because they are able to engage effectively in interactions (Hebert-Myers, Guttentag, Swank, Smith, & Landry, 2006) and display higher levels of peer-play competence in classroom settings (Mendez, Fantuzzo, & Cicchetti, 2002). In their study of young children born preterm or full-term, Herbert-Mayers and colleagues (2006) found that peer competence (i.e., social connectedness, compliance, and noncompliance with peer requests) was predicted by concurrent language skills when children were 3 and 8 years of age. In addition, language and play skills at 3 years were associated with peer competence at 8 years. For African-American preschool children enrolled in Head Start, Mendez and colleagues (2002) reported that children’s language abilities were related to their competence in playing with peers in the classroom.

Studies of children with disabilities often hypothesize a link between children’s linguistic competence and their levels of peer relations and peer victimization (Conti-Ramsden, & Botting, 2004, Koning & Magill Evans, 2001; Luciano, & Savage, 2007, Odom et al., 2006). For instance, in their study on the social relationships of preschool children with disabilities in inclusive settings, Odom and colleagues (2006) found that
communication was related to both social acceptance (e.g., competent communication) and social rejection (e.g., when communication was poor).

Among the language skills of children, differences in receptive language and vocabulary ability between children with disabilities and typically developing controls was a significant factor for peer rejection and victimization (Conti-Ramsden, & Botting, 2004, Hart, Fujiki, Brinton, & Hart, 2004, Knox & Conti-Ramsden, 2003; Luciano, & Savage, 2007). For example, Luciano and Savage (2007) collected a sample of 13 fifth-grade students with LDs and 14 classmates without LDs, matched on gender. The findings showed that after controlling for group differences in receptive vocabulary, the differences in peer victimization were no longer significant. When studying peer-related social competence of children with specific language impairments compared to typically developing peers, Hart and colleagues (2004) reported that children with less severe receptive-language impairments demonstrated higher levels of proficiency on both types of sociable behavior than did their peers with more severe impairments. Therefore, children’s language abilities, particularly receptive-language impairments, could be an important risk factor for peer relations and peer victimization.

**Social skills.** According to Merrell (1998), social skills can be defined as “specific behaviors that when initiated lead to desirable social outcomes” and “include academic and task-related competence, cooperation with peers, reinforcement of peer behavior and social initiation behaviors” (Merrell, 1998, p. 247). In addition, it has been established that the development of appropriate social skills is an important foundation for adequate peer relationships (Asher & Taylor, 1981).
Recent literature has demonstrated that children who are victims of bullying show greater social-skills deficits than nonvictims (Champion, Vernberg, & Shipman, 2003; Fox & Boulton, 2005, 2006a, 2006b). In the United Kingdom, Fox and Boulton (2005) collected data from a sample of 330 pupils ages 9 to 11 years (168 male and 162 female) and used a direct discriminant function analysis of the self-ratings, peer ratings, and teacher ratings of social skills. This analytic strategy allowed them to correctly classify 80% of the participants. For 6 of the 20 social-skills items, self-ratings were able to discriminate between victims and nonvictims. For 18 of the 20 items, peer ratings indicated significantly more pronounced social-skills problems for victims than for nonvictims. Teacher ratings were also significant for 8 of the 20 social-skills items, and in each case, victims were rated as having greater problems than nonvictims (Fox & Boulton, 2005).

Victims often display behavioral vulnerability (i.e., they look scared and unhappy, they stand in a way that looks like they are weak) and are nonassertive (i.e., they put up with other children being nasty to them). Some victims also engage in provocative behaviors such as annoying other children and spoiling their games (Fox & Boulton, 2005). Similarly, Champion and colleagues (2003) found that adolescent victims had lower scores on the cooperation and assertiveness scales of the self- and parent-report versions of the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) than did adolescents who were not victims. In contrast, prosocial and socially skilled behaviors (e.g., assertiveness, effective conflict management) predicted lower levels of victimization over time (Card & Hodges, 2008). Thus, children’s inadequate social skills can be considered a risk factor for peer victimization.
One of the prominent characteristics of children with disabilities distinguishing them from nondisabled populations is deprivations and disabilities in social skills. The literature on the social, emotional, and behavioral characteristics of children with disabilities shows that these children are at a significantly heightened risk for developing social-skills deficits, experiencing peer-relationship problems, and peer victimization. Through a synthesis of the literature of bullying perpetration and victimization in special education, Rose and colleagues (2010) indicated that victims with disabilities are often characterized as having inadequate social skills (Rose et al., 2010). Additionally, Stormont (2002) reviewed the extensive literature on social outcomes of children with ADHD, which showed that these children experience significant deficits in social knowledge, social perspective taking, and social interactions. Shea and Wiener (2003) found that social-skills deficits, emotional volatility, a lack of insight, and immaturity were also noted by parents and teachers of boys with ADHD and at times caused them to be victimized by their peers or exacerbated their experiences of chronic victimization. Merrell and Holland (1997) investigated the differences in social skills between 198 preschool-age children with developmental delays and 198 preschool-age children without significant developmental problems using the Preschool and Kindergarten Behavior Scale (PKBS). The findings show statistically significant differences in social skills between the two groups. Individuals in the developmentally delayed group were found to be 4 to 5 times more likely to have significant social-skills deficits than individuals in the comparison group. The critical social-emotional behaviors separating the two groups appeared to be social-interaction and independence skills. Therefore, a
deficit in social skills among children with disabilities could put them at risk for peer victimization.

**Disability type: Developmental delays and disabilities.** Previous studies have also indicated that the rate of reported victimization varies considerably based on disability type (Rose et al., 2010). Although “just being different in a noticeable way” could be a reason for peer victimization compared to classmates without disabilities (Whitney et al., 1994, p. 213), empirical studies show higher rates of peer victimization of children with emotional and behavioral disorders (30%) or children with Asperger syndrome (66%) among the children with disabilities (Little, 2001; Monchy, Pijl, & Zandberg, 2004; Van Cleave & Davis, 2006).

Odom and colleagues (2006) also stated that social acceptance and indices of peer-related social competence are associated with the type of disability. For example they show

specific disabilities in which these developmental capacities are impaired (e.g., autism, mental retardation, behavior disorders) may well be associated with less competent social participation and possibly with social rejection. Conversely, disabilities in which relatively less developmental impairment occurs (e.g., physical disability without other disability) may be associated with relatively more competent social participation and possibly with social acceptance. (p. 808)

In their mixed-methods analysis of social acceptance and rejection of 80 preschool children with disabilities enrolled in a nationally distributed set of inclusive preschool programs, they found that the socially accepted children (28%) tended to have disabilities that were less likely to affect social problem solving and emotional regulation, whereas children who were socially rejected (28%) had disabilities that were more likely to affect such skills and developmental capacities. For example, socially rejected children shared the characteristics of social withdrawal and problems with conflict and aggression.
In addition, the absence of an effective system of communication was strongly associated with social rejection (Odom et al., 2006).

Guralnick and colleagues (2006) also stated that the peer-relationship pattern of young children with mild developmental (cognitive) delays stood in marked contrast to their typically developing peers; the peer-relationship problems for this group (i.e., children with mild developmental delay) were particularly apparent in unstructured settings, such as organized play groups or during free-play periods in more formal programs. Empirical studies also show evidence of substantial problems in peer-related social competence of children with mild developmental delays (Guralnick et al., 1998; Guralnick, Connor, Neville, & Hammond, 2006). For instance, “preschool-age children with mild developmental delays have considerable difficulty sustaining play with peers (group play), exhibit uneven or fragile growth in peer interactions over this period, and often fail to resolve conflicts in appropriate ways” (Guralnick et al., 2006, p. 312), and these problems tend to persist over time.

Therefore, children with developmental delays, particularly preschool age children, are at higher risk for peer rejection and peer victimization because they have a deficit in cognitive processing, social problem solving, and emotional regulation, which are factors related to the development of social competence for young children with disabilities (Diamond, 2002; Guralnick, 2010; Odom et al., 2006). In addition, previous studies have demonstrated that children with developmental delays were rated higher on behavioral problems than their nondelayed peers, and were 3 times more likely to score in the clinical range (Baker et al., 2002, 2003; Herring, Gray, Taffe, Tonge, Sweeney, & Einfeld, 2006). Based on these characteristics, which are related to the risk factors for
peer relations and peer victimization, the present study focused on children with developmental delays.

**Demographic characteristics.** Previous studies have also indicated that children’s victimization can vary according to their age or grade in school (Hanish & Guerra, 2000; Hanish et al., 2005; Nansel et al., 2001). Most children experience their first opportunities for peer interaction in preschool and kindergarten. These early childhood years constitute a period of rapid growth and development in the domain of peer relationships. Hanish et al. (2005) noted that “during preschool and kindergarten, children learn how to build and maintain friendships, form opinions about which children are liked or disliked, establish groups of consistent play partners, acquire reputations, and develop social skills” (p. 4). As children age, the way in which social interactions contribute to peer victimization may differ, given that children’s interactions with their peers reveal a pattern of increasing complexity of play and an expanding network of social contacts over time. In other words, as children grow, they are more likely to have reciprocal friends and to be members of small networks of peers, to engage in less solitary and more social play, and to spend more time and have more interactions with members of social and friend networks (Hay, Payne, & Chadwick, 2004). Consequently, the association between victimization and facets of relationships (e.g., social acceptance, friendships, or social play) may be weaker and less well established among preschoolers than it is for kindergarteners, who are more socially connected (Hanish et al., 2005).

**Family-level risk and protective factors.**

**Family income.** A few studies have examined the role of family risk factors on peer victimization, and some of these studies have suggested that victimized children are
more likely to come from low-income households (Barker et al., 2008; Hoglund & Leadbeater, 2004; Leadbeater, Hoglund, & Woods, 2003). Barker and colleagues (2008) conducted a longitudinal, large-scale, multiple-informant, population-based study using the Quebec Longitudinal Study of Child Development \( (n = 1,970) \) to investigate preschool trajectories of peer victimization. They also assessed the continuity of preschool victimization after school entry and examined early child- and family-level predictors of preschool victimization trajectories. The findings show that insufficient parent income predicted high (chronic) and moderate (increasing) peer-victimization trajectories. Barker and colleagues (2008) also suggested that insufficient income is a more general index of family strain and could lead to children’s exposure to environmental stressors, including neighborhood poverty, family disruptions, and other adverse social conditions. These adverse social conditions might also result in fewer opportunities to develop interpersonal skills and protective friendships, which in turn could lead to peer victimization. In fact, many children with disabilities and their families live in poverty (Parish & Cloud, 2006). According to Fujihura and Yamaki (2000), children with disabilities are overrepresented among those in poverty, with 28% living in a household with an income below the federal poverty line, compared to 16% of typically developing children. Therefore, the present study examined the effect of family income on peer victimization of young children with disabilities as well as other risk and protective factors.

**School-level risk and protective factors.**

**School settings: The amount of school time per week in regular versus special-education classes.** The literature on peer victimization of children with disabilities
suggests that the educational setting is a predictive and preventive factor of the victimization of students with disabilities. Proponents of inclusion practice hold that effective integration of students with and without disabilities into the same educational setting may serve as a protective factor for peer rejection and peer victimization (Stainback & Stainback, 1996). However, empirical studies still show a substantial discrepancy of peer victimization rates between the two subgroups (i.e., students with disabilities vs. students without disabilities) in inclusive-education settings (Conti-Ramsden & Botting, 2004; Estell et al., 2009; Monchy et al., 2004; Whitney et al., 1994).

For example, Whitney, Smith, and Thompson (1994) examined the victimization rates of 93 students with disabilities and their matched counterparts without disabilities within an inclusive setting in the UK. The results demonstrated that a total of 67% of students with disabilities were victimized by peers and that 55% of students with mild learning difficulties, 78% of students with moderate learning difficulties, and 50% of students with physical disabilities experienced peer victimization (Whitney et al., 1994). In contrast, Wood and Wolke’s (2004) study of 1,016 students (Grades 2 and 4) indicated that although special-education status was an indicator for academic achievement, it was not necessarily a predictor of victimization. The inconsistency of these findings might be explained by the bully’s inability to distinguish cognitive differences at a young age or the visibility of the disability (Monks et al., 2005; Rose et al., 2010). Thus, the protective influence of inclusive-education settings on peer victimization is still unclear.

Research findings on the peer victimization of children with disabilities educated in segregated settings (i.e., self-contained classrooms or special schools) also vary. For example, according to Rose and colleagues’ (2010) literature review researchers
indicated that students in segregated settings were victimized by their classmates or adolescent peers 2 to 3.5 times more than any other subgroup of students (Martlew & Hudson, 1991; Norwich & Kelly, 2004; Rose et al., 2009; Sabornie, 1994). However, other research has found no substantial or significant differences in the risk of peer victimization between students attending inclusive-education settings and students attending special-education settings (Knox & Conti-Ramsden, 2003; Luciano & Savage, 2007; Reiter & Lapidot-Lefler, 2007). For example, recently Reiter and Lapidot-Lefler (2007) conducted a study on bullying among special-education students with intellectual disabilities in Israel and found that the extent of victimization among students with disabilities in segregated settings was similar to that experienced by students in regular schools. In addition, a study on the risk of being bullied at school with 100 children with specific language impairments found no statistically significant difference between students in mainstream and special-education programs (Knox & Conti-Ramsden, 2003). Therefore, the educational-setting effect on peer victimization is still uncertain and needs to be examined further. My study examined the educational-setting effect (i.e., the amount of time spent in regular-education and special-education classrooms) using a nationally representative sample of young children with disabilities. In this way, the findings are able to provide new information on the influence of educational settings on the peer victimization of young children with disabilities.

**Peer-relational risk and protective factors (mediators).**

**Peer-relations difficulties.** Among a number of risk and protective factors, previous research has indicated that peer relations are an important social influence associated with peer victimization (Card & Hodges, 2008; Hanish et al., 2005; Wang et
Peer relations influence one’s social reputation and the quality of social relations within the peer group, and thus positive peer relations tend to be associated with peer acceptance, whereas negative peer relations are generally linked with peer rejection (Merrell, 1998). Empirical studies have found that victimized children are often socially isolated or have few friends (Hodges & Perry, 1999; Olweus, 1999; Perry, Hodges, & Egan, 2001; Perren & Alaska, 2006), are even rejected by peers (Hodges & Perry, 1999; Smith, 1999; Hanish & Guerra, 2000), and are therefore “easy targets” and pose less risk of social consequences for their attackers (Buhs et al., 2006; Odom et al., 2006; Sveinsson & Morris, 2006). According to Card and Hodges’ (2008) literature review on the peer victimization of schoolchildren:

at the group level, acceptance (being liked) and rejection (being disliked by peers) are robust correlates of victimization. Low peer acceptance and high peer rejection predict increases in victimization because children who are rejected and not well liked by peers are likely seen as easy targets by aggressors, and aggressors may receive positive reinforcement (e.g., peers cheering on attacks), or at least little punishment, for targeting these children. (p. 454)

In addition, at the dyadic level, having few or no friends is also both a risk and a protective factor for peer victimization. For instance, having more friends and high-quality friendships were both found to be negatively related to victimization, suggesting a “friendship protection hypothesis” (Bollmer, Milich, Harris, & Maras, 2005; Hodges et al., 1999; Goldbaum et al., 2003).

The literature also consistently demonstrates that children with disabilities perform less well socially than do typically developing peers of similar ages. For example, children with disabilities are less accepted and experience high rates of social rejection by other children (Guralnick, 2010; Odom et al., 2006). Children with certain disabilities--Particularly for children with certain “disabilities (e.g., developmental delays, autism,
mental retardation, emotional or behavioral disorders), acquiring the skills and knowledge necessary for interacting positively and successfully with peers is a challenge” (Odom, 2005, p. 1).

A recent line of research has expanded insight into the contributors to children’s poor peer relations. Some of these factors are inadequate social skills and internal and external behavior problems (Keane & Calkins, 2004; Perren & Alaska, 2006). Other studies have focused on being different, such as physical unattractiveness or handicaps (Sweeting & West, 2001; Yude et al., 1998). Still other studies have found links with communication or language difficulties (Brown & Conroy, 2002; Hay et al., 2004; Luciano & Savaga, 2005). Therefore, the peer relations of children with disabilities must be understood as mediators between children’s individual characteristics and peer victimization. This dissertation investigated the role of peer-relationship difficulties as a mediator between children’s individual characteristics and peer victimization among children with disabilities.

**Gender as a moderator.** Gender differences in social competence exist as early as the toddler years (Odom, McConnell, & Brown, 2008). The differences in social competence between boys and girls may also lead to differences in peer-victimization experiences for boys and girls. Baillargeon and colleagues (2007) discerned gender differences in problem behaviors as early as 17 months of age and noted that the stability of such behavior problems extended up to 29 months. Previous studies have also shown that girls engage in more prosocial behavior than boys (Eisenberg et al., 1997; Walker, 2005) and that overt aggression and peer rejection are related for boys but not for girls in the preschool years (Wood et al., 2002). However, other researchers have proposed that
specific externalizing problem behaviors that are relevant to girl’s peer groups (i.e., relational aggression, hyperactivity, and noncompliance) are likely to be linked to peer rejection and peer victimization for girls (Crick & Grotpeter, 1995, Fabes, Shepard, Guthrie, & Martin, 1997; Wood et al., 2002). Similarly, Crick, Bigbee, and Howes (1996) argued that a large amount of the research focuses on male forms of victimization, such as physical bullying, whereas studies on girls focus on harm by hurting relationships through lies, rumors, and name-calling. Furthermore, researchers have suggested that the process of internalizing problem behaviors (i.e., social withdrawal, anxiety) is linked with peer rejection and peer victimization for both girls and boys, independent of the aggression–rejection linkage (French, 1990; Wood et al., 2002). My dissertation examined the influence of gender differences in the pathways to the peer victimization of children with disabilities. The findings can be used to shed light on the phenomena of gender differences in peer victimization experiences among children with disabilities.

**Prior Work From the National Survey**

Recently, five peer-reviewed journal articles, four comprehensive reports, and six progress notes have been published using Pre-Elementary Education Longitudinal Study (PEELS) data. The journal articles reviewed studies examining relationships between special-education services and parent satisfaction among preschoolers with autism spectrum disorder (Shimshak, Daley, Misra, Carlson, & Markowitz, 2008), predictors of change in eligibility status among preschooler in special education (Daley & Carlson, 2009), constructing and testing a disability index (Daley, Simeonsson & Carlson, 2009), and defining risk for preschoolers with disabilities and predicting educational performance (St Clair, Heinzen, Jenkins, & Carlson, 2010). The comprehensive reports
described the changes in the characteristics, services, and performance (e.g., school-related readiness such as literacy, math, and social behavior) of preschoolers with disabilities (Markowitz et al., 2006; Carlson et al., 2008a), early school transitions and the social behavior of children with disabilities (Carson et al., 2009), and access to educational and community activities for young children with disabilities (Carlson, Bitterman, & Daley, 2010). Finally, the Institute of Education Sciences published PEELS progress notes using PEELS data. The progress notes include findings on children’s school-readiness skills, social behavior, early math performance, and transition from preschool to kindergarten as well as parent involvement and reclassification across disability categories (available at www.peels.org). Based on the literature review of previous studies using PEELS data, no study has examined the prevalence and early risk and protective factors of peer victimization among this national sample of children receiving special-education services.
Chapter 3: Research Design and Methods

Description of the National Survey

Data collection. This study used the PEELS secondary dataset, collected from more than 3,000 children with disabilities nationwide by the U.S. Department of Education National Center for Special Education Research. PEELS used a two-stage process to obtain a national sample of 3- to 5-year-olds receiving special-education services. In the first stage, a national sample of local education agencies (LEAs) was selected. In the second-stage, a sample of preschoolers with disabilities was selected from lists of eligible children provided by the participating LEAs. The National Center for Special Education Research collected data on the characteristics of children receiving preschool special education, the services they received, their transitions across educational levels, their experiences with peer victimization, and their performance over time on academic and adaptive-skills assessments. I describe the sample design in more detail in the next section (Sample Design).

The survey researchers conducted telephone interviews with parents of preschoolers with disabilities, one-on-one assessments of children participating in the study, and mail surveys with the children’s teachers and other service providers, school principals, district administrators, and state-education-agency administrators (Markowitz et al., 2006). In the 2003–2004 and 2004–2005 school years, 3,104 families of preschoolers with disabilities were recruited through 232 school districts nationwide. Once children were sampled from lists, recruitment packets were sent to the district site coordinators. Site coordinators were responsible for determining if sampled children were eligible and, if so, invited their parents or guardians to participate in PEELS. Each
recruitment packet included a two-part enrollment form, a PEELS brochure, a cover letter explaining the study, a PEELS magnet, and a postage-paid envelope addressed to Westat, the firm responsible for conducting and overseeing data collection. Part 1 of the PEELS enrollment form included eight questions and was typically filled out by the district’s site coordinator before inviting the family to participate in the study. Five of the eight questions asked the site coordinators for nonidentifying information for each child sampled. Westat collected these data to test for differences between families that agreed and declined to participate in PEELS. The remaining three questions on the enrollment form were used to determine the eligibility of each family selected. PEELS had three eligibility criteria: (a) district of residence, (b) ability of adult family member to complete a phone interview, and (c) a limit of one child per family participating in PEELS (Markowitz et al., 2006).

According to Markowitz et al, eighty-eight percent of the families were found eligible and were given recruitment materials, including a letter explaining the study, the PEELS brochure, and a reminder magnet. The site coordinator informed the family that PEELS is a longitudinal study, that participation is voluntary, and that they could drop out at any time. Site coordinators stressed Westat’s commitment to confidentiality, ensuring the family that their identity would be protected and that only aggregate data would be reported. Among the eligible families, 80% agreed to participate in the telephone interview. Families that agreed to participate were asked to fill out the second part of the PEELS enrollment form, which asked for identifying information such as names, contact information, the type of services the child received, and the name of the child’s teacher or service provider. Once they submitted a signed consent form agreeing
to allow Westat to conduct the parent telephone interview, the child assessment, and the teacher/service-provider questionnaire, parents received $15. Site coordinators were paid $30 for each family they recruited. Data collection began in the fall of 2003 and was repeated in the winters of 2005, 2006, 2007, and 2009 (Markowitz et al., 2006).

**Sample design.** PEELS used a two-stage sample design. In the first stage, 2,752 LEAs representing local school districts were selected from the universe of 7,829 LEAs serving preschoolers with disabilities. To draw a nationally representative sample of LEAs from which to invite participation in PEELS, the sample was stratified by four Census regions, four categories of estimated preschool special-education enrollment, and four wealth classes defined on the basis of district poverty. In the second stage, a sample of preschoolers with disabilities was randomly selected from lists of eligible children provided by the participating LEAs (Markowitz et al., 2006).

The sample selected from the original sample design was called the main sample. To address concerns about nonresponse bias, a comprehensive nonresponse study was conducted. In Wave 1, Westat selected a sample of 32 LEAs from the 464 nonparticipating LEAs that SRI International originally contacted for recruitment. In addition, SRI International was able to recruit 25 different LEAs from the nonresponding sample to participate in the study, and these cases were added to the original main sample. This nonresponse study sample was roughly 10% of the size of the main LEA sample. Because the results of the nonresponse bias study showed no systematic differences between the respondents and nonrespondents, the two samples were combined into a single sample as if they had been selected as one (amalgamated sample). In addition, nonparticipation of one state because of a state ban (which will be referred to as “state
X”) in Wave 1 LEA recruitment created serious undercoverage for one region. To address this undercoverage, 24 additional LEAs were recruited in Wave 2 to include more districts from state X and 15 additional LEAs participated (supplemental sample; Carlson, Posner, & Lee, 2008a). Therefore the augmented sample is derived from an amalgamated sample by addition supplemental sample to address nonresponse bias and undercoverage. For more details on sample selection process, please see the Appendix A: Diagram of Selection of LEA Sample of PEELS Data. The present study also used the augmented sample as a study sample. Please see Appendix A: Diagram of Selection of LEA Sample of PEELS Data (Carlson et al., 2008b).

**Other PEELS group studies**

PEELS is part of a group of studies on the experiences, special services, and outcomes of children, youth, and young adults with disabilities. The remaining child-focused studies in this group were designed to address other age ranges between birth and early adulthood: NEILS (National Early Intervention Longitudinal Study), a study of early intervention for infants and toddlers; SEELS (Special Education Elementary Longitudinal Study), a study of elementary and middle-school age youth; and NLTS2 (National Longitudinal Transition Study-2), the second multiyear study of high-school age youth as they transition into adulthood. For more information, please see www.peels.org.

**The Study Sample**

**Identification of the Study Sample**

For this study, I utilized PEELS Restricted-Use datasets. The PEELS study includes four waves of data collection—the 2003–04, 2004–05, 2005–06, and 2008–2009
school years. In addition, the study included a longitudinal parent, assessment, and teacher sample for Waves 1-4 ($N = 1,268$). A complete demographic profile of the study sample is presented in Table 1 below.

Table 1

_Demographic Characteristics of Study Population_

<table>
<thead>
<tr>
<th>Child age</th>
<th>Frequency</th>
<th>%</th>
<th>Weighted frequency</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort A (age 3)</td>
<td>372</td>
<td>29.3</td>
<td>128,689</td>
<td>19.2</td>
</tr>
<tr>
<td>Cohort B (age 4)</td>
<td>487</td>
<td>38.4</td>
<td>269,421</td>
<td>40.2</td>
</tr>
<tr>
<td>Cohort C (age 5)</td>
<td>409</td>
<td>32.3</td>
<td>272,296</td>
<td>40.2</td>
</tr>
<tr>
<td>Total</td>
<td>1,268</td>
<td>100</td>
<td>670,406</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child Gender</th>
<th>Frequency</th>
<th>%</th>
<th>Weighted frequency</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>891</td>
<td>70.3</td>
<td>465,834</td>
<td>69.5</td>
</tr>
<tr>
<td>Female</td>
<td>377</td>
<td>29.7</td>
<td>204,572</td>
<td>30.5</td>
</tr>
<tr>
<td>Total</td>
<td>1,268</td>
<td>100</td>
<td>670,406</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child Race*</th>
<th>Frequency</th>
<th>%</th>
<th>Weighted frequency</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>1,136</td>
<td>89.6</td>
<td>598,165</td>
<td>89.2</td>
</tr>
<tr>
<td>Black</td>
<td>109</td>
<td>8.6</td>
<td>64,183</td>
<td>9.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>203</td>
<td>16</td>
<td>108,082</td>
<td>16.1</td>
</tr>
<tr>
<td>Other</td>
<td>96</td>
<td>7.6</td>
<td>53,103</td>
<td>7.9</td>
</tr>
<tr>
<td>Total</td>
<td>1,544</td>
<td>121.8</td>
<td>823,533</td>
<td>122.8</td>
</tr>
</tbody>
</table>

* If respondents says mixed race or bi or multiracial, they could answer all that apply.

<table>
<thead>
<tr>
<th>Child’s primary disability*</th>
<th>E/K</th>
<th>Frequency</th>
<th>%</th>
<th>Weighted frequency</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism</td>
<td>E</td>
<td>50</td>
<td>3.9</td>
<td>27,125</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>4</td>
<td>0.3</td>
<td>4,535</td>
<td>4.7</td>
</tr>
<tr>
<td>Deafness/blindness</td>
<td>E</td>
<td>1</td>
<td>0.1</td>
<td>109</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Deafness</td>
<td>E</td>
<td>3</td>
<td>0.2</td>
<td>1,324</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Condition</td>
<td>E</td>
<td>%</td>
<td>K</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------</td>
<td>-----</td>
<td>---------</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>Developmental delay</td>
<td>267</td>
<td>21.1</td>
<td>18</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Emotional disturbance / behavior disorder</td>
<td>11</td>
<td>0.9</td>
<td>3</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Hearing impairment</td>
<td>4</td>
<td>0.3</td>
<td>5</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Learning disability</td>
<td>11</td>
<td>0.9</td>
<td>5</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Mild mental retardation</td>
<td>14</td>
<td>1.1</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Moderate/severe mental retardation</td>
<td>14</td>
<td>1.1</td>
<td>1</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Multiple disabilities</td>
<td>3</td>
<td>0.2</td>
<td>3</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Orthopedic impairment</td>
<td>14</td>
<td>1.1</td>
<td>3</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Other health impairment</td>
<td>21</td>
<td>1.7</td>
<td>1</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Speech or language impairment</td>
<td>486</td>
<td>38.3</td>
<td>69</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Traumatic brain injury</td>
<td>4</td>
<td>0.3</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Visual impairment /blindness</td>
<td>1</td>
<td>0.1</td>
<td>2</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
<td>2.1</td>
<td>1</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Inapplicable</td>
<td>189</td>
<td>14.9</td>
<td>1,138</td>
<td>89.7</td>
<td></td>
</tr>
<tr>
<td>Not sure</td>
<td>5</td>
<td>0.4</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Not ascertained</td>
<td>144</td>
<td>11.4</td>
<td>15</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,268</td>
<td>100</td>
<td>670,406</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* * Teacher Questionnaire Wave 1. E = Early Childhood Teacher, K = Kindergarten Teacher. * Teacher Questionnaire Wave 2. E = Early Childhood Teacher, K = Kindergarten Teacher, L = Elementary Teacher (Carlson et al., 2008b)
Measures.

Predictors.

Child-level risk and protective factors. These risk factors refer to child-level risk and protective factors such as problem behaviors, language abilities, social skills, developmental delays or disabilities, and age.

Problem behaviors (continuous): To measure the problem behaviors of children with disabilities, PEELS used the PKBS-2 (Preschool and Kindergarten Behavior Scale, Second Edition), which was included in the Early Childhood Teacher and Kindergarten Teacher Questionnaires in the first year. The PKBS-2 (Merrell, 2008) was specifically designed to evaluate the social skills and problem behaviors of children ages 3 to 6. In the PKBS-2, the problem-behavior scale includes 42 items to measure the behaviors of children. The problem-behavior scale includes two subscales, externalizing problems and internalizing problems. The internalizing-problems scale includes two supplement subscales (social withdrawal and anxiety, or somatic problems), whereas the externalizing-problems scale includes three supplement subscales (self-centered–explosive, attention problems–overactive, and antisocial–aggressive (Merrell, 2008). Teachers were asked to rate how frequently the identified child exhibited a series of behaviors during the previous 3 months. The measurement scale consists of four points, labeled never, rarely, sometimes, and often. The standard scores for externalizing and internalizing problems are summed to create the problem-behaviors scale. The composite scores are then converted to composite standard scores. PKBS-2 standard scores are based on a distribution with a mean of 100 and a standard deviation of 15 (Merrell, 2008). The present study used the composite standard scores. The PEELS used the school-rater
form of this measure. The test developers reported Cronbach alpha coefficients of .93 to .95 on the problem behavior scale. The 3-week test-retest reliability for the problem behavior scale was in the .70 to .78 range (Carlson et al., 2008a).

Language ability (continuous): The Peabody Picture Vocabulary Test (PPVT) is a widely used test of receptive language. According to PEELS researchers, PEELS uses a psychometrically adapted and shortened version of the PPVT-III that was developed using item-response theory, which estimates two aspects of a test. First, it estimates the proficiency scores of each student. Second, it estimates how well a student will do on each item if the student is at a certain level of proficiency. This latter estimate is the “item response” of item-response theory. If the item-response functions of all items are known, the total score that a student will obtain when he or she is at a given level of proficiency can be predicted. These item responses are assumed to be constant from one sample to another in item-response theory. Because of this invariance of item responses across samples, if two groups are given the same set of items, then the proficiency scales can be linked (Carlson, Posner, & Lee, 2008b).

In PEELS, all children completed a core set of PPVT items. Based on their performance on the core items, they either took an easier, basal set of items; stopped after the core set; or took a more difficult (ceiling) set of items. This adaptation was based on the full-length PPVT III, as well as earlier work for the Head Start Family and Child Experiences Survey and Head Start Impact Study (HSIS; Carlson et al., 2008b). According to PEELS researchers, the 32-item PEELS PPVT was developed using the same approach used for the 40-item HSIS 2002 test. In selecting items for PEELS, the goal was to select a core set of items so 67% of the PEELS children (i.e., those scoring
within one standard deviation of the mean) would only need to be administered that core set of items (i.e., the core set alone would provide a good estimation of their skills).

Easier items on the PPVT were used in the basal set and harder items in the ceiling set. With these adjustments, PEELS Form A (for Wave 1) was constructed with 32 items, 14 core items, 8 basal items, and 10 ceiling items. Children’s scores on the various parts of the test were transformed into a single score and placed on a standardized scale with a mean of 100 and a standard deviation of 15 (Carlson et al., 2008b).

PEELS researchers reported that the standard version of the PPVT-III had high alternate form reliability for the standardized scores (.88 to .96). Split-half reliability coefficients were also high (.86 to .97). Test-retest reliability coefficients on the PPVT standard form were in the .90s (Dunn & Dunn, 1997). PPVT standard scores were generated for 2,352 PEELS participants in Wave 1 and 2,669 in Wave 2 (Carlson et al., 2008b).

Social skills (continuous): To measure the social skills of children with disabilities, the PKBS-2 (Preschool and Kindergarten Behavior Scale, Second Edition), which was included in the Early Childhood Teacher and Kindergarten Teacher Questionnaires in the first year, was used. The PKBS-2 (Merrell, 2002) was specifically designed to evaluate the social skills and problem behaviors of children ages 3 to 6. In the PKBS-2, the social-skills scale includes 34 items to measure children’s social skills. The social-skills scale includes three subscales: social cooperation (12 items describing cooperative and self-restraint behaviors), social interaction (11 items reflecting social initiation behaviors), and social independence (11 items reflecting behaviors that are important in gaining independence within the peer group). Sample items for social
cooperation include “Shares toys and other belongings” and “Follows rules.” Sample items for social interaction include “Invites other children to play” and “Participates in classroom or family discussions.” The sample items for social independence are “is accepted and liked by other children” and “is invited by other children to play.” The measurement scale consists of four points, labeled never, rarely, sometimes, and often. The standard scores for Social Cooperation, Social Interaction, and Social Independence are summed up to create the Social Skills scale. The composite scores are then converted to composite standard scores. The PKBS-2 standard scores are based on a distribution with a mean of 100 and a standard deviation of 15 (Merrell, 2002). The present study used the composite standard scores. Teachers were asked to rate how frequently the identified child exhibited a series of skills or behaviors, such as those noted above during the previous 3 months. This measurement scale consists of four points, labeled never, rarely, sometimes, and often (Merrell, 2002). PEELS used the school-rater form of this measure. Test developers reported Cronbach alpha coefficients of .96 for children 3 to 6 years of age on the social-skills scale. The 3-week test-retest reliability for the subscales of the social-skills scale ranged from .58 to .66 (Carlson et al., 2008a).

Child’s developmental delay or disability (categorical–dichotomous): Children’s developmental-delay status was measured by the answers to questions about the children’s disability or delay, included in the parent interview questionnaires in the first year. The question was, “Does (MacKinnon et al.) have a developmental delay or disability? For example, a delay in learning to talk or a problem understanding things.” The parents answered the question yes (coded 1) or no (coded 2). For the present analysis the variable was recoded as 0 for no and 1 for yes.
Child’s age (continuous): This variables was measured as the child’s age in months in the first wave of data collection.

*Family-level risk and protective factors.*

Family income (ordinal–dichotomous): Family income was measured by asking about total household income, which was included in the parent interview questionnaire. in the first year. Parents categorized their total household income as $25,000 or less (coded 1) or more than $25,000 (coded 2). For the present analysis, the variable was recorded as 0 and 1 (0 = less than $25,000, 1 = more than $25,000).

*School-level risk and protective factors.*

School setting (continuous): School setting was measured by the amount of school time per week spent in a regular or special-education classroom setting. The teachers answered the question, “Approximately how much school time per week does this child currently spend in a regular or special-education classroom in minutes?” The response was given in the amount of time in minutes. For this analysis, the minutes in the first year were used.

*Peer-relational risk and protective factor (mediator).*

Peer relationship difficulties (continuous): Peer relationship difficulties of children with disabilities were measured with three subquestions asking about children’s social relationships, which were included in the parent interview questionnaire. The scale was developed specifically for the present study (three items, \( \alpha = .74 \)). Items were rated using a 3-point Likert-type scale (1 = not like, 2 = a little like, 3 = very much like) and included “child takes turns,” “child has trouble making friends,” and “child has trouble playing with other children.” This scale does not use the same items as the social-skills
scale and measures different problems in relation to children’s peer relationships. The correlation between the social-skills and this scale was -0.3874.

**Gender (Moderator).**

Child’s gender: Child’s gender in the first year was used. For this analysis, the variable was recoded as 0 and 1 (0 = girl, 1 = boy).

The following table describes the independent variables’ mean and standard deviations or percentages.

Table 2.

**Descriptive Statistics of Main Variables (N = 1,268)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalizing problem behavior</td>
<td>95.68 (14.40)</td>
<td></td>
</tr>
<tr>
<td>Internalizing problem behavior</td>
<td>97.85 (15.07)</td>
<td></td>
</tr>
<tr>
<td>Receptive language ability</td>
<td>91.69 (15.43)</td>
<td></td>
</tr>
<tr>
<td>Social skills</td>
<td>98.36 (19.78)</td>
<td></td>
</tr>
<tr>
<td>Developmental delay or disability</td>
<td></td>
<td>74.2</td>
</tr>
<tr>
<td>Children’s age (months)</td>
<td>55.90 (8.71)</td>
<td></td>
</tr>
<tr>
<td>Family income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low income</td>
<td></td>
<td>27.5</td>
</tr>
<tr>
<td>High income</td>
<td></td>
<td>72.5</td>
</tr>
<tr>
<td>Regular education classroom setting</td>
<td>457.23 (649.13)</td>
<td></td>
</tr>
<tr>
<td>Special education classroom setting</td>
<td>418.90 (531.26)</td>
<td></td>
</tr>
<tr>
<td>Peer-relational difficulties</td>
<td>1.55 (1.84)</td>
<td></td>
</tr>
</tbody>
</table>
Dependent variable.

Peer victimization (ordinal): The peer-victimization experiences of children with disabilities were measured by three subquestions on the children’s preschool and school experiences; these questions were asked in the parent interview questionnaire. The scale was developed specifically for the present study (three items, \( \alpha = .62 \)). The questions were similar to the following example: “Has the child had any of the following things happen to him or her at his or her program(s)?” Under the main question, three subquestions asked about the child’s victimization in school settings: “Has he or she been bullied or picked on by other children?” (relational victimization); “Has he or she been physically attacked or involved in fights?” (physical victimization); and “Has he or she been teased or called names?” (verbal victimization). Parents could answer with yes (coded 1), no (coded 2), or not applicable (coded -1). The summed scores of those three subquestions ranged from 0 (no experience of peer victimization) to 3 (experienced all three types of peer victimization) and were used as a measurement for peer victimization of children with disabilities in school settings.

Hypotheses

This study was designed to expand our understanding of how children’s characteristics, family, and school factors are related to peer victimization through peer-relationship difficulties. In the hypothesized model, a variable (i.e., peer-relation difficulties) mediates the effect of independent variables (e.g., problem behaviors, language abilities, social skills), and the mediated effect depends on the level of a moderator (i.e., gender). Therefore, the meditational mechanism differs for subgroups of participants (i.e., boys and girls). Figure 2 shows the specific relationships.
Figure 2. Path diagram for a structural equation model for predicting probability of peer victimization for children with disabilities

The moderator for the analysis was gender (boys vs. girls). The mediator was peer-relation difficulties. Child-level risk and protective factors included age, developmental-delay status, internalizing and externalizing problem behaviors, language abilities, and social skills. Family-level risk factors included family income. School-level risk and protective factors included classroom setting (the amount of school time per week in regular education setting and in a special-education setting). Peer-level risk factors were measured with peer-relation difficulties.

I made the following hypotheses for this study.
Child characteristics.

1. Children with disabilities who have higher problem-behavior scores will be more likely to have poor social skills than children with disabilities who have lower problem-behavior scores (Berry & O'Connor, 2010).
   a) Hypothesis 1-1: Children with disabilities who have higher externalizing-problem scores will be less likely to have social skills than children with disabilities who have lower externalizing-problem scores.
   b) Hypothesis 1-2: Children with disabilities who have higher internalizing-problem scores will be less likely to have social skills than children with disabilities who have lower internalizing-problem scores.

2. Children with disabilities who have higher externalizing-problem scores will be more likely to have peer-relationship difficulties than children with disabilities who have lower externalizing-problem scores (Keane & Calkins, 2004).

3. Children with disabilities who have higher problem-behavior scores will be more likely to be victimized by peers than children with disabilities who have lower problem-behavior scores (Hodges et al., 1997).
   a) Hypothesis 3-1: Children with disabilities who have higher externalizing-problem scores will be more likely to be victimized than children with disabilities who have lower externalizing-problem scores.
b) **Hypothesis 3-2:** Children with disabilities who have higher internalizing-problem scores will be more likely to be victimized than children with disabilities who have lower internalizing-problem scores.

4. Children with disabilities who have higher receptive-language-ability scores will be more likely to have social skills than children with disabilities who have lower receptive-language-ability scores (Hart et al., 2004).

5. Children with disabilities who have higher receptive-language-ability scores will be less likely to have peer-relationship difficulties than children with disabilities who have lower receptive-language-ability scores (Luciano & Savage, 2007).

6. Children with disabilities who have higher receptive-language-ability scores will be less likely to be victimized by peers than children with disabilities who have lower receptive-language-ability scores (Luciano & Savage, 2007).

7. Children with disabilities who have higher social-skills scores will be less likely to have peer-relationship difficulties than children with disabilities who have lower social-skills (Perren & Alaska, 2006).

8. Children with developmental delays or disabilities will be more likely to have problem behaviors and poor receptive-language skills than their nondelayed counterparts (Baker et al., 2003).

9. Children with developmental delays or disabilities will be more likely to have peer-relationship difficulties than their nondelayed peers (Guralnick et al., 2006).
10. Older children with disabilities will be more likely to be victimized by peers than younger children (Hanish et al., 2005; Nansel et al., 2001).

**Family factors.**

11. Children with disabilities who have a lower family income will be more likely to have externalizing problem behaviors and poor receptive-language ability than children with disabilities who have a higher family income (Parish & Cloud, 2006).

12. Children with disabilities who have a lower family income will be more likely to be victimized than children with disabilities who have a higher family income (Barker et al., 2008).

**School factors.**

13. Children with disabilities who spend more time in special-education classrooms will be more likely to have problem behaviors and receptive-language impairment than those in regular classroom settings.

14. Children with disabilities who spend more time in special-education classrooms will be more likely to be victimized than those in regular classroom settings (Rose et al., 2009).

**Mediator (Peer-relational factors).**

15. Children with disabilities who have higher scores of peer-relationship difficulties will be more likely to be victimized by peers than children with disabilities who have lower scores of peer-relationship difficulties (Hanish et al., 2005).
16. Children’s peer-relationship difficulties will mediate the relationship between children’s characteristics (e.g., problem behaviors, language abilities, social skills, age, and developmental delays) and peer victimization (Schwartz et al., 1999).

17. Children’s peer-relationship difficulties will mediate the relationship between children’s family factors (e.g., family income) and peer victimization.

18. Children’s peer-relationship difficulties will mediate the relationship between school factors (e.g., classroom settings) and peer victimization.

**Moderated mediation (gender).**

19. Child gender will moderate the meditational relationships above (Walker, 2005).

   a) *Hypothesis 19-1*: The effect of children’s externalizing problem behaviors will be negatively related to their social skills and positively related to their peer-relationship difficulties, which in turn will affect their experience of peer victimization, but only for boys (Baillargeon et al., 2007).

   b) *Hypothesis 19-2*: The effect of children’s social skills will be negatively related to their peer-relationship difficulties, which in turn will affect their experience of peer victimization, but only for girls (Odom et al., 2008).

**Analysis**

Focusing on children with disabilities from the preschool to early-elementary school years, this study examined the prevalence and types of the peer victimization among young children with disabilities from Waves 1 to 3, the associations among each
type of peer victimization (including physical, relational, and verbal), and the pathways to the peer victimization among young children with disabilities across Waves 1 to 3 ($N = 1,268$). The linkages between the characteristics associated with disabilities (i.e., problem behaviors, language ability) at Wave 1, peer-relation difficulties at Wave 2, and peer victimization at Wave 3 were examined using a path analysis.

The PEELS dataset uses complex sample designs such as poststratification whenever possible to enhance the precision of the survey estimates (Carlson et al., 2008b). Poststratification is a commonly used technique for improving the efficiency of estimators. Survey weights are adjusted to force the estimated numbers of units in each of a set of estimation cells to be equal to known population totals. The resulting weights are then used in forming estimates of means or totals of variables collected in the survey. Software packages such as SAS, SPSS, and Stata have add-ons to analyze complex survey data incorporating the survey weights in point and variance estimation. I conducted statistical analyses with Stata 10.0 to account for the complex probability sampling used in PEELS (i.e., jackknife variance estimator) and included descriptive statistics, crosstabs, and Pearson correlations.

The present study conducted univariate analyses to examine the appropriateness of the variable distribution for analysis. The distribution of the dependent variable (i.e., peer victimization) was positively skewed, with a mass of cases at zero. To make the distribution more normal, I conducted the transformation process by selecting the appropriate transformation (i.e., square root) and then using the transformed dependent variable as the final dependent variable. Univariate analysis was also conducted to determine prevalence in the population. Then, I conducted pearson correlations and
checked whether any multicolinearity existed. There was no multicolinearity problem. In addition, I conducted cross-tabulations to examine the associations among each type of peer victimization (e.g., physical, relational, and verbal).

Statistical analyses also included a path analysis, a subset of structural equation modeling (SEM) with AMOS 17.0. SEM can estimate different types of causation simultaneously in a multivariable, multiwave model, can account for measurement error within and over time, and can control for various methodological and third-variable problems (Byrne, 2009). Specifically, a path analysis allows the simultaneous modeling of several related regression relationships. Its aim is to provide estimates of the magnitude and significance of the hypothesized causal connections between sets of variables. I performed the path analysis using a complete-case approach, meaning that I used all cases with complete data for the analysis ($N = 1,126$).

Model fit was determined by using a combination of absolute, incremental, and noncentrality-based indices. The absolute fit indices included the chi-square test ($\chi^2$), the Goodness of Fit Index (GFI), and the Root Mean Square Residual (RMR); incremental fit indices included the Incremental Fit Index (IFI); noncentrality-based indices included the Root Mean Square Error of Approximation (RMSEA) and the Comparative Fit Index (CFI) as suggested by Munro (2005). A nonsignificant chi-square is an indication of fit because the researcher seeks to confirm the null hypothesis (i.e., there is no difference between the data and the model). The most commonly used fit indices, GFI, CFI, and IFI, have values between 0 and 1, with a value greater than .90 indicating a good fit. The RMR and RMSEA are two other measures of fit that range from 0 to 1, but in contrast to the GFI, CFI, and IFI, the closer these indices are to zero, the better. Values greater
than .10 justify rejecting the model, and values less than .05 indicate a good fit (Munro, 2005). Munro recommends that a variety of fit indices (e.g., absolute, incremental, and noncentrality-based indices) be used so that the weakness of a particular index is offset by the strength of another. Therefore, I used all of the indices mentioned above to measure model fit.

Time 1 income (dummy variable), Time 1 age, Time 1 classroom setting, Time 1 developmental delay (dummy variable), Time 1 children’s problem behaviors (externalizing and internalizing behaviors), Time 1 language ability, Time 2 children’s social skills, and Time 2 peer-relation difficulties were introduced into the panel model as predictors of Time 3 peer victimization. Time 1 income (dummy variable), Time 1 age (in months), Time 1 classroom setting, and Time 1 developmental delay (dummy variable) were labeled as exogenous variables (Bollen, 1989), and all other variables were labeled as endogenous variables (e.g., peer victimization, peer-relationship difficulties, social skills, externalizing and internalizing behaviors, language ability). To test whether the model fit the data equally for boys compared to girls, I also performed two sets of multigroup analyses after conducting a subpopulation analysis for boys and girls.

**Human Subject Research Review**

A request for exemption from a full Institutional Review Board (IRB) review was submitted to the Rutgers University IRB after obtaining the Institute of Education Sciences Restricted Data License. The present study used the restricted-use data, which requires a regular faculty member to serve as Principal Investigator. Professor Allison Zippay, director of the doctoral program and a member of the dissertation committee, served as the Principal Investigator for this dissertation research. The Rutgers Office of
Research and Sponsored Programs approved the exemption from a full IRB review (as of Feb 2, 2009, P.I. Name: Dr. Zippay, exempt category 3).
Chapter 4: Results

This chapter presents the results of the statistical analyses of the prevalence rates and nature of peer victimization among a nationally representative sample of pre-elementary children with disabilities in a school setting, ages 3-5. The chapter also presents the results of a path analysis, including a summary of early risk and protective factors for peer victimization and a multigroup path analysis to examine potential differences between boys and girls.

Prevalence of Peer Victimization

The prevalence of peer victimization reported by parents among pre-elementary children with disabilities who were receiving special-education services at Year 1, Year 2, and Year 3 were examined. The findings showed that the overall prevalence of peer victimization increased substantially over time, from 21% in Year 1 to 25% in Year 2 to 30% in Year 3. Figure 3 reports the prevalence of peer victimization in all 3 years by the type of victimization (physical, relational, or verbal). In Year 1, the most common type was relational victimization, which indicated that the child had been bullied or picked on by other children. In Years 2 and 3, the most common type was verbal victimization, meaning that the child had been teased or called names at school. The rates of other types of peer victimization did not change much across the 3 years. For instance, physical victimization demonstrated a small decrease over the study period, with rates at 10% in Year 1, 9% in Year 2, and 9% in Year 3. Relational-victimization rates were 12% (Year 1), 13% (Year 2), and 13% (Year 3), indicating a small percentage increase over time. Verbal-victimization rates had the highest percentage increase over the 3 years, moving from 9% (Year 1) to 16% (Year 2) and then to 24% (Year 3).
Figure 3. The nature of peer victimization: Prevalence of peer victimization by types. \( N = 1,268 \) (unweighted count). Questions: physical victimization (i.e., Had he/she been physically attacked or involved in fights?), relational victimization (i.e., Had he/she been bullied or picked on by other children?), verbal victimization (i.e., Had he/she been teased or called names?).

Figure 4 shows the most common pattern of peer victimization of pre-elementary children with disabilities. The findings show that most children with disabilities in the present study experienced only one type of peer victimization (either physical attack, bullying, or teasing) and that the prevalence of peer victimization increased for all cases (i.e., one type, two types, and all three types) over time. In addition, 2 to 4% of these children experienced all three types of school-based peer victimization.
Figure 4. The nature of peer victimization: Prevalence of peer victimization by pattern. \( N = 1,268 \) (unweighted count). One type means that the child had experienced only one type of peer victimization (i.e., either physical, relational, or verbal). Two types means that the child had experienced two types of peer victimization (e.g., physical and verbal). All three types means that the child had experienced all three types of peer victimization (i.e., physical, relational, and verbal)

Table 3 presents the association between physical and relational peer victimization across the three years among the pre-elementary children with disabilities. For example, at Year 1, the percentage of experiencing physical victimization was higher (i.e., 38%) among pre-elementary children who had experienced relational victimization compared to pre-elementary children who had had no such experience (i.e., 6%). At Years 2 and 3, the associations of physical and relational victimization showed the same patterns (i.e., 28% vs. 5% and 39% vs. 4%, respectively), which indicates that the percentage of experiencing physical victimization was higher among children who also experienced relational victimization at Times 2 or 3 compared to children who had had no such experience.
Table 3

The Nature of Peer Victimization: Cross-tabulation of Physical and Relational Peer Victimization

<table>
<thead>
<tr>
<th>Physical Victimization</th>
<th>Relational Victimization</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (weighted %)</td>
<td>No (weighted %)</td>
</tr>
<tr>
<td>Year 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>60 (38)</td>
<td>63 (6)</td>
</tr>
<tr>
<td>No</td>
<td>98 (62)</td>
<td>1,047 (94)</td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>52 (28)</td>
<td>63 (5)</td>
</tr>
<tr>
<td>No</td>
<td>103 (72)</td>
<td>1,050 (95)</td>
</tr>
<tr>
<td>Year 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62 (39)</td>
<td>58 (4)</td>
</tr>
<tr>
<td>No</td>
<td>103 (61)</td>
<td>1,045 (96)</td>
</tr>
</tbody>
</table>

*Note.* ***p < .001, N = 1,268 (unweighted count). For the analysis of a two-way table based on complex survey data, Wald statistic has been used. The Wald statistic is usually converted to an F statistic to determine the p value (Lee & Forthofer, 2006).

Questions: physical victimization (i.e., Had he/she been physically attacked or involved in fights?), relational victimization (i.e., Had he/she been bullied or picked on by other children?).

Table 4 presents the association between physical and verbal peer victimization across the 3 study years among the pre-elementary children with disabilities. For example, at Year 1, the percentage of experiencing physical victimization was higher (i.e., 25%) among pre-elementary children who had experienced verbal victimization compared to pre-elementary children who had had no such experience (i.e., 8%). At Years 2 and 3, the associations of physical and relational victimization showed the same patterns (i.e., 20% vs. 6% and 21% vs. 4%, respectively), which indicates that the percentage of pre-
elementary children experiencing physical victimization was higher among young children who also experienced verbal victimization at Times 2 or 3 compared to young children who had had no such experience.

Table 4

The Nature of Peer Victimization: Cross-tabulation of Physical and Verbal Peer Victimization

<table>
<thead>
<tr>
<th>Physical Victimization</th>
<th>Verbal Victimization</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (weighted %)</td>
<td>No (weighted %)</td>
</tr>
<tr>
<td>Year 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>37 (25)</td>
<td>86 (8)</td>
</tr>
<tr>
<td>No</td>
<td>82 (75)</td>
<td>1,063 (92)</td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>54 (20)</td>
<td>61 (6)</td>
</tr>
<tr>
<td>No</td>
<td>153 (80)</td>
<td>1,000 (94)</td>
</tr>
<tr>
<td>Year 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>70 (21)</td>
<td>50 (4)</td>
</tr>
<tr>
<td>No</td>
<td>234 (79)</td>
<td>914 (96)</td>
</tr>
</tbody>
</table>

Note. *** = p < .001, N = 1,268 (unweighted count). For the analysis of a two-way table based on complex survey data, Wald statistic has been used. The Wald statistic is usually converted to an F statistic to determine the p value (Lee & Forthofer, 2006).

Questions: physical victimization (i.e., Had he/she been physically attacked or involved in fights?), verbal victimization (i.e., Had he/she been teased or called names?).

Table 5 presents the association between relational and verbal peer victimization across the 3 years among the pre-elementary children with disabilities. For example, at Year 1, the percentage of children experiencing relational victimization was higher among pre-elementary children who had experienced verbal victimization (48%) than
among pre-elementary children who had no such experience (9%). At Years 2 and Year 3, the associations of relational and verbal victimization showed the same patterns (i.e., 41% vs. 7% and 38% vs. 4%, respectively), which indicates that the percentage of children experiencing relational victimization was higher among young children who also experienced verbal victimization at Times 2 or 3 compared to young children who had had no such experience.

Table 5

The Nature of Peer Victimization: Cross-tabulation of Relational and Verbal Peer Victimization

<table>
<thead>
<tr>
<th>Relational victimization</th>
<th>Verbal Victimization</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (weighted %)</td>
<td>No (weighted %)</td>
</tr>
<tr>
<td>Year 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62 (48)</td>
<td>96 (9)</td>
</tr>
<tr>
<td>No</td>
<td>57 (52)</td>
<td>1,053 (91)</td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>99 (41)</td>
<td>67 (7)</td>
</tr>
<tr>
<td>No</td>
<td>108 (59)</td>
<td>994 (93)</td>
</tr>
<tr>
<td>Year 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>122 (38)</td>
<td>43 (4)</td>
</tr>
<tr>
<td>No</td>
<td>182 (62)</td>
<td>921 (96)</td>
</tr>
</tbody>
</table>

Note. ***p < .001, N = 1,268 (unweighted count). For the analysis of a two-way table based on complex survey data, Wald statistic has been used. The Wald statistic is usually converted to an F statistic to determine the p value (Lee & Forthofer, 2006).

Questions: relational victimization (i.e., Had he/she been bullied or picked on by other children?), verbal victimization (i.e., Had he/she been teased or called names?)
Overall, the experience of one type of peer victimization (e.g., physical, relational, and verbal victimization) was associated with a significantly higher rate of experiencing another type of peer victimization when compared to those who experienced no peer victimization across all 3 years.

**Path Model: Mediation**

Figure 5 presents the path model tested in this study. The hypothesized model was found to fit the sample well ($\chi^2[30] = 107.9, p = .000; \text{GFI} = .98; \text{CFI} = .96; \text{IFI} = .96; \text{RMSEA} = .048$) and accounted for 21% of the variance in peer-relation difficulties and 6% of the variance in peer victimization. The path coefficients in Figure 5 represent statistically significant standardized beta weights. The SEM results indicated that children’s peer-relation difficulties were positively related to peer victimization; specifically, children who had more peer-relational difficulties tended to have more peer-victimization experiences.

In terms of the effects of children’s individual characteristics on peer victimization, I first examined the effects of children’s problem behaviors. I hypothesized that children with disabilities who had higher externalizing and internalizing scores would be more likely to have poor social skills than children with disabilities who had lower problem-behavior scores (Hypothesis 1). The results supported this hypothesis for both types of problem behaviors. Higher externalizing-problem scores were a significant direct predictor of poor social skills ($\beta = -.24, p < .001$), and higher internalizing-problem scores were a significant direct predictor of poor social skills ($\beta = -.10, p < .001$). Children with disabilities with higher externalizing and internalizing scores were had poorer social skills than children with disabilities with lower scores. The current study
also hypothesized that children with disabilities who had higher externalizing-behavior scores would be more likely to have peer-relationship difficulties than children with disabilities who had lower externalizing scores (Hypothesis 2) and the results supported this hypothesis. Higher externalizing problem scores was a significant predictor of peer-relationship difficulties ($\beta = .22, p < .001$). Children with disabilities with higher externalizing scores were more likely to have peer-relational difficulties than similar children with lower scores. I also hypothesized that children with disabilities who had higher externalizing and internalizing problem behaviors would be more likely to be victimized by peers than children with disabilities who had lower problem behaviors (Hypothesis 3). The results did not support Hypothesis 3: Higher externalizing and internalizing problem behavior scores were not significant predictors of peer victimization.

Another main area of focus for the present study was the effects of children’s receptive-language ability on peer victimization. The present study hypothesized that children with disabilities with higher receptive-language-ability scores would have stronger social skills than children with lower receptive-language scores (Hypothesis 4), and the results supported this hypothesis. Higher receptive-language scores were a significant predictor of higher social-skills scores ($\beta = .25, p < .001$). Children with disabilities with higher receptive-language-ability scores had higher social skills than children with lower scores. The present study also hypothesized that children with disabilities with higher receptive-language scores would be less likely to have peer-relationship difficulties than similar children with lower scores (Hypothesis 5). The results did not support Hypothesis 5: Higher receptive-language-ability scores were not a
significant predictor of peer-relationship difficulties. I also hypothesized that children with disabilities with higher receptive-language scores would be less likely to be victimized by peers than children with lower scores (Hypothesis 6). The results did not support Hypothesis 6. Specifically, although higher receptive-language scores were a significant predictor of peer victimization ($\beta = .13, p < .001$), the results showed a trend in the opposite direction. That is, children with disabilities who had higher receptive-language scores were more likely to be victimized by peers than children with disabilities with lower scores.

Third, the present study examined the effects of children’s social skills on peer victimization. The present study hypothesized that children with disabilities who had higher social-skill scores would be less likely to have peer-relationship difficulties than similar children with lower scores (Hypothesis 7). The results supported this hypothesis. Higher social-skill scores significantly predicted peer-relationship difficulties ($\beta = -.29, p < .001$). Children with disabilities with higher social-skill scores were less likely to have peer relational difficulties than children with lower scores.

Another area of analysis was the effects of children’s developmental delay on peer victimization. I hypothesized that children with developmental delays or disabilities would be more likely to have problem behaviors and poor receptive-language skills than children without developmental delays or disabilities (Hypothesis 8), and this was indeed supported by the model. The status of children’s developmental delays or disabilities was a significant predictor of their externalizing problem behaviors ($\beta = .13, p < .001$), their internalizing problem behaviors ($\beta = .18, p < .001$), and their receptive-language skills ($\beta = -.22, p < .001$), meaning that children with disabilities were more likely than their
nondelayed peers to have receptive-language deficits and both kinds of behavior problems. In addition, I hypothesized that children with disabilities would be more likely to have peer-relation difficulties than their nondelayed peers (Hypothesis 9), and this was supported by the model. Developmental disabilities were a significant predictor of peer-relation difficulties ($\beta = .13, p < .001$): Children with disabilities were more likely to have peer-relation difficulties than their nondelayed peers.

The final child characteristic in the model was child’s age. The current study hypothesized that older children with disabilities would be more likely to be victimized by peers than younger children (Hypothesis 10) and the results did not support Hypothesis 10. Age was not a significant predictor of peer victimization of the present group of children with disabilities.

In terms of the effects of family factors on peer victimization, I examined the effects of children’s family income on peer victimization. I hypothesized that children with disabilities with lower family income would be more likely to have externalizing problem behaviors and poor receptive-language ability than similar children with disabilities with higher family income (Hypothesis 11) and this was supported by the model. Children’s family income was a significant predictor of externalizing problem behaviors ($\beta = -.11, p < .001$) and receptive-language skills ($\beta = .17, p < .001$). Children with disabilities with lower family income were more likely to have externalizing problem behaviors and poor receptive-language ability than children with disabilities with higher family income. The present study also hypothesized that children with disabilities with lower family income would be more likely to be victimized than similar children with higher family income (Hypothesis 12), and this was supported by the model.
Children’s family income was a significant predictor of peer victimization of children with disabilities ($\beta = -0.13, p < .001$). Thus, children with disabilities who had lower family income would be more likely to be victimized than children with disabilities who had higher family income.

To examine the effects of school factors on peer victimization, I examined the effects of children’s classroom setting on peer victimization. The present study hypothesized that children with disabilities who spent more time in special-education classrooms would be more likely to have problem behaviors and receptive-language impairments than those in regular classroom settings (Hypothesis 13), and this was supported by model. The amount of school time per week that children with disabilities spent in special-education settings was a significant predictor of externalizing problem behaviors ($\beta = .19, p < .001$), internalizing problem behaviors ($\beta = .13, p < .001$), and receptive-language skills ($\beta = -.24, p < .001$), with higher amounts of hours predicting more negative outcomes in all three areas. The current study also hypothesized that children with disabilities who spent more time in special-education classrooms would be more likely to be victimized than those in inclusive classroom settings (Hypothesis 14). This hypothesis was not supported by the model. The amount of school time per week spent by children with disabilities in a special-education setting was not a significant predictor of peer victimization among these children.
Figure 5. Standardized parameter estimates for the final model. $N = 1,126$. For simplicity, nonsignificant paths, intercorrelations among the exogenous variables, and error variance estimates are not shown. **$p < .01$, ***$p < .001$. 
To test the mediational effects of child characteristics, family, and school factors on peer victimization, I conducted bootstrap standard errors and significance tests for examining the total direct and indirect mediational effects. Table 6 presents the total effect and the direct and indirect mediational effects of each predictor. First, I hypothesized that children with disabilities with higher peer-relational-difficulty scores would be more likely to be victimized by peers than children with disabilities who had lower peer-relational difficulties (Hypothesis 15). This was supported by the path model. Specifically, peer-relational difficulties were a significant direct predictor of peer victimization ($\beta = .18$, $p < .001$), with higher peer-relational difficulties being related to greater peer victimization for children with disabilities.

Relatively, I hypothesized that children’s peer-relational difficulties would mediate the relationship between children’s individual characteristics and peer victimization (Hypothesis 16), and this was partially supported by the results. The indirect effect of developmental delays on peer victimization was $r = .006$ and was not statistically significant ($p = .537$). However, other predictors such as children’s externalizing and internalizing problem behaviors, receptive-language ability, and social skills were indirectly related to peer victimization. First, the indirect effect of externalizing problem behaviors on peer victimization was $r = .05$ and was significantly mediated by the theoretical pathways ($p < .01$). Second, the indirect effect of internalizing problem behaviors on peer victimization was $r = .005$ and was significantly mediated by the theoretical pathways ($p < .01$). Third, the total effect of receptive language on peer victimization was $r = .117$, $p < .001$, which was the combination of the direct (.13) and the indirect (-.013) effects. Finally, the indirect effect of receptive language ability on
peer victimization was significantly mediated by the theoretical pathways ($p < .01$). However, this effect was only partially mediated because the direct effect of receptive-language ability on peer victimization remained statistically significant ($p < .01$). The indirect effect of social skills on peer victimization was $r = -.052$ and was significantly mediated by the theoretical pathways ($p < .01$).

As another mediational test, I hypothesized that children’s peer-relation difficulties would mediate the relationship between children’s family characteristics (e.g., family income) and peer victimization (Hypothesis 17), and this was partially supported by the results. Children’s family income was directly and negatively related to peer victimization and affected peer victimization indirectly through its effect on peer-relation difficulties. The total effect of family income on peer victimization was $r = -.12$, $p < .01$, which was the combination of the direct effect ($-.134$) and the indirect effect ($0.014$). The indirect effect of family income on peer victimization was significantly mediated by the theoretical pathways ($p < .01$). Specifically, children with low-family income were more likely to have externalizing problem behaviors and less likely to have receptive-language abilities, which in turn were all related to having fewer social skills, increased peer-relational difficulties, and were directly linked to peer victimization. However, the family-income effect was only partially mediated because the direct effect of family income on peer victimization also statistically significant ($p < .01$).

Finally, the present study hypothesized that children’s peer-relation difficulties would mediate the relationship between school factors (e.g., classroom settings) and peer victimization (Hypothesis 18), and this was supported by the results. The indirect effect of the special-education setting on peer victimization was $r = -.018$, and this effect was
significantly mediated by the theoretical pathways ($p < .05$). In particular, the special-education setting affected peer victimization indirectly through its effect on children’s peer-relation difficulties. Specifically, children who spent more time in special-education settings had higher externalizing and internalizing problem-behavior scores and lower receptive-language scores, and in turn these patterns were related to fewer social skills and more peer-relation difficulties and, finally, were directly linked to peer victimization. Overall, the path model provided evidence of partial mediation of the link between family income and peer victimization and full mediation of the link between the special-education classroom setting and peer victimization through peer-relation difficulties.
Table 6

*The Total, Direct, and Indirect Mediation Effects of Each Predictor on Peer Victimization*

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Predetermined variable</th>
<th>Total effect</th>
<th>Indirect social skills</th>
<th>Effects via peer-relation difficulties</th>
<th>Direct effect</th>
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<td></td>
<td>-.111</td>
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<td>.191</td>
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<td>.135</td>
<td></td>
<td></td>
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<tr>
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<td>Special edu classroom setting</td>
<td>.129</td>
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<tr>
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<td>.183</td>
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<td>.183</td>
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<td>.169</td>
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**Path Model: Moderated Mediation**

To test whether gender moderated the relationships in the model, I compared a multigroup model (Model 1), in which all parameters were constrained to have equal values for both boys and girls, to an unconstrained multigroup model (Model 2), in which all parameters were free to vary between groups. The chi-square difference test between Model 1 and Model 2 served as a simultaneous multivariate test for whether gender moderated any relationships or other parameters in the model. Model 1 (the constrained model) provided an acceptable fit to the data according to most of the fit indices, $\chi^2(107) = 303.81, p = .000$; CFI = .91; IFI = .91; RMSEA = .04. However, there was still room for improvement, as indicated by the significant goodness-of-fit test results. Model 2 (the unconstrained model) provided a better fit to the data, $\chi^2(60) = 163.24, p = .000$; CFI = .95; IFI = .95; RMSEA = .04, and was in fact a substantial improvement over Model 1 according to a chi-square difference test, $\chi^2(47) = 140.57, p = .000$. Thus, removing the cross-group equality constraints revealed that gender moderated at least one parameter in the model. Figure 8 presents the parameter estimates for Model 2 (unconstrained model) because the Model 2 provided a better fit to the data.

To identify exactly which parameters were moderated by gender, unstandardized estimates from Model 2 were used because the comparison of interest was across groups (Klein, 2005) and because there was support for a moderation effect when the path coefficient was significant for one group but not the other.

Finally, I hypothesized that children’s gender would moderate the above-mentioned meditational relationships (Hypothesis 19). In particular, I expected that the effect of externalizing problem behaviors would be negatively related to boys’ social
skills and positively related to their peer-relationship difficulties, which would then affect their experiences of peer victimization (but not for girls; Hypothesis 19-1). For girls, I expected that the effect of social skills would be negatively related to their peer-relation difficulties, which would then affect the peer victimization experiences of girls (but not boys; Hypothesis 19-2). The results partially supported Hypothesis 19. That is, gender moderated the relationships between peer victimization and child characteristics, family factors, school factors, and peer-relational factors. However, the ways in which gender moderated these relationships differed from the hypotheses. The paths from receptive-language ability to peer victimization and from developmental delay to internalizing problem behaviors were not significant for girls. In other words, receptive-language ability was a significant direct predictor of peer victimization for boys, but not for girls. As a process difference, developmental delay was a significant predictor of internalizing problem behaviors for boys, but not for girls.
Figure 3. Path diagram for multigroup structural equation model for boys and girls. A) Boys \((N = 788)\), B) Girls \((N = 338)\). Because the comparison of interest is across groups, unstandardized parameter estimates are shown. For simplicity, nonsignificant paths, intercorrelations among the exogenous variables, and error variance estimates are not shown. \(*p < .05\), \(**p < .01\), \(***p < .001\).
Chapter 5: Discussion

Discussion

The purpose of this study was to examine the prevalence rates and nature of peer victimization in a nationally representative sample of pre-elementary children receiving special-education services and to test a path model that included early risk and protective predictors of peer victimization. The results on peer victimization showed that the overall prevalence substantially increased over the 3 study years (21% at Year 1, 25% at Year 2, and 30% at Year 3). Previous national studies have indicated that approximately 30% of American students had been bullied at school and 10% to 15% of students had experienced chronic victimization (Dinkes et al., 2009; Juvonen & Graham, 2001; Wang et al., 2009). Specifically, previous empirical studies on individual subgroups of peer victimization, in particular victimization of students with disabilities, revealed that these students were at higher risk (e.g., excess of 50%) for victimization than typically developing children (Rose et al., 2010). According to a recent study that examined rates of bullying and fighting perpetration and victimization among middle-school students \(n = 7,331\) and high-school students \(n = 14,315\) within special-education programs, 18.5% of students with disabilities in inclusive settings and 21.7% of students with disabilities in self-contained settings had been bullied at school (Rose et al., 2009). The present study shows similarly high rates of peer victimization. The findings also provide clear evidence that substantial rates of peer victimization take place among children with disabilities, even at a very young age, and this tends to increase over time.

The analyses also revealed the most common types of peer victimization and the highest rates of comorbidity among each type of peer victimization (e.g., physical and
relational, physical and verbal, relational and verbal) among pre-elementary children with disabilities who had experienced peer victimization. First, at Year 1, the most common type of peer victimization was relational victimization (i.e., Has the child been bullied or picked on by other children?), and at Years 2 and 3, the most increased and common type of peer victimization was verbal victimization (i.e., Has the child been teased or called names at school?). For, physical victimization (i.e., Has the child been physically attacked or was he or she involved in fights?), the rates were 10% at Year 1, 9% at Year 2, and 9% at Year 3. Relational-victimization rates (i.e., Has the child been bullied or picked on by other children?) were 12%, 13%, and 13% over the 3 study years. Verbal victimization (i.e., Has the child been teased or called names?) showed the highest change over the study years, from 9% in Year 1 to 16% in Year 2 to 24% in Year 3. Previous studies on the rates of each type of peer victimization of youth suggested that the most frequent forms of peer victimization were relational, verbal, and physical, respectively (Felix & MacMahon, 2006; Wang et al., 2009). The present study shows similar patterns; however, it is interesting that the type of peer victimization that increased most was verbal victimization. This seems to indicate that the majority of studies on victimization of students with disabilities have documented increases in verbal abuse (e.g., name-calling, mimicking disability characteristics, teasing), and this is experienced at higher rates when compared to peers without disabilities (Rose et al., 2010).

Second, most young children with disabilities experienced only one type of peer victimization (either physical, relational, or verbal), and the prevalence of peer victimization increased for all case types (i.e., one type, two types, and all three types)
across the 3 study years. In addition, 2% to 4% of young children with disabilities experienced all three types of peer victimization in schools. Unlike some previous studies that have found that the majority of students’ experience multiple types of peer victimization at school (e.g., Felix & McMahon, 2006), the present study shows that most children with disabilities (12% to 18%) experienced only one type of peer victimization, although 7% to 8% of children with disabilities experienced two types of peer victimization, and 2% to 4% of children with disabilities experienced all three types of peer victimization at school. In short, the results showed that multiple types of peer victimization continue to be a problem among pre-elementary children with disabilities.

Third, the experience of one type of peer victimization was associated with a significantly higher rate of experiencing other types of victimization. For example, the percentage of experiencing physical victimization was higher (38%) among children who had experienced relational victimization compared to children with no such experience (6%). The interrelatedness was significant for all combinations of victimization across all 3 years. These results indicate that different types of peer victimization appear to co-occur among young children with disabilities. Empirical evidence has indicated that different types of victimization are highly correlated and that the same individuals may be victimized in multiple ways (Nylund et al., 2007; Wang, Iannotti, Luk, & Nansel, 2010). In addition, research suggests that the associations among verbal and relational types of victimization are highly correlated, and if a student is victimized by physical bullying, it is very likely that he or she is also victimized by verbal and relational bullying (Wang et al., 2010). Therefore, this specific result of the present study is supported by previous research findings.
This study’s results from the path model showed a good fit of the hypothesized model to the data. The model accounted for 21% of the variance in peer-relation difficulties and 6% of the variance in peer victimization. Additionally, the $R^2$ value of peer victimization was small ($R^2 = .06$, 6% of the variance in peer victimization), which suggests that (a) the independent variables helped explain some of the variability in the dependent variable and (b) some other factors were affecting the dependent variable. This small $R^2$ value could be explained by several reasons. I used previously identified risk and protective factors among children without disabilities as predictors of peer victimization of children with disabilities because very few studies have examined such factors for disabled children. My results suggest that other significant risk and protective factors explain the phenomenon of peer victimization among young children with disabilities. By extension, the findings also suggest that intervention strategies should be tailored to children with disabilities because the risk and protective factors of peer victimization appear to be different for this group of children. Because I was running secondary analyses of data, it was difficult to incorporate all variables related to the peer victimization of children with disabilities, so I had to create some of the variables for this study. Therefore, the new measurements may be responsible for a small proportion of the explained variation for the model. Finally, the current study could not use specific types of disability as predictors (i.e., autism, intellectual disabilities) due to changes in disability identification of young children with disabilities. Therefore, it is possible that the model could not more clearly explain the effects of predictors on peer victimization of children with disabilities.
In terms of the effects of children’s individual-level characteristics (such as age, disability status, language ability, social skills, and internalizing and externalizing problem behaviors) on peer victimization, the indirect effect of having a developmental delay and its influence on peer-relation difficulties and peer victimization was not statistically significant. In contrast, externalizing behavior problems were positively and moderately related to peer-relational difficulties, with more externalizing problems being associated with greater peer-relation difficulties. Externalizing problem behaviors also affected peer victimization indirectly through their effect on social skills and peer-relation difficulties. In other words, children who had more externalizing behaviors had poorer social skills, and this in turn was related to children’s peer-relation difficulties and peer victimization. Children’s internalizing problem behaviors and receptive-language ability also affected peer victimization indirectly through their effect on peer-relation difficulties. In particular, children who had more internalizing problem behaviors and less receptive-language ability tended to have fewer social skills; in turn the lower social skills were associated with these children’s peer-relational difficulties, which were directly related to peer victimization. However, children’s receptive-language ability partially mediated peer victimization because the direct effect of language ability on peer victimization was also statistically significant.

Previous studies have suggested that one of the strongest predictors of peer victimization is behavioral problems (Card & Hodges, 2008; Swearer & Espelage, 2004; Weiner & Mak, 2009) and peer-relation difficulties, both of which increase children’s chances of peer victimization (Kean & Calkins, 2004). In addition, children’s externalizing and internalizing problem behaviors are strong predictors of poor social
skills and, consequently, peer-relational difficulties (Berry & O’Connor, 2010). The current study supports the prior research findings except that there is no direct path from children’s problem behaviors to peer victimization. The findings of the present study show that there is an indirect path from children’s problem behaviors to peer victimization through children’s social skills and peer-relation difficulties.

Previous studies have also indicated that important aspects of development, such as language, can have a significant impact on peer victimization and children’s peer relations, which are then related to peer victimization during childhood years (Herbert-Myers et al., 2006; Mandez et al., 2002; Odom et al., 2006). In addition, children’s receptive-language ability is a strong predictor of social skills, which then related to children’s peer-relation difficulties (Hay et al., 2004; Luciano & Savaga, 2005). The results of the present study support the finding of indirect paths from children’s receptive-language ability to peer victimization through children’s social skills and peer-relation difficulties as hypothesized; however, the direct path from children’s receptive-language ability to peer victimization occurred in the opposite direction than hypothesized. This result seems to reflect that children’s social skills are a strong protective factor for peer victimization among children with disabilities. In other words, children’s receptive-language ability may be connected with the development of prosocial skills to protect children with disabilities from peer victimization.

Third, previous studies have shown that children who are victims show greater social-skills deficits compared with nonvictims (Champion et al., 2003; Fox & Boulton, 2005, 2006a, 2006b; Rose et al., 2010). In addition, recent research also indicates that children’s social skills are a predictor of children’s peer-relation difficulties, which are
then related to peer victimization (Parren & Alaska, 2006). The results of my study support this indirect path from social skills to peer-relation difficulties to peer victimization. Children with disabilities who had higher social-skills scores were less likely to have peer-relation difficulties but were more likely to experience peer victimization if they had lower social-skills scores.

Fourth, previous empirical studies have demonstrated substantial evidence of peer-relationship problems among children with developmental delays (Guralnick et al., 1998, 2006, Odom et al., 2006). In addition, previous studies have demonstrated that children with developmental delays rate higher on behavior problems and lower on receptive-language development than their peers without disabilities (Baker et al., 2002, 2003; Herring et al., 2006). The findings of the present study did not support these findings. Although children with developmental delays were more likely to have problem behaviors and poorer receptive-language ability, the indirect path from development delay to peer-relation difficulties to peer victimization was not statistically significant.

Finally, previous studies have indicated that children’s peer victimization can vary by their age or grade. As children age, they are more likely to have reciprocal friends and to be members of small groups of peers, to engage in more social play, and to spend more time with members of social networks (Hanish & Guerra, 2000; Hanish et al., 2005; Nansel et al., 2001). These sequential changes may lead to more social interactions with peers as they are more involved with them over time and also have an influence on peer victimization. However, the results of the present study did not support a direct relationship between children’s age and peer victimization. The conflicting findings could be due to differences in the study populations (e.g., children with disabilities vs.
children without disabilities) or to the indirect influence of other risk and protective factors such as language development, social skills, or peer-relation difficulties.

With respect to family income’s effect on peer victimization, my findings revealed that the indirect path of family income on peer-relations difficulties, which then related to peer victimization was significant. However, a significant direct path was also found between family income and peer victimization. Overall, the model provided evidence for partial mediation of the link between family income and peer victimization through peer-relation difficulties. Family income affected peer-relation difficulties indirectly through children’s externalizing problem behaviors, receptive-language ability, and social skills. Specifically, children with low family income tended to have more externalizing problem behaviors and less receptive-language ability, which then linked to poor social skills, more peer-relation difficulties, and directly to more peer victimization experiences. This is consistent with research that has found a negative relationship between family income and problem behaviors, language ability, and social skills for children with disabilities (Parish & Cloud, 2006). In addition, previous studies have also revealed that children with lower family incomes are more likely to be victimized than children who have higher family incomes (Barker et al., 2008; Hoglund & Leadbeater, 2004; Khoury-Kassabri et al., 2004). My results are consistent with this finding as well.

In regard to school-level factors, the indirect path of the special-education setting to peer victimization through peer-relationship difficulties was statistically significant and provided evidence for full mediation of the path. Specifically, children who had spent more time in special-education settings tended to have more externalizing and
internalizing problem behaviors and less receptive-language abilities, poorer social skills, more peer-relation difficulties, and ultimately more peer-victimization experiences. Previous findings regarding the educational setting’s effect on peer victimization are still inconsistent and need to be further examined. The results of the present study indicated however, that there was an indirect pathway from children’s educational setting to peer victimization through children’s characteristics (e.g., problem behaviors and receptive-language ability), which then affected children’s peer-relation difficulties and peer victimization. Specifically, the amount of school time per week that children spent in special-education settings was positively related to children’s externalizing problem behaviors, internalizing problem behaviors, and negatively related to children’s receptive-language skills. Children with disabilities who spent more time in special-education classrooms were more likely to have problem behaviors and less likely to have receptive-language ability.

The results of the present study regarding the effect of children’s peer-relation difficulties on peer victimization showed that children’s peer-relation difficulties affected children’s peer victimization. Previous research indicates that peer relationships are an important source of social influences associated with peer victimization (Card & Hodges, 2008; Hanish et al., 2005; Wang et al., 2009). The findings of the present study are consistent with the previous findings and provide evidence for a direct pathway from children’s peer-relation difficulties to peer victimization experiences. Children with disabilities with higher peer-relation difficulty scores were more likely to be victimized by peers than similar children with lower scores.
The results also show that gender moderates the relationships between child characteristics, family factors, school factors, peer-relational factors, and peer victimization. The paths from receptive-language ability to peer victimization and from developmental delay to internalizing problem behaviors were not significant for girls. In other words, children’s receptive-language ability was a significant direct predictor of peer victimization for boys, but not for girls. As a process difference, developmental delay was a significant predictor of internalizing problem behaviors for boys, but not for girls. These results are partially supported by previous literature, which has found evidence for gender differences in peer-victimization experiences (Felix & McMahon, 2006) and the findings suggest that there are relationships between boy’s externalizing problem behaviors and peer victimization and between a girl’s social skills and peer victimization experiences (Baillargeon et al., 2007; Walker, 2005). The results of the present study show that gender moderates the relationships between child characteristics, family factors, school factors, and peer-relational factors, and peer victimization. However, the ways in which gender moderates this was different from that hypothesized. The inconsistent findings could have occurred because I did not use different types of peer victimization (e.g., physical victimization, relational victimization) as an outcome variable. Previous studies have indicated that boys are significantly more likely to be physically victimized than girls, whereas girls are more likely to be relationally victimized (Crick, Casas, & Ku, 1999). As a result, the pathways from the boys’ externalizing problem behaviors or the girls’ social skills to peer victimization were not apparent in the model.
Relationship of Findings to the Child-By-Environmental Model

This study used a moderated-mediation model within the context of the child-by-environmental framework (Kochenderfer-Ladd et al., 2009), a social-ecological framework (Bronfenbrenner, 1979) to examine the pathways to peer victimization among the target population. The social-ecological perspective, which offers a framework for integrating the various factors associated with peer victimization, provides a theoretical framework for understanding the combined impacts of social contexts and influences on behavioral development (Swearer et al., 2010). Therefore, peer victimization can be considered to occur as a result of an interplay among several relevant subsystems (i.e., student, family, school, and neighborhood) within this framework. My study used a moderated-mediation path model to examine the linkages between distal child- and environmental-level risk and protective factors and peer victimization as mediated by other, more proximal risk and protective factors derived from theories and previous empirical literature on peer victimization.

My findings support the moderated-mediation path model for risk and protective factors of peer victimization within the social-ecological framework. First, environmental factors such as family income and the special-education setting were environmental factors affecting the individual behaviors of children with disabilities, which then affected children’s peer-victimization experiences through another environmental factor, peer-relation difficulties. Social-learning theory can explain the path from adverse family background and school environment to children’s social and behavioral development. Barker and colleagues (2008) explained how insufficient family income can be a more general index of family strain, which can lead to children’s exposure to environmental
stressors, which could result in fewer opportunities to develop the interpersonal skills and friendships that might protect one from peer victimization. The special-education setting can also be an adverse learning environment in schools. The lack of prosocial or appropriate behavioral models could result in fewer opportunities to develop children’s social skills and friendships.

Individual factors such as children’s social cognitions, emotional reactivity, and psychosocial vulnerability affect environmental factors such as children’s peer-relation difficulties, which are then related to their probability of peer victimization. Research suggests that children with developmental delays, particularly preschool-age children, are at higher risk for peer rejection and peer victimization than others because they have poor cognitive processing skills, limited social problem-solving skills, and poor emotional-regulation skills, which are related to the developmental of social competence for young children with disabilities (Diamond, 2002; Gurlanick, 2010; Odom et al., 2006). Odom and colleagues (2006) also claim that specific disabilities in which developmental capacities are impaired (e.g., autism, mental retardation, behavior disorders) may well be associated with less competent social participation and possibly with social rejection. These paths can thus be explained by social cognition theories such as the social-information-processing theory (Crick & Dodge, 1994) and the theory-of-mind Framework (Wellman, 1990). In addition, Wood and her colleagues (2009) examined victims in bullying situations using social-information-processing theory, and their results suggested that the poor emotional-regulation ability shown by many relational victims may be one reason why they are often subject to repeated victimization by peers at school. In addition, according to their findings, relational victims appear to have problems at the
initial stages of social-information-processing, including the correct encoding and interpretation of cues (Wood et al., 2009). Therefore, the cognitive processing, social difficulties in problem solving, and emotional regulation of children with developmental delays can be associated with problem behaviors and poor social skills, which then contribute to more peer-relation difficulties and peer victimization. The evidence in my study supports investigating these explanatory mechanisms further in future research.

Finally, environmental factors such as family income and special-education settings can affect individual factors such as children’s language development, which of course plays a role in one’s peer relations. Previous studies indicate that children with better language abilities are more socially connected with their peers because they are able to engage effectively in interactions with their peers (Heber-Myers et al., 2006; Mendez et al., 2002). Specifically, recent studies have indicated that children with less severe receptive-language impairments are more likely to have higher levels of social behaviors than their peers with more severe impairments (Conti-Ramsden & Botting, 2004; Hart et al., 2004; Knox & Conti-Ramdsden, 2003). In addition, previous studies have found that family income was highly related to levels of children’s language exposure (Payne, Whitehurst, & Angell, 1994; Russ et al., 2007) and that children with disabilities are overrepresented in families living in poverty (Fujihura & Yamaki, 2000). Thus, low level of language exposure for these children and subsequent negative effects on their peer relations can also be explained by social-cognition theory. Hart and colleagues (2004) claim that children with language impairments might struggle with peer interactions because they cannot process all the linguistic and social information needed to interact appropriately, and recent studies also support the relationship between
children’s language impairment and poor social-cognitive knowledge (Conti-Ramsden & Botting, 2004; Marton, Abramoff, & Rosenzweig, 2005, Odom et al., 2006).

Implications for Policy and Practice

The prevalence findings from this study are consistent with the empirical literature, showing that one quarter to one third of pre-elementary children with disabilities experience some form of peer victimization in school. This study also demonstrates that peer victimization increased over the 3-year study period. Taken together, these results suggest an urgent need to provide intervention strategies for children with disabilities, a subgroup that is often neglected in school-based interventions that address peer victimization. Recent, proactive school-wide interventions incorporating empirically based bullying prevention programs have been created and utilized by schools. Moreover, since 1999, approximately 33 states have enacted legislation related to bullying and harassment with the intent of (a) establishing school or district policies that prohibit bullying and (b) communicating those policies to students and their parents (Swearer, Espelage, & Napolitano, 2009). These programs rarely address interventions for individualized subgroups of students (Rose et al., 2010). When we consider the higher rates of peer victimization among young children with disabilities compared to other children, schools must also consider targeted intervention programs for young children with disabilities who are at greater risk for victimization.

Although most pre-elementary children in the present study experienced only one type of peer victimization, many of them experienced two or even all three types of victimization. Additionally, the verbal, relational, and physical types of victimization were all highly correlated. Therefore, it is important to consider the serious negative
effects of multiple types of peer victimization on physical and psychological problems among young children with disabilities, such as low self-esteem and poor school performance (Wang et al., 2010).

When we consider the substantial and considerably higher rates of peer victimization among pre-elementary children with disabilities, mental-health services for young children with disabilities are needed. Previous studies suggest a link between early childhood peer victimization and adolescent or adulthood victimization and long-term negative mental health effects for victims (Gladstone et al., 2006; Roth et al., 2002; Schreier et al., 2009). According to previous findings, victimized children are more likely to develop depression, loneliness, low self-esteem, social withdrawal, self-harm, and suicidal ideation (Brunstein et al., 2007; Fekkes et al., 2006; Sourander et al., 2006). Therefore early identification and intervention of victimized children is critical. With early intervention to improve young children’s mental health, children will be less vulnerable to experiencing the negative effects of early childhood peer victimization and this will also lead to more successful school adjustment.

The findings of the present study suggest specific pathways regarding the risk and protective factors of peer victimization among young children with disabilities in school settings. First, individual factors such as children’s social behaviors affect children’s peer victimization experiences through peer-relational difficulties, were influenced by children’s environment, such as their family income and special-education setting. Therefore social workers, teachers, and mental health professionals who are addressing both the prevention and effects of peer victimization should consider the environmental factors as well as the individual (child) characteristics to help prevent peer victimization
among pre-elementary children with disabilities. This could take the form of individualized behavioral supports (e.g., social-skills training, mental health counseling, and behavioral modeling), which are incorporated into regular curricular activities, in particular, targeting pre-elementary children with disabilities from low-income families and special-education school settings.

In addition to behavioral factors, children’s social cognition, emotional reactivity, and psychosocial vulnerability affect environmental factors such as peer relations and peer victimization. Based on the findings that young children with developmental delays are at higher risk for peer victimization due to a lower capacity for cognitive processing, social-problem solving, and emotional regulation, tailored prevention strategies for the children with developmental delays should be implemented. This could begin by recognizing children’s developmental problems and their peer-relation difficulties as risk factors for victimization. Social workers, teachers, and mental-health professionals should be aware of the social interactions among young children with and without disabilities and create a positive environment that supports individual children’s differences. To enhance children’s environment and minimize factors such as peer-relation difficulties, special educators should collaborate with general educators to structure the overall setting to promote social competence among pre-elementary children (Meadan & Monda-Amaya, 2008), and school social workers should help to increase the rates of positive attitudes toward children with disabilities by working with both the children and their parents.

Finally, the results show that environmental factors such as family income and the special-education setting affect individual factors such as children’s language
development and then peer victimization through peer-relation difficulties. Based on previous findings that children with disabilities in low-income families are more likely to have low levels of language exposure and development, support for low-income parents who are raising young children with disabilities is needed to reduce the risk of the peer victimization of young children with disabilities. Further research could examine the efficacy of interventions such as having school social workers, teachers, and mental-health professionals collaborate with families on home-based language interventions to prevent and decrease the peer victimization of young children with disabilities. Improving school readiness through home-based language interventions could also enhance the development of social skills and competence among young children with disabilities and thereby decrease their experiences with peer victimization. In addition, school social workers can help parents of young children with disabilities, who often have limited resources for parenting and educating their children, by connecting them with available school and community resources.

School social workers are in a key position to initiate peer-victimization prevention and intervention efforts because social-work principles consist of helping people in need through the prevention, assessment, and intervention of social problems, along with working to enhance the social functioning of individuals, groups, and communities (NASW, 1999; Mishna, 2003b). Social workers can intervene through direct practice (e.g., through individualized behavioral support, social-skills trainings), by developing and delivering interventions to teachers and other mental-health professionals (e.g., tailored intervention programs for young children with disabilities in schools), through working with families (e.g., helping low-income families’ with parenting and
financial support for their children’s education, helping parents to increase their positive attitudes toward children with disabilities), and by promoting policies to enhance social conditions and challenge social injustice (e.g., creating awareness about the issue of peer victimization of young children with disabilities). The present study emphasizes the combined effects of individual and environmental risk and protective factors on young children’s peer victimization experiences. School social workers are crucial experts who utilize the person-in-environment framework. They are also equipped to recognize the seriousness, meaning, risk and protective factors and the effects of peer victimization, and this is essential for developing direct practices with individuals, groups, and families and for working with schools, organizations, communities, and within the broad context of society (Mishna, 2003b). In addition, collaborations among social workers, teachers, and families in socialization efforts is an ecological approach that increases a child’s ability to learn, practice, and validate social behaviors and skills by reducing harmful environmental factors.

Limitations

Several limitations to this study are noteworthy. First, parents’ ratings were used to assess the peer-victimization of children with disabilities. It is possible that the parent may have had an inaccurate concept of their child’s peer experiences, and thus reported peer relationships inaccurately. Previous studies suggest that it is desirable to use multiple informants (i.e., mother or father, teacher, and child) to establish the predictive validity of such research (Card & Hodges, 2008). Therefore, self-reports by children, ideally in combination with peer and teacher reports, is likely to be more accurate.
Second, PEELS was designed to cover many topics broadly; as a result, in-depth questions on bullying experiences were not available. Specifically, the measurement of peer victimization assessed whether the children experienced three types of peer victimization (i.e., physical attacks, bullying, and teasing by peers) with yes–no questions. Although the three summed items were used to measure peer victimization of children with disabilities, the measurement could not capture the severity of the peer victimization (i.e., once a week, once a month).

Third, it is also important to note that teachers were the reporters of children’s internalizing behaviors and it is possible that, although they have a global sense of the children’s level of adjustment, they may be less precise in their ability to distinguish among the different types of internalizing behaviors, such as withdrawal and anxiety (Hanish & Guerra, 2000). These distinctions may be especially important in understanding the linkages between internalizing behaviors and victimization for young children.

Fourth, the sample in the present study consisted mostly of Caucasian participants (i.e., Caucasian: 89%) and there were few samples for different minority groups (e.g., Asians: 2.9%, Pacific Islanders: 0.7%, and Native American or Alaska Native; 4.3%). More diverse samples are needed to be able to generalize the results.

Fifth, the dataset was limited in its classification of disability issues. In PEELS, early-childhood teachers were asked to report children’s primary disability using the 14 federal disability categories specified in P.L. 108-446 but were asked to separate the category for mental retardation into mild and moderate–severe (Markowitz et al., 2006). Developmental delay was also a response choice—an optional federal disability category.
for children from birth to age 9 (or a subset of that age group) used by 44 states in 2003 (Danaher, Kraus, Armijo, & Hipps, 2003). In this study, nearly half of preschoolers with disabilities (i.e., 38.3% for elementary school students, 5.4% for kindergarten students) were identified as having a speech or language impairment as their primary disability, and 23% (i.e., 21.1% for elementary school students, 1.4% for kindergarten students) were identified as having a developmental delay as a primary disability. Autism was the third most common disability, with 4% of children with disabilities (i.e., 3.9% for elementary-school students, 0.3% for kindergarten students) being identified as having autism. Fewer than 10% of children with disabilities were identified as having each of the other disabilities. In addition, children may move from one primary disability category to another, a process referred to as reclassification (Carlson et al., 2008a). According to Carlson and colleagues (2008a), previous research suggests that 5% to 6% of students with disabilities are reclassified each year (Halgren & Clarizio, 1993; Walker et al., 1988) and that reclassification is most likely to occur in the preschool years (Halgren & Clarizio, 1993). In the PEELS data, from 2003–04 to 2004–05, 23% ($N = 546$) of children who remained in special-education classrooms changed primary disability categories (Carlson et al., 2008a). Thus it was difficult to determine the primary disability among young children with disabilities and therefore use children’s disability category as a risk or protective factor to examine the effects of different types of disabilities on peer victimization.

**Implications for Future Research**

The present study illuminates several areas for future research. First, pathways to peer victimization including risk and protective factors should be examined in relation to
different types of peer victimization (e.g., physical, relational victimization). This is because the risk or protective factors of peer victimization might be different for each type of peer victimization. In particular, children’s gender may become a more apparent variable for a specific type of peer victimization. Second, to be able to generalize the present findings, this study should be replicated using more ethnically diverse samples because the study sample was 89% Caucasian. Third, future research should attempt to isolate specific disability categories and test a disability-type variable as a moderator to determine if certain subgroups of children are predisposed to peer victimization. Previous research also suggests that circumstances or manifestations associated with a specific disability could involve some of the characteristics that have been identified as risk factors for peer victimization (Sveinsson & Mossirs, 2006). For example, children’s impaired social relations could be risk factors for peer victimization. According to Odom and colleagues (2006), specific disabilities in which developmental capacities are impaired (e.g., autism, intellectual disabilities, behavior disorder) are more strongly associated with less social participation and greater social rejection compared to disabilities in which relatively less developmental impairment occurs (e.g., physical disability without other disability). Fourth, school districts may differ in important ways, which present hierarchical issues that were not considered in the present study. In addition, each school district may differ in school size, classroom size, and school climate (e.g., school policy against violence, teacher support of students, students’ participation in decision making, and the design of interventions to prevent school violence; Khoury-Kassabri et al., 2005). Therefore, future research should consider these issues by including specific variables such as school neighborhoods, school-organization factors,
school type (e.g., private or public junior high or high school), class size, and school climate using HLM or similar approaches. Fifth, based on the findings of the present study, intervention studies should be conducted to address effective strategies for decreasing peer victimization among children with disabilities. Finally, given that previous studies have also indicated the importance of community and cultural contexts and other environmental factors such as family, school, and peers (Benbenishty & Astor, 2005; Khoury-Kassabri et al., 2004, 2005), future studies should include more environmental factors such as community and cultural contexts.

In conclusion, this study’s findings suggest an urgent need to provide prevention and intervention strategies for pre-elementary children with disabilities, who have been largely neglected in the context of school-based bullying prevention and intervention programs. The higher rates of peer victimization and substantial rates of multiple victimization among young children with disabilities, as well as the relationship between peer-relation problems and environment situations such as low family income and placement in special-education classrooms, show the importance of focus and targeting this subgroup of children (i.e., children with disabilities) when we address the peer-victimization problem. The practical implications include developing programs tailored to children with disabilities from low-income families and special-education classroom settings, providing mental-health services for pre-elementary children with disabilities, linking parents to available school and community resources to improve young children’s language ability and social skills, and promoting polices to enhance the social conditions for young children with disabilities.
APPENDIX A: Diagram of Selection of LEA Sample of PEELS Data

Note: X stands for the state that originally did not participate. LEA counts for X and non-X were suppressed for confidentiality reasons. The figures in parentheses are the number of participating LEAs. They were adjusted as the LEAs that did not contribute any data were dropped. The dotted boxes represent a mirror image created by imputation of the X supplemental sample selected in Wave 2 (Carlson et al., 2009).
APPENDIX B: Definitions of Primary Disability

<table>
<thead>
<tr>
<th>Child’s Primary Disability</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Autism</td>
<td>A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three that adversely affects a child’s educational performance. Other characteristics often associated with autism are engaging in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term autism does not apply if the child’s educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in Emotional Disturbance/behavior disorder below.</td>
</tr>
<tr>
<td>Deaf/Blindness</td>
<td>Concomitant [simultaneous] hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special-education programs solely for children with deafness or children with blindness.</td>
</tr>
<tr>
<td>Deafness</td>
<td>A hearing impairment so severe that a child is impaired in processing linguistic information through hearing, with or without amplification that adversely affects a child's educational performance.</td>
</tr>
<tr>
<td>Developmental Delay</td>
<td>for children from birth to age three (under IDEA Part C) and children from ages three through nine (under IDEA Part B), the term developmental delay, as defined by each State, means a delay in one or more of the following areas: physical development; cognitive development; communication; social or emotional development; or adaptive [behavioral] development.</td>
</tr>
</tbody>
</table>
| Emotional Disturbance/Behavior Disorder | A condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s educational performance:  
  (a) An inability to learn that cannot be explained by intellectual, sensory, or health factors.  
  (b) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.  
  (c) Inappropriate types of behavior or feelings under normal circumstances.  
  (d) A general pervasive mood of unhappiness or depression. |
(e) A tendency to develop physical symptoms or fears associated with personal or school problems.

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Hearing Impairment</strong></td>
<td>An impairment in hearing, whether permanent or fluctuating that adversely affects a child’s educational performance but is not included under the definition of &quot;deafness.&quot;</td>
</tr>
<tr>
<td><strong>Learning Disability</strong></td>
<td>A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage.</td>
</tr>
<tr>
<td><strong>Mental Retardation</strong></td>
<td>Significantly subaverage general intellectual functioning, existing concurrently [at the same time] with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child’s educational performance.</td>
</tr>
<tr>
<td></td>
<td>(Note: Mental Retardation is the term found in the law since passage of the original legislation in 1975. In 2008, the American Association on Intellectual and Developmental Disabilities (AAIDD; formerly the American Association on Mental Retardation, AAMR) and members of the community recommended use of the term Intellectual Disability. For changes in language to be made in the regulations, Congress must first change it in the legislation. Until such action occurs.)</td>
</tr>
<tr>
<td><strong>Multiple Disabilities</strong></td>
<td>Concomitant [simultaneous] impairments (such as mental retardation-blindness, mental retardation-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in a special-education program solely for one of the impairments. The term does not include deaf-blindness.</td>
</tr>
<tr>
<td><strong>Orthopedic Impairment</strong></td>
<td>A severe orthopedic impairment that adversely affects a child’s educational performance. The term includes impairments caused by a congenital anomaly, impairments caused by disease (e.g., poliomyelitis, bone tuberculosis), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures).</td>
</tr>
<tr>
<td>Impairment</td>
<td>Description</td>
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<tr>
<td>Other Health Impairment</td>
<td>Having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli that results in limited alertness with respect to the educational environment, that—</td>
</tr>
<tr>
<td></td>
<td>(a) is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; andREAMS (b) adversely affects a child’s educational performance.</td>
</tr>
<tr>
<td>Speech or Language Impairment</td>
<td>A communication disorder such as stuttering, impaired articulation, a language impairment, or a voice impairment that adversely affects a child’s educational performance.</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>An acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.</td>
</tr>
<tr>
<td>Visual Impairment /Blindness</td>
<td>An impairment in vision that, even with correction, adversely affects a child’s educational performance. The term includes both partial sight and blindness.</td>
</tr>
</tbody>
</table>

*Note.* 14 federal disability categories specified in P.L. 108-446 from Individuals with Disabilities Education Act (IDEA). (NICHCY, the National Dissemination Center for Children with Disabilities, 2009).
References


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