Power during Sibling and Friend Conflict in Early and Middle Childhood

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ABSTRACT

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Children's relationships with their siblings and friends serve as important contexts for interaction and development, particularly with respect to their conflictual exchanges (Piaget, 1965; Sullivan, 1953; Volling, 2003). In particular, the various forms of power children use in conflict are suggested to play a significant role in their socialization process (Hartup, 1989; Hinde, 1979; Dunn, 2002) Further, it has been argued that a science of relationships should be studied through the interplay of both relationship and actor-partner effects (Hinde, Finkenauer, & Auhagen, 2001). To this end, the present two studies examined children's individual and dyadic use of power in sibling and friend conflict across the early and middle childhood period. Specifically, the first manuscript comprising a cross-sectional examination focused on siblings' and friends' dyadic use of power resources and effectiveness in conflict during early childhood, whereas the second manuscript performed a longitudinal investigation of focal children's use of power resources and effectiveness in conflict with their siblings and friends across the early and middle childhood period. Data based upon naturalistic observations of semi-structured play sessions were previously collected (DeHart, 1999). Behavioural coding of the transcripts was used to quantify conflict sequence identification and power behaviours (i.e., resources and effectiveness). Results are discussed in light of previous theoretical and empirical research concerning the developmental significance of children's agency (i.e., power) in conflict with an accompanying focus on future research recommendations. Overall, the results showed patterns of interaction that highlight the construct of power as

an ability that may or may not always be exercised and even when exercised may be more or less effective depending on level of analysis, relationship partner, developmental stage, and conflict process or outcome.

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Contributions of Authors

The first author of each manuscript was Shireen Abuhatoum, who developed the research questions based on the empirical and theoretical literature, constructed and coded the power coding scheme, organized the data, planned and executed the analyses, and wrote this dissertation. The second author of each manuscript is Nina Howe, her research supervisor, who oversaw the research ideas and facilitated the production of this document. In Study 1, Sandra Della Porta is the third author as she played a significant role in the coding of power behaviours and contributed to the refinement of the rigorous coding scheme. Finally, Ganie DeHart is the last author in each study as she was the primary investigator of the original data collection used in this dissertation.

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General Introduction

The close relationships children form in childhood are important contexts for facilitating their social, cognitive, and emotional development (Dunn, 1983; Hartup, 1989; Volling, 2003). Specifically, the interactions that take place amongst children during the early and middle childhood years play a significant role in the process of children's socialization (Hinde, 1979; Carpendale & Lewis, 2004). A review of the literature indicates that conflict is a critical context to study child development (Dunn, 2002; Hartup & Laursen, 1993; Howe & Recchia, 2008; Vandell & Bailey, 1992). Moreover, developmental and relationship theorists such as Hinde (1979), Hartup (1989), and Dunn (2002) have identified power to be a significant component of social relationships. However, to date, only a few studies have examined the role of power in children's conflict interactions and typically by studying siblings and families (e.g., Abuhatoum & Howe, 2013; Della Porta & Howe, 2012). Yet, as various theorists point out (e.g., Piaget, Hinde, Hartup), children's relationships with their friends are another important context for development, in particular for how children learn to handle conflict (Hartup & Laursen, 1993). In an effort to bridge the gap in knowledge regarding issues of power in conflict and to address theoretical issues, the aim of the present series of two studies is twofold: first, to examine power resources and effectiveness in conflict through a comparative analysis among children's interactions with their siblings and friends at the dyadic level, and second, to examine variations in power use in children's conflicts with their siblings and friends at the individual level across early and middle childhood.

Children's Close Relationships

The study of children's close relationships has been identified as a key context for understanding child development and socialization (Hartup & Laursen, 1991). Children's experiences in relationships are associated with fostering specific skills including language and communication, social understanding, emotion regulation, cooperation, and conflict resolution skills (Carpendale & Lewis, 2006; Dunn, 2007; Bedform & Volling, 2004). These skills, among many others, allow children to become adaptive and competent members of society (Maccoby, 2007). In this sense, it is argued that children's effectiveness in dealing with the social world emerges largely from the experiences they develop in close relationships (Carpendale & Lewis, 2006; Hartup, 1989; Hughes, 2011). Accordingly, social relationships have been defined as an integrated network of enduring emotional ties, mental representations, and interactional behaviours that connect one person to another over time and across space (Hartup & Laursen, 1991; Hinde & Stevenson-Hinde, 1976).

Hinde (1976, 1979) and other relationship theorists (Bowlby 1982; Dunn, 1983; Carpendale & Lewis, 2006) posit that the content and quality of interactions within children's close relationships play a significant role in the socialization process of children's development. The sequence of interactions that occur within a dyadic exchange may influence and be influenced by the cognitive and affective systems that characterize interpersonal relationships (Hinde, 1997). Specifically, when children interact, the dyadic exchange reflects significant contributions that emanate from the relationship context itself, as well as from the individuals who comprise the relationship (Hinde, 1979). In this manner, the interchange of interactions between dyads results in a

complex interplay of relationship effects, subject effects, and partner effects (Hartup & Laursen, 1993). Thus, a science of relationships should arguably have a dyadic perspective that analyses the relationship context between child A and child B, as well as child A's relationship to child B, and child B's relationship to child A (Hinde, Finkenauer, & Auhagen, 2001). Adopting a dyadic perspective affords a unique comparative lens, in which the relationship context and individuals within the relationship are viewed as important sources of information crucial for children's development and wellbeing. In particular, the reciprocal (i.e., equal and returned) and hierarchical (i.e., unequal) exchanges that characterize children's close relationships (i.e., sibling and friend, for the purposes of the present dissertation) are identified as important interactional features that influence the social, cognitive, and emotional development of children (Dunn 2002; Hartup 1989; Hinde, 1979).

Sibling and friend relationships. Two types of relationships that serve as critical contexts for studying children's conflict interactions and use of power effectiveness are children's relationships with their siblings and friends. Firstly, the sibling relationship is considered unique in the sense that it encompasses both reciprocal and hierarchical interactions (Howe & Recchia, 2008). Whereas on the one hand, siblings may be viewed as equal partners who can contribute to the interaction in a similar way, on the other hand due to structural differences of age and birth order (developmental status), interactions can take on a more hierarchal nature (DeHart, 1999; Dunn, 1983; Howe, Ross, & Recchia, 2011). In contrast, friendships are characterized by greater reciprocity, wherein partners are viewed more or less as equals (Hartup, 1989; Volling, Youngblade, & Belsky, 1997). Secondly, the sibling relationship is comprised of a greater range of affect (e.g., strongly

positive to strongly negative), while friendships are based on mutual liking and similarity (Lecce, Pagnin, Adriano, 2009; Bukowski, Motzoi, & Meyer, 2009; Rubin, Bukowski, & Parker, 2006, 2014; Shantz & Hobart, 1989). Thirdly, the shared history and obligatory nature of the sibling relationship renders a degree of familiarity that is contrasted with friendships; the latter are formed on a purely voluntary basis and require the commitment of support and companionship (Dunn, 2007; Furman & Buhrmester, 1985).

Overall, the complex pattern of differences and similarities among sibling and friend relationships suggest that they are not functionally equivalent contexts for interaction and development (DeHart, 1999). Given the various dimensions in which children's sibling and friend relationships may differ, the degree to which power effectiveness, especially in the context of conflict, may vary across relationship contexts is a conceptually and empirically interesting question that constitutes one of the primary aims of the present dissertation.

Conflict

Conflicts are comprised of social events in which incompatibilities of behavior are marked by mutual opposition between the actions and/or statements of two or more individuals (Deutsch, 1973; Vandell & Bailey, 1992). Conflicts are also viewed as time-distributed events involving a beginning (i.e., instigator, topic of dispute), middle/process (i.e., oppositional tactics, power resources and effectiveness), and an end (i.e., resolution) (Hartup & Laursen, 1993; Shantz, 1987; Abuhatoum & Howe, 2013). In particular, the literature highlights two critical distinctions in children's conflicts, namely those that are constructive and destructive. Constructive or productive conflicts generally refer to the management of conflict wherein controlled emotions, continued social interaction, and

equitable solutions are resolved through the means of negotiation and reasoning (Hartup & Laursen, 1993; Howe & Recchia, 2008; Vandell & Bailey, 1992). Destructive conflict by contrast, refers to disagreements characterized by the presence of high negative affect, a tendency to expand and escalate, discontinued interaction, and inequitable solutions (Deutsch, 1973; Hartup & Laursen, 1993; Vandell & Bailey, 1992).

The study of similarities and differences in disagreements between siblings and friends provides an important platform for understanding various processes at play in the socialization and development of children. Theorists and researchers alike have argued that conflict provides an important context for children's social-cognitive growth (Bedform, Volling, & Aviolo, 2000); Dunn, 1983; Dunn & Munn, 1986; Hartup & Laursen, 1993; Howe, Rinaldi, Jennings, & Petrakos, 2002; Piaget, 1965; Sullivan, 1953; Volling, 2003). Specifically, during conflict children are provided with the opportunity to express and defend their positions, consider their opponents' feelings or point of view, and negotiate solutions to resolve conflicts in an amicable manner. As a consequence, children are provided with the opportunity to learn about the social and moral rules that guide behaviour. Given the developmental significance of conflict in children's lives, a worthwhile inquiry concerns variations in children's use of power resources and effectiveness in conflict both within and across their sibling and friend relationships, a point discussed in more detail below.

Sibling and Friend Conflict

Given that conflict behaviour is determined to a large extent by the social relationships formed between the actors involved (Hartup & Laursen, 1993), there is a body of literature, albeit small, that has jointly examined children's conflict interactions

with their siblings and friends. For example, research by Dunn and colleagues (1995, 1999) compared focal children's conflict management across the sibling and friend relationship by examining differences in their use of self-oriented arguments based on self-interest and other-oriented arguments that take into account the other's needs/desires. Results revealed that children at 47 months used more other-oriented reasoning with their friend than with their older sibling. Similarly, in a study examining the structure of children's naturally occurring disputes in sibling and peer dyads, Phinney (1986) reported that peers were more likely to use a higher proportion of elaborated moves (i.e., explanations and justifications) than siblings. Likewise, a study by DeHart (1999) revealed that friends were more likely to end a conflict by surrendering and were more likely to be socially engaged both before and after a conflict episode than siblings, whereas sibling conflicts were more aggressive, affectively intense, and likely to terminate through third party appeals to parents than conflicts with friends.

Laursen, Finkelstein, and Betts (2001) performed a series of meta-analyses that examined developmental trends across peer, friend, and siblings' conflict resolution. Results revealed that friends resolve conflicts more often via negotiation than by coercion/disengagement and more often by using coercion than by disengaging from the disagreement. In contrast, siblings resolved conflicts more often with coercion than with disengagement, followed by a lack of a significant effect for sibling conflicts being resolved through negotiation. Overall, negotiation appears to be more characteristic of children's relationships with friends than with siblings, perhaps due to the voluntary nature of friendships based on mutual liking and similarity among same-aged dyads.

Other studies that have examined children's antagonistic interactions with their friend and sibling include Stauffacher and DeHart (2005, 2006). These researchers looked at the similarities and differences displayed by 4-year-olds and their interaction partners' use of relational aggression (e.g., spreading rumours, excluding others, intentionally ignoring, threatening to terminate a friendship). Findings across both studies highlight that children's use of relational aggression varies depending on age and interaction partner. Specifically, at age 4 children used more relational aggression with their siblings than they did with their friends; however, by age 8 siblings and friends showed similar rates of relational aggression.

In addition to studies that have jointly examined children's conflict interactions with their sibling and friend, important individual differences with respect to partner effects within the sibling relationship are also highlighted in the sibling conflict literature. Sibling structural variables such as age and birth order afford older siblings with a developmental advantage over their younger siblings (Vandell & Bailey, 1992; Volling, 2003). Regarding age differences across time, Tesla and Dunn (1992) found that children's use of non-conciliatory arguments in defense of their own interests from 33 to 47 months with their siblings did not change when disputes began with their own oppositional moves. In other words, children were less likely to argue for conciliatory means at 33 months and at 47 months. Furthermore, Dunn and Munn (1987) examined children's developing use of verbal justification in disputes at 18, 24, and 36 months and by 36 months children were using justifications in disputes with their older sibling, which occurred mainly through reference to their own feelings and to social rules.

Together, the above studies examining sibling and friend conflicts reveal wide variability in children's behavioural responses to different social partners. In particular, findings showed patterns that highlight relationship specificity in children's interaction patterns, along with important individual differences observed within and across relationships. However, one area that has yet to be examined within the context of sibling and friends' conflict is the means by which children utilize their sense of agency through power to influence their environment and relationships.

Power as a Form of Agentic Behaviour

A crucial factor to consider in conflict interactions is the notion of agency and how children can make equal and active contributions to their own development. Agency is defined as a multifaceted construct comprised of cognitive, behavioural, and motivational dimensions that reflect self-initiated, intentional action (Kuczynski & Parkin, 2007). By engaging in agentic behaviour, children learn how to construct their own beliefs, plan and persist towards a goal, and develop a sense of efficacy (Cummings & Schermerhorn, 2003). The notion of agency further acknowledges that children and their relational partners each have individual ideas, beliefs, and knowledge about their relationship and are mutually involved in socialization (Cummings & Schermerhorn, 2003; Pontecorvo, Fasulo, & Sterponi, 2001). This idea is supported by social-constructivist theory, which postulates that children are active learners by cognitively constructing their own knowledge about the world based on social interactions with others (Piaget, 1971; Vygotsky, 1978). Children engage in different forms of agentic behaviour at different developmental periods and in different relationships. One way to study agentic behaviour is through an examination of social power.

Power in social relationships is defined by the availability of resources a person has so that he or she can influence the behaviour of the other person (French & Raven, 1959; Raven, 1993, 2008; Raven, Schwarzwald, & Koslowsky, 1998). Social power is also conceptualized as a bidirectional construct and entity, whereby reciprocity characterizes the influential interactions that take place between person A and person B (Dunbar, 2003; Cummings & Schermerhorn, 2003; Kuczynski, 2003). Given the highly interdependent nature of power, the notion of influence is a noteworthy facet that refers to the change in belief, attitude, or behaviour of a person that results from the action or presence of another person (Erchul & Raven, 1997; French & Raven, 1959). The power resources used to influence an opponent's behaviours or cognition include the following: (a) coercive power, which refers to the threat of physical or verbal punishment, (b) reward power, which involves positive/negative reinforcement, (c) legitimate power, which refers to one's rights and obligations, (d) referent power, which involves identifying oneself with another person's qualities, traits, or disposition (e.g., admiration), (e) expert power, which refers to one superior knowledge or ability, (f) information power, which is comprised of simple demands and elaborate reasoning to influence through persuasion or logic; and (g) questioning power, which refers to the use of inquiry as a means of influence (Abuhatoum & Howe, 2013; Dunn & Munn, 1987; French & Raven, 1959; Lawler, 1992; Phinney, 2001; Wang, 2006).

Children's Power in Conflict

In general, research examining children's use of power in conflict has been restricted to the study of family relationship compositions including sibling, parent-child, and polyadic family interactions (e.g., Recchia, Ross, & Vickar, 2010). However, to date

there is a paucity of research comparing children's use of power in sibling and friend conflict. The small body of literature that has examined the role of power in sibling conflict has focused on children's employment and sequential use of physical and verbal power (Perlman, Garfinkel, & Turrell, 2007; Perlman & Ross, 2005), power differentials among dyadic family members (Recchia, Ross, & Vickar, 2010), and siblings' perception of power resources (Della Porta & Howe, 2012). However, in light of the definitional construct of power, children's use of power in conflict can be studied in terms of the specific resources available to influence their partner and in terms of the success with which the influential move is performed (i.e., eliciting a change in their partner's behaviour). This broadband view of power, in turn, allows for a more multidimensional analysis of how power unfolds within the time-distributed event of a conflict sequence; namely with respect to the process and outcome of a dispute. To date, we are aware of only two studies that have examined children's conflict interactions in light of the success of their power moves in the process and outcome of sibling and family conflict.

The first is a study by Abuhatoum and Howe (2013), who examined children's use of power types (coercive, legitimate, information; French & Raven, 1959) and effectiveness in sibling conflict. Findings revealed that siblings did not differ in their effective use of power, but were most effective when coercive power was employed. In addition, older siblings not only won more conflicts than younger siblings, but they also used coercive power significantly more often when conflicts ended in win-lose outcomes as compared to their younger sibling. These findings highlight that where the process of conflict is concerned, power between different dyads is relatively equal. However, once the outcome is taken into account, older siblings appear to demonstrate a developmental

advantage. Across both patterns of findings, coercive power was most instrumental in achieving what the child wanted, despite its potentially destructive means.

Building upon the above study, Della Porta, Howe, and Abuhatoum (under review), investigated power effectiveness during naturalistic polyadic family conflicts involving three or four members. Whereas the former study examined differences in sibling dyads' power effectiveness in the process of the conflict, the latter study examined differences in family members' use of power effectiveness in the process of conflict (i.e., based on immediate focal response) and as it related to the conflict resolution (i.e., outcome). Findings from this study showed that younger siblings were more likely to be effective with their use of reward power, while older siblings were more likely to be effective with their use of legitimate power during the process and the resolution of the conflict. These findings highlight individual differences in siblings' use of power effectiveness, especially when a third or fourth party (i.e., mother, baby sibling) is involved, and therefore elucidates the complex nature of family conflict.

The Present Research Studies

Previous research has provided initial insights regarding children's power use during their conflict interactions in the sibling and family context (e.g., Abuhatoum & Howe, 2013). To add to the literature, the present studies were designed to expand the examination of power effectiveness in the process and outcome of conflict through a comparative analysis among children's interactions with their siblings and friends across two developmental periods. The theoretical basis that supports this endeavor has been substantiated by developmental and relationship theorists who argue for the significant role of power in social relationships (e.g., Hartup, 1989; Hinde, 1979; Dunn, 2002).

Given the empirical and theoretical impetus backing this research, the present research aims to accomplish the above stated means in the following two studies. First, children's power resources and effectiveness in conflict was examined as a function of the dyadic relationship context in early childhood, and second as a function of individual differences captured within the context of subject-partner effects across early and middle childhood (Hartup & Laursen, 1993; Hinde, 1979). However, first a detailed description of the methodology employed in both studies is presented.

Summary of Method

Participants

Sixty-five families from Western New York state were recruited for participation in a longitudinal study examining sibling and friend interaction in early and middle childhood, previously collected by DeHart (1999). Families were recruited through word of mouth and fliers. At Time 1 (T1), sibling pairs consisted of a 4.5 year-old focal child (*M* age = 56.4 mos.; *SD* = 5.71 mos.), who was observed with a younger sibling (*n* = 37; *M* age = 34.9 mos.) and older sibling (*n* = 28; *M* age = 75.8, mos.). The gender composition of the sibling dyads included 34 same-sex pairs (18 brother pairs, 16 sister pairs) and 31 mixed-sex pairs (17 brother-sister pairs, 14 sister-brother pairs). Forty-six families were contacted for a follow-up (Time 2; T2) study approximately three and half years later. The focal children (*M* age = 94.58 mos.; *SD* = 6.59 mos.) were observed with a younger (*n* = 21; *M* age = 74.29 mos.; *SD* = 5.66 mos.) and older sibling (*n* = 25; *M* age = 114.00, mos.; *SD* = 7.12 mos.). The gender composition of the sibling dyads included 27 same-sex pairs (19 brother pairs, 13 sister pairs) and 19 mixed-sex pairs (11 brother-sister pairs, 8 sister-brother pairs).

Across both time points, families selected a friend of the focal child to participate in the study (T1 friends' *M* age = 57.8 mos.; T2 friends *M* age = 96.88). Each family was asked to select a friend who was, in order of importance: (1) a frequent playmate of the focal child, (2) the same age, and (3) the same gender as the focal child. In cases where parents had difficulty choosing a friend who met all three criteria, they were asked to select a friend who met the first two criteria. In four families, an opposite-gender friend participated (three boys with older sisters, one boy with a younger sister).

Procedure

At T1 and T2, the procedure for the semi-structured play was the same, which was comprised of undergraduate research assistants who made three visits (approximately one visit per week for a month), to each family's home. During the first visit, parental consent forms, along with children's verbal consent was obtained. In the second and third visits, each dyad was videotaped in the home using two separate 15-minute counterbalanced semi-structured play sessions with a sibling and friend. In one taping visit, the siblings were videotaped playing together; at the other taping visit, the focal child was videotaped playing with the friend.

At T1, dyads were given one of three counterbalanced wooden play sets (farm, village, or train) to facilitate cooperative play: farm set (32 sibling, 30 friend dyads); village set (31 sibling, 31 friend dyads); train set (2 sibling, 3 friend dyads[1]). At T2, dyads were given either a village set (19 sibling, 22 friend dyads) or a train set (27 sibling, 23 friend dyads). Note the set-up was designed for cooperative play and not for conflict.

[1] The low number of dyads playing with the train set at T1 was due to the train set being accidently given to the 5 dyads at T1 by the RAs. The train set was supposed to be used at T2 only.

Prior to the commencement of each play session, the research assistant provided the children with the play set and then remained in a different room with the mother to allow privacy for the children during the play session. Research assistants, who were blind to the purpose of the study, transcribed video recordings of children's verbal and physical exchanges. The unit of analysis for the measures described below was based on the transcribed behavioural and verbal exchanges of children.

Coding Measures

Conflict sequence identification. The transcripts of the T1 and T2 videotaped play sessions had been previously coded for conflict in the DeHart (1999) study. DeHart generously agreed to share the conflict data for the present dissertation. Based on the definition of conflict as mutually opposed behaviour wherein an individual opposes another person's actions or statements (Vandell & Bailey, 1992), conflict sequences were identified when the start line of a sequence began with an oppositional move (i.e., instigator) and ended with a resolution or change in topic.

Conflict. Conflict sequences were coded in a previous study by DeHart (1999) for (1) instigator (e.g., first partner to make an oppositional move within the conflict sequence), (2) turns, which was defined as the number of behavioural or verbal exchanges that alternate between the partners in the conflict sequence, and (3) outcome (win/lose, compromise, partial equity, impasse, and indeterminate; for definitions and examples see Appendix A). A winner and a loser characterized conflict outcomes that resulted in a win/lose scenario, whereas conflict outcomes ending in compromise or partial equity (e.g., win/win) or a lose/lose scenario characterized by conditions that were deemed acceptable or unacceptable by both parties. In addition, for cases where

outcomes were characterized by an indeterminate resolution, whereby no party succeeded in winning or losing, the outcome of the conflict was considered to be indeterminate. All outcome variables were identified once per conflict sequence. Reliability indices for conflict variables are reported below within their respective studies.

Power. In the present set of studies, conflict sequences were coded for power resources: (a) coercive (verbal and physical), (b) reward (positive and negative), (c) legitimate (moral principles, authority, preference), (d) referent, (e) expert, (f) information (simple and elaborate), and (g) questioning (French & Raven, 1959; Raven, 1993; for definitions and examples, see Appendix B). Each type of power was coded as either present or absent on each turn/line of the conflict sequence. The coding of power resources was based upon a coding scheme that was initially developed by Della Porta and Howe (2013), but then later refined for use in Abuhatoum and Howe (2013) and Della Porta, Howe, and Abuhatoum (under revision). Once the power resources were identified, the effective use of each power resource was assessed according to a coding scheme that was developed by the present author (Abuhatoum & Howe, 2013; see Appendix B). Power effectiveness was identified by the focal's response to each actor's use of power and coded as a successful or unsuccessful power move. More information regarding reliability indices and each coding scheme is presented within their respective studies.

Study 1: A Dyadic Analysis of Power in Sibling and Friend Conflict in Early Childhood

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Abstract

An examination of power processes in siblings' and friends' conflict interactions is of paramount significance to children's development and socialization process (Cummings & Schermerhorn, 2003; Hartup, 1989; Dunn, 2002); however, the literature in this area is limited. Therefore, the goal of the present study was to conduct a comparative analysis of power behaviours (resources, effectiveness) utilized by dyadic partners in sibling and friend conflict during early childhood when the focal children were aged four. The sample was compromised of 65 families including 347 sibling conflict sequences and 326 friend conflict sequences. Based upon French and Raven's (1959) typology of power, conflict sequences were coded for eight resources of power utilized by each dyad, which thereafter were coded for power effectiveness (Abuhatoum & Howe, 2013). Similar and different patterns of findings were identified in the conflict process and outcome. Specifically, dyads used simple information most often, followed by coercive, then elaborated information, and then questioning power. Despite similarities, sibling dyads used coercive power and negative rewards power more often than friend dyads; however friend dyads used simple information power more often in win/lose outcomes than sibling dyads. Regarding effectiveness of power, sibling and friend dyads were most effective using coercive power, followed by elaborated, and then questioning power; however, overall sibling dyads were more effective at influencing their partners compared to friend dyads. These findings provide strong support for the importance of taking the dyadic relationship context into account when studying the power process in children's interactions.

A Dyadic Analysis of Power in Sibling and Friend Conflict in Early Childhood

The relationships that children form and maintain with other children have long been recognized as a significant context for their social and cognitive development (Hartup & Laursen, 1991). Importantly, during early and middle childhood, children's ability to coordinate their interactions and manage conflict emerges as a central theme in their young lives (Hartup & Laursen, 1993; Howe & Recchia, 2008; Shantz, 1987; Vandell & Bailey, 1992). Namely, through conflict, children are provided with key opportunities to exercise various forms of influence (i.e., power resources and effectiveness) that may vary in their pursuit of a resolution to a dispute (Abuhatoum & Howe, 2013; French & Raven, 1959). By engaging in agentic forms of behaviour such as power children learn to construct their own beliefs, plan and persist towards a goal, and develop a sense of efficacy (Cummings & Schermerhorn, 2003). The notion of agency is supported by social-constructivist theory, which postulates that children are active learners and cognitively construct their own knowledge about the world via social interactions with others (Carpendale & Lewis, 2006; Piaget, 1971; Vygotsky, 1978).

Similarly, children's use of power in conflict may vary depending upon the specific relationship in question. In particular, due to the significant contributions that emanate from the relationship context itself, dyadic opportunities for use of power and their effectiveness at using power will likely differ across relationship contexts (e.g., Hinde, 1979). Two relationships that serve as unique platforms for studying children's behaviour are siblings and friends. Indeed, it has been proposed that children's relationships with siblings and friends are not functionally equivalent contexts for interaction and development (DeHart, 1999). However, little attention has been paid to

children's use of power in sibling and friend conflict across early childhood. In considering the individuals within sibling and friend relationships as joint contributors to child outcomes, the goal of the present study was to compare sibling and friends' dyadic use of power resources and effectiveness across relationship contexts in the process and resolution of conflict in early childhood.

The Nature of Conflict and Power

Conflict in the lives of children constitutes an everyday occurrence that is characterized by incompatibilities of behaviour (Deutsch, 1973; Hartup & Laursen, 1993; Vandell & Bailey, 1992). Conflicts are also described as time-distributed events that involve fundamental questions about how they begin (i.e., instigator, topic of dispute), unfold (i.e., oppositional tactics, power behaviours), and end (i.e., destructive and constructive resolutions; Hartup & Laursen, 1993; Shantz, 1987). Whereas constructive conflicts involve controlled emotions, continued social interaction, and equitable solutions resolved through negotiation and reasoning, destructive conflicts entail high negative affect, escalation, discontinued interaction, and inequitable solutions (Deutsch, 1973; Hartup & Laursen, 1993; Howe & Recchia, 2008; Vandell & Bailey, 1992).

Among the most frequent episodes of conflict are those that take place with children, namely with siblings and friends (Shantz, 1987; Howe & Recchia, 2008; Howe et al., 2011). Wide variability exists, however, in the rate of conflict across sibling and friend relationships. For instance, among preschool-aged and early school-aged children, sibling relationships have been characterized by greater conflict than friendships (Dehart, 1999; Vespo et al., 1995) with the reverse evidenced in free play scenarios (McElwain & Volling, 2005). Nonetheless, conflict is a critical context to study power behaviours as

well as children's social-cognitive development (Abuhatoum & Howe, 2013; Piaget, 1965; Sullivan, 1953; Volling, 2003). During conflict children are provided with opportunities to express and defend their positions, consider their opponents' feelings or point of view, and negotiate solutions to resolve conflicts. As a consequence, children learn about the social and moral rules that guide behaviour. Given the developmental significance of conflict in children's lives, a worthwhile inquiry concerns whether children use power in similar or different ways depending on their relationship context (i.e., sibling, friend).

Power in children's relationships is defined by the availability of resources a child has to influence (i.e., change) the belief, attitude, or behaviour of the other child (Erchul & Raven, 1997; French & Raven, 1959; Raven, 1993, 2008; Raven, Schwarzwald, & Koslowsky, 1998). The power resources involved in influencing an opponent's behaviours or beliefs include: (a) coercive power, which refers to the threat of punishment through physical or verbal means; (b) reward power, which entails positive and/or negative reinforcement; (c) legitimate power, which refers to one's rights and obligations; (d) referent power, which involves identifying oneself with another person's qualities, traits, or disposition (e.g., admiration); (e) expert, which refers to one's superior knowledge or ability, (f) information power comprised of simple demands and elaborate reasoning to influence through persuasion or logic; and (g) questioning power (Abuhatoum & Howe, 2013; Dunn & Munn, 1987; French & Raven, 1959; Phinney, 1986; Wang, 2006). Importantly, however, children's use of power in conflict can be studied both in terms of the specific resources employed to influence their partner and the effectiveness with which the influential move is performed (i.e., successfully eliciting a

change in their partner's behaviour or obtaining one's goal; Abuhatoum & Howe, 2013). This broadband view of power allows for a multidimensional analysis regarding children's use of power resources and effectiveness of power in the conflict process and outcome.

Sibling and Friend Relationships: Implications for Power Processes in Conflict

Children's relationships with siblings and friends each have particular characteristics that differentiate them from one another and may likewise account for distinct power behaviours in conflict. Accordingly, Hinde (1997) posits that when children interact, the dyadic exchange reflects a complex interplay of relationship effects that are viewed as an important source of information for children's development. In particular, the sibling relationship in early childhood is considered to be unique due to the reciprocal (i.e., equal and returned) and hierarchal (i.e., unequal) exchanges that characterize their relationship, whereas friends are typically characterized by more egalitarian exchanges (DeHart, 1999; Dunn, 1983; Hartup, 1989; Hinde, 1979). Thus, unlike friends, issues related to status and control are more likely to arise in the sibling relationship (Hartup & Laursen, 1991; Howe & Recchia, 2008). Moreover, the shared history and obligatory nature of the sibling relationship renders a degree of familiarity that is often accompanied by more affectively intense interactions (e.g., positive, negative, ambivalent) and a higher frequency of conflict (Shantz & Hobart, 1989).

In contrast to sibling relations, friendships are voluntary relationships based on mutual liking and similarity (e.g., Buhrmester, 1992; Lecce, Pagnin, Adriano, 2009). In fact, the formation of friendships is considered a unique enterprise comprised of important conversational and social processes that arguably promote and implicate

communication effectiveness among children and their companions. According to Gottman (1983), friendship formation requires the effective construction of dialogues between partners, wherein the exchange of information is communicated in a clear and connected manner that enables children to establish a common ground. Consistent with this idea, friends' interactions in play and pretense at 47 months of age are characterized by connected forms of conversation (Slomkowski & Dunn, 1996).

Furthermore, once friendships are formed, their maintenance appears to be remarkably stable at all ages (Berndt & Hoyle, 1985; Gershman & Hayes, 1983; Poulin & Chan, 2010). It is therefore not surprising that friendships, unlike sibling relationships require a commitment of support and companionship (Bukowski, Motzoi, & Meyer, 2009; Furman & Buhrmester, 1985). Due to the voluntary nature of friendships and quality of interactions, conflict may therefore pose a special risk to its maintenance, as it may potentially result in the end of the relationship (Bukowski, Aquan-Assee, & Sippola, 1996). Therefore, children are clearly motivated to sustain harmonious interactions with friends and may be more effective in their communication (i.e., use of information power) when in conflict with friends than with siblings.

Sibling and Friend Conflict

The body of literature that has examined children's conflict interactions with siblings and friends, albeit small, highlights important behavioural distinctions that may also provide insights into siblings' and friends' dyadic use of power in conflict. Compared to friends, conflicts between siblings are more likely to be characterized by aggressive behaviours, affectively intense interactions, and to terminate through coercion or appeals made to third parties such as parents (Abuhatoum & Howe, 2013; DeHart,

1999; Stauffacher & DeHart, 2005, 2006). Relatedly, studies examining children's antagonistic interactions with their friends and siblings report that at age four children used more relational aggression (e.g., spreading rumours, excluding others, ignoring) with their siblings than with their friends (Stauffacher & DeHart, 2005, 2006). The sibling conflict literature also reveals that children at 33, 36, and 47 months are more likely to use reasoned argument for their own self-interest when in conflict with older siblings than with younger siblings (Dunn & Munn, 1987; Tesla & Dunn, 1992).

In contrast, conflicts between friends in early childhood are more likely to be characterized by various forms of reasoned argument (i.e., self- and other-oriented reasoning) and resolved via negotiation (Dunn, 1995, 1999; Laursen, Finkelstein, & Betts, 2001). Similarly, unlike siblings, friends are more likely to respond to an oppositional behaviour through conciliatory means (i.e., suggesting an alternative) and are more likely to be socially engaged before and after a conflict (DeHart, 1999). Given the apparent differences in the behaviours of children's conflict interactions with siblings and friends, surprisingly little research directly examines power processes in conflict across relationship contexts throughout the early childhood period.

Children's Power in Conflict

In general, research examining children's use of power in conflict has been focused within family relationships such as sibling, parent-child, and polyadic family interactions (i.e., involving three or four members) (e.g., Recchia, Ross, & Vickar, 2010). However, to date there is a paucity of research examining children's dyadic use of power in sibling and friend conflict. The limited literature examining the role of power in sibling conflict has focused on children's employment and sequential use of physical and

verbal power (Perlman, Garfinkel, & Turrell, 2007; Perlman & Ross, 2005), power differentials between dyadic family members (Recchia, Ross, & Vickar, 2010), and siblings' perception of power resources (Della Porta & Howe, 2012). Furthermore, to date only two studies have examined children's conflict interactions in terms of the power resources employed and the effectiveness of power moves across the time-distributed event of a conflict.

First, Abuhatoum and Howe (2013) examined siblings' use of power resources (i.e., coercive, legitimate, information) and power effectiveness in conflict. Although older and younger siblings did not differ in their effective use of power, they were most effective when coercive power was employed; however, they employed information power most often in compromise outcomes. In addition, older siblings won more conflicts than younger siblings, but they also used coercive power more often when conflicts ended in win/lose resolutions. Second, building upon this study, Della Porta, Howe, and Abuhatoum (under review) investigated power effectiveness during naturalistic polyadic family conflicts involving multiple members. During the conflict process, younger siblings were most effective when using reward power, whereas older siblings were most effective when using legitimate power. Similarly, results revealed that younger siblings' effective use of reward power was associated with winning a conflict, whereas older siblings' effective use of legitimate and information power was linked to winning a conflict. Findings highlighted variability in siblings' use of power effectiveness, especially when a third or fourth party (i.e., mother, father) was involved, therefore elucidating important relationship effects for power use in conflict.

The Present Study

Prior research has provided initial insights regarding children's effective use of power during their conflict interactions in the sibling and family context (e.g., Abuhatoum & Howe, 2013). To build upon the current state of knowledge, the present study sought to expand the examination of power resources (i.e., coercive, legitimate, simple and elaborated information) and effectiveness (i.e., eliciting a change in partner's behaviour or obtaining one's goal) in the process and outcome of conflict through a comparative analysis of siblings' and friends' dyadic interactions across relationship contexts. The first research question concerned how power resources varied across the sibling and friend relationship in the conflict process. It was predicted that sibling dyads would be more likely to use coercive power as compared to friend dyads (DeHart, 1999). In contrast, friend dyads were expected to be more likely to use information power as compared to sibling dyads (Gottman, 1983; Dehart, 1999; Dunn et al., 1995, 1999).

The second research question concerned whether children's power effectiveness varied across the sibling and friend relationship in the process of conflict. Since sibling conflicts are more likely to include aggression than disputes between friends (DeHart, 1999), it was predicted that sibling dyads would be more effective at using coercive power as compared to friend dyads. Furthermore, based upon the literature indicating that children employ significantly more reasoning with their friends than with their siblings it was predicted that friend dyads would be more skilled at using information power than sibling dyads (Dehart, 1999; Dunn et al., 1995, 1999).

The third research question examined whether children's power resources regarding the resolution of conflict varied across relationship contexts. Sibling dyads

were expected to be more likely to employ coercive power in win/lose outcomes as compared to friend dyads (Abuhatoum & Howe, 2013). Given that friends have been shown to be more likely than siblings to resolve disputes by suggesting an alternative or through negotiation (DeHart, 1999; Laursen et al., 2001), it was predicted that friend dyads would be more likely to use information power in win/lose outcomes and compromise outcomes as compared to sibling dyads. Lastly, the fourth research question concerned whether children's power effectiveness varied across relationship contexts in the resolution of conflict. Sibling dyads were expected to be more effective at using coercive power in win/lose outcomes as compared to friend dyads (DeHart, 1999), whereas friend dyads were expected to be more effective at using information power in win/lose outcomes (DeHart, 1999; Laursen, Finkelstein, & Betts, 2001).

Method

Participants

Sixty-five families from small towns and suburban communities in Western New York State were recruited through word-of-mouth and fliers (DeHart, 1999). Sibling pairs consisted of a 4.5 year-old focal child (*M* age = 56.4 mos.; *SD* = 5.71 mos.), who was observed with either a younger sibling (*n* = 37; *M* age = 34.9 mos.; *SD* = 5.3 mos.) or older sibling (*n* = 28; *M* age = 75.8, mos.; *SD* = 11.2 mos.). The average age gap and mean age between sibling dyads was 22.72 months (SD = 5.77, range = 15–37 months) and 57.28 months (SD = 11.47, range = 38–76.5 months), respectively. The gender composition of the sibling dyads included 33 same-sex pairs (17 brother pairs, 16 sister pairs) and 32 mixed-sex pairs (16 brother-sister pairs, 16 sister-brother pairs). Families also selected a friend (*M* age = 57.8 mo.) of the focal child to participate. Each family

selected a friend who was, in order of importance: (1) a frequent playmate, (2) the same age, and (3) the same gender as the focal child. If all three criteria could not be met, parents selected a friend who met the first two criteria. In four families, an opposite-gender friend participated. Parents rated the closeness of the friendship on a 5-point scale (i.e., 1 = acquaintance, 3 = friend, 5 = best friend) to ensure the children were close friends (M = 3.96, SD = .81).

Procedure

Each dyad was videotaped in the home during two separate 15-minute counterbalanced play sessions with a sibling and friend conducted over two visits. Dyads were given one of three counterbalanced wooden play sets to facilitate cooperative play: farm set (32 sibling, 30 friend dyads); village set (31 sibling, 31 friend dyads); train set (2 sibling, 3 friend dyads[2]). Prior to the commencement of each session, the research assistant provided the children with the play set and then stayed in a different room with the mother to allow children privacy. Research assistants, who were blind to the purpose of the study, transcribed video recordings of children's verbal and physical exchanges. The unit of analysis is based on the transcribed behavioural and verbal exchanges of children (i.e., conversational turns).

Coding Measures

Conflict. The transcripts were previously identified and coded for conflict in DeHart's (1999) study. Conflict sequences were identified in accordance with the

[2] The low number of dyads playing with the train set is due to the train set being accidently given to the five dyads by the RAs. The train set was supposed to only be used at a follow up time point.

definition of conflict as mutually opposed behaviour (Vandell & Bailey, 1992). Conflict sequence identification started when the first line of the sequence began with an oppositional move and ended with a resolution. Based upon DeHart's coding scheme, conflict sequences were coded for (1) instigator (i.e., first partner to make an oppositional move in the sequence), (2) turns, defined as the number of behavioural or verbal exchanges that alternate between the partners in the conflict sequence, and (3) resolution (win/lose, compromise, impasse, and indeterminate; for definitions and examples see Table 1 and Appendix A). All conflict resolution variables were identified once per conflict sequence. Inter-rater reliability for the conflict coding measures was established on 20% (26/130) of the transcripts, randomly selected. Cronbach's alpha was .93 for overall conflict frequency and .89 for total turns in conflicts. Percent agreement for win/lose outcomes was .96; correcting for chance agreement, Cohen's *kappa* was .84 for win/lose outcomes.

Power resources. Following from Abuhatoum and Howe (2013), conflict sequences were coded for power resources: (a) coercive (verbal and physical), (b) reward (positive and negative), (c) legitimate (moral principles, authority, preference), (d) referent, (e) expert, (f) information (simple and elaborate), and (g) questioning (French & Raven, 1959; Raven, 1993; Wang, 2006; for definitions and examples, see Table 1 and Appendix B). Each power resource was coded as either present or absent in each conversational turn of the conflict sequence; more than one type of power could be coded per turn.

Power effectiveness. The effective use of each power resource was coded based on Abuhatoum and Howe (2013) (for definitions and examples, see Table 1 and

Appendix B). Power effectiveness refers to the degree to which siblings' and friends' attempts at using power were successful and were thus identified as either (a) an attempt or (b) a success. An attempt occurred when one child tried to employ the use of power to achieve a desired outcome or influence the behaviour of the other child, but was unsuccessful in doing so. In contrast, a success occurred when one child effectively employed the use of power as a means to achieve a desired outcome or influence the behaviour of the other child. Attempts and successes were determined by two-step behavioural contingencies, wherein the success of specific behaviours was determined by the immediate focal child's behavioural response. Finally, the success rate for each power resource was calculated according to the total number of successes divided by the sum of the attempts and successes per child [e.g., 2 successes / (3 attempts + 2 successes) = 40% success rate]. A coding example of conflict and power are provided in Table 2.

Intercoder reliability. The power reliability coding was established by the first author and a naïve research assistant on 20% (69/347) of the sibling dyad conflict sequences and 20% (66/323) of the friend dyads conflict sequences. Cohen's *kappa* revealed high levels of agreement for each type of power: coercive = .91, legitimate = .81, simple demand = .92, elaborated information = .82, negative reward = .96, and questioning = .94. Coding discrepancies were resolved via discussion.

Results

Analyses were performed for sibling and friend dyads' use of power resources (coercive, legitimate, simple demand, elaborated information, negative reward, questioning) and effectiveness in the process and outcome of conflict. Repeated measures analysis of variance (ANOVA) procedures were used with power as the dependent

variable; effect sizes are reported (as partial eta-squares) for significant effects. Bonferroni corrections were used for all post-hoc pairwise comparisons with an alpha level of $p < .05$.

Descriptive Statistics

In total, the sibling pairs engaged in 347 conflicts ($n = 63$, $M = 5.51$, $SD = 3.13$, range = 1–15 per dyad) and the friend pairs engaged in 326 conflicts ($n = 58$, $M = 5.62$, $SD = 3.50$, range = 1–16 per dyad). The number of conversational turns in the conflict sequences varied (sibling conflict range = 4–121; friend conflict range = 3-133). Data analyses were conducted using proportion scores with the family as the unit of analysis. Due to the low frequencies, some types of power (i.e., expert, positive reward, and referent) and conflict outcomes (i.e., compromise, impasse, indeterminate) were dropped. Descriptive information for power and conflict variables are reported in Table 3.

Preliminary Analyses

To account for possible sibling gender effects, a series of one-way ANOVAs were conducted with sibling dyad gender composition (i.e., focal boy-brother, focal girl-sister, focal boy-sister, focal girl-brother) and friend dyad gender composition (i.e., focal boy-boy, focal girl-girl) as the independent variable and power resources, power effectiveness, and conflict resolutions as the dependent variables. No main effects were found for either of the ANOVAs. Further to account for birth order differences, a series of one-way ANOVAs were conducted to examine sibling status differences (focal child with an older sibling vs. focal child with a younger sibling) for power resources, power effectiveness, and conflict outcome variables. No main effects were found. Additionally, to account for sibling age effects, Pearson correlations were performed with sibling dyadic variables

(i.e., power resources, effectiveness, and conflict resolutions) and (a) sibling age gap, and (b) sibling mean age. Likewise, no mean age or age gap effects were evident in power resources, success rates (i.e., effectiveness) or resolutions.

Power Resources by Conflict Process

To compare how sibling and friend dyads differed in their use of power resources in the conflict process, proportion scores were calculated per dyad: for example, by dividing all cases where the sibling dyad used coercive power by the total power resources used by the dyad. A 2 (relationship) x 6 (power resources) repeated measures ANOVA was performed with power as the dependent variable, however, Mauchly's test of sphericity was violated. Correcting for the degrees of freedom with Greenhouse-Geisser estimates ($\varepsilon = .59$), findings displayed a significant main effect of power resources, $F(2.95, 188.97) = 94.52$, $p < .001$, $\eta^2 = .60$, indicating that simple demand ($M = .32$, $SE = .02$) was used the most, followed by coercive power ($M = .24$, $SE = .01$) over legitimate ($M = .11$, $SE = .02$), elaborated ($M = .16$, $SE = .01$), reward negative ($M = .07$, $SE = .003$), and questioning power ($M = .09$, $SE = .01$). Elaborated information was used more than legitimate, negative reward and questioning power, whereas questioning power was used more than negative reward power. The main effect was qualified by a significant relationship x power resources interaction, $F(2.72, 174.35) = 6.12$, $p < .001$, $\eta^2 = .09$ (see Table 4). Mauchly's test of sphericity was violated and the degrees of freedom were corrected using Greenhouse-Geisser estimates ($\varepsilon = .55$). As predicted, sibling dyads were more likely to use coercive power ($M = .30$, $SE = .02$) than friend dyads ($M = .19$, $SE = .02$). Sibling dyads were also more likely to use negative reward power ($M = .08$, $SE = .01$) than friend dyads ($M = .05$, $SE = .01$).

Power Effectiveness by Conflict Process

To compare how sibling and friend dyads differed in their power effectiveness in the conflict process, proportion scores were calculated per dyad: for example, by dividing all cases where the sibling dyad was successful at using coercive power by total attempts and successes for coercive power use. A 2 (relationship) x 6 (power effectiveness) repeated measures ANOVA was performed with power as the dependent variable. Contrary to predictions, results revealed a significant main effect of power effectiveness, $F(5, 320) = 21.70$, $p < .001$, $\eta^2 = .25$, indicating that both sibling and friend dyads were most effective at using coercive power ($M = .47$, $SE = .03$), followed by elaborated information ($M = .34$, $SE = .03$) over simple demand ($M = .23$, $SE = .02$), legitimate ($M = .22$, $SE = .03$), and negative reward power ($M = .18$, $SE = .02$), whereas questioning power ($M = .36$, $SE = .03$) was more effective than negative reward power.

Power Resources by Win/Lose Outcome

To assess sibling and friend dyads' use of power resources in win/lose outcomes, proportion scores were calculated per dyad: for example, by dividing all cases where the sibling dyad used coercive power in win/lose outcomes by the total power resources in win/lose outcomes. A 2 (relationship) x 6 (power resources in win/lose) repeated measures ANOVA was performed with power as the dependent variable. Results indicated that Mauchly's test of sphericity was violated. Correcting for the degrees of freedom with Greenhouse-Geisser estimates ($\varepsilon = .58$), there was a significant main effect of power resources in win/lose outcomes, $F(2.91, 185.50) = 76.96$, $p < .001$, $\eta^2 = .55$. When conflicts ended in win/lose outcomes, simple demand ($M = .32$, $SE = .02$) was used the most, followed by coercive power ($M = .24$, $SE = .02$) over legitimate ($M = .12$, SE

= .01), elaborated (*M* = .16, *SE* = .01), negative reward (*M* = .07, *SE* = .004), and questioning power (*M* = .09, *SE* = .01). Elaborated information was used more than legitimate, reward negative and questioning power, whereas questioning power was used more than negative reward power. The main effect was qualified by a significant relationship x power resources in win/lose outcomes, $F(2.90, 185.34) = 7.94$, $p < .001$, $\eta^2 = .11$ (see Table 5). Mauchly's test of sphericity was violated and the degrees of freedom were corrected using Greenhouse-Geisser estimates ($\varepsilon = .58$). As expected, sibling dyads were more likely to use coercive power in win/lose outcomes (*M* = .30, *SE* = .03) than friend dyads (*M* = .18, *SE* = .02). Sibling dyads were also more likely to use negative reward power (*M* = .08, *SE* = .01) than friend dyads (*M* = .06, *SE* = .01). In contrast, friend dyads were more likely to use simple information power in win/lose outcomes (*M* = .35, *SE* = .03) than sibling dyads (*M* = .29, *SE* = .02), which provided support for the hypothesis.

Power Effectiveness by Win/Lose Outcomes

To compare sibling and friend dyads' use of power effectiveness in win/lose outcomes, proportion scores were calculated per dyad: by dividing, for example, all cases where the sibling dyad was successful at using coercive power in win/lose outcomes by total attempts and successes for coercive power use in win/lose outcomes. A 2 (relationship) x 6 (power effectiveness in win/lose) repeated measures ANOVA was performed with power as the dependent variable. Results revealed a significant main effect of relationship, $F(1, 64) = 4.34$, $p < .05$, $\eta^2 = .06$, indicating that sibling dyads were more effective at using power in win/lose outcomes (*M* = .38, *SE* = .02) than friend dyads (*M* = .28, *SE* = .02). Contrary to expectations, there was also a significant main effect of

power effectiveness in win/lose outcomes, $F(4.71, 301.11) = 20.51$, $p < .001$, $\eta^2 = .24$. Mauchly's test of sphericity was violated and the degrees of freedom were corrected with Huynh-Felt estimates ($\varepsilon = .94$). Sibling and friend dyads were most effective at using coercive power ($M = .50$, $SE = .03$), followed by elaborated information ($M = .34$, $SE = .03$) over simple demand ($M = .23$, $SE = .02$) and negative reward power ($M = .17$, $SE = .02$), whereas questioning power ($M = .35$, $SE = .03$) was more effective than simple demand and negative reward.

Discussion

The present study makes several important contributions to understanding the developmental significance of power in siblings' and friends' dyadic conflict interactions during the early childhood period. In particular, patterns in siblings' and friends' use of power resources as compared to the effectiveness of their power use are discussed, alongside relationship similarities and differences that are illuminated when the conflict process and win/lose outcomes are taken into account.

Similarities in Siblings' and Friends' Power Resources and Effectiveness

In the literature, siblings and friends are frequently described as close and intimate relationships that afford children with opportunities to develop their social-cognitive skills, particularly in the context of conflict (Piaget, 1965; Sullivan, 1953; Volling, 2003). Employing various forms of power in conflict requires children to exercise a variety of cognitive faculties that entail the capacity to reflect on their behaviour and interpret messages communicated during interaction. Our findings showed patterns of dyadic interaction that highlight the construct of power as an ability that may or may not always be exercised and even when exercised may be more or less effective at

exerting an influence or achieving one's goal. Regarding children's power resources, sibling and friend dyads used simple information power more than any other power type, followed by (in order of sequence) coercive, elaborated information, and questioning power in both the conflict process and win/lose resolutions. Apparently, children relied more heavily on the use of simple demands/refutes (e.g., "give me the toy"; "don't put the train there") and coercive tactics (i.e., physical and verbal aggression) than elaborated reasoning (e.g., "you have to do it, it's your house") and the use of questions (e.g., "what was that for?"). This pattern may reflect power struggles specific to the early childhood period such that preschoolers are commonly found to use less sophisticated conflict resolution strategies than older children (Phinney, 1986; Ross, 1996; Shantz & Hobart, 1989). Further, it was striking that children employed a similar pattern of power resources during both the conflict process and win/lose outcomes. It is possible that children's use of power during the conflict episode is closely linked with the conflict outcome.

Although there are critical differences that define sibling and friend relationships, (a point revisited in more detail below), contrary to expectations, sibling and friend dyads did not differ in effectiveness of the specific power resources employed. That is, sibling dyads' attempts at exerting an influence through coercion, simple/elaborated information, legitimate, negative reward, or questioning power were just as successful as friend dyads' attempts. It possible that this result is affected by the fact that the range of power resources employed was rather limited, possibly due to the children's age and developmental status. The similarity of effectiveness observed across relationship contexts further situates patterns of dyadic and strategic interaction within a

developmental framework that illuminates the significance of the early childhood period.

Although the effectiveness of coercion, legitimate, simple/elaborated information, negative reward, and questioning power did not differ across relationship contexts, sibling and friend dyads were most effective at using coercive power in both the conflict process and win/lose outcomes. For example, during the process of conflict one focal child made the demand, "throw them [toys] in [the box]" and instead his sibling responded by grabbing the box cover so as to place it on the box, but is met with physical resistance, as the focal child successfully grabbed the box cover from his hands (coercive power success) and attempted to place the lid on the box himself. The sibling yelled, "Hey!" and proceeded to help the focal child place the lid on the box. These findings replicate and build upon earlier reports that document younger and older siblings as being most effective with their use of coercive power compared to information and legitimate power during conflicts (Abuhatoum & Howe, 2013). Although the instrumentality of coercion appears to exceed constructive forms of influence irrespective of birth order differences and the relationship context, previous research suggests that the nature of a dispute (e.g., possessions) plays an important role in determining when and how power resources such as coercion are used (Abuhatoum & Howe, 2013; Howe et al., 2002).

In addition, sibling and friend dyads were more effective at using elaborated information over simple information, legitimate and negative reward power in the conflict process, as well as over simple information and negative reward power in win/lose outcomes. Given the sophisticated nature of elaborated information power (i.e., reasoning, justification), it is possible that children may have been more effective with this resource due to their capacity to advance the partner's social understanding and/or

awareness of the transgression at hand (e.g., how did the conflict start, explanation of actions/intentions; Grusec & Goodnow, 1994**)**. Furthermore, when comparing children's use of power resources with the effectiveness of their power use, important distinctions are apparent. Interestingly, whereas sibling and friend dyads were more likely to use simple information as a resource over elaborated information power, the latter was more effective at influencing their partner's behaviour than the former in the conflict process and win/lose outcomes. This contrast of findings further suggests that children's demands or refutes such as "no, don't" or "it's red, not black" do not provide enough information or reasoning to effectively persuade or elicit a change in their partner's behaviour as more complex and sophisticated forms of reasoning. For example, one focal child said, "You took all of mine [fence pieces]" (legitimate power attempt) and in response her sibling explained, "Yeah cause I'm making a huge fence, cause I wanna make a pond and stuff for the duckies to swim around" (elaborated information power success). Findings as demonstrated through this example illuminate the developmental significance of elaborated information as a more effective and cognitively advanced means of influence.

Moreover, although sibling and friend dyads employed simple information power most often, they were most effective at using coercive power in the conflict process and win/lose outcomes. This suggests that although simple information power may have been a more readily accessible resource to employ overall when asserting themselves and/or resisting their partners' demands or actions, coercive power was overall more effective at exerting an influence to obtain one's goal. For example, in the sibling session one focal child started to pound the toys in his sibling's play space and in return his sibling stated, "stop killing them" and the focal child continued to pound his sibling's

toys despite his sibling's demand. In another example from a friend session one focal child said, "you put them [mailboxes] near the houses" and in response her friend grabbed the mailboxes from the focal child's play space and placed them in her own play space instead. These examples demonstrate how the coordination of simple demands and coercive tactics can differ in the magnitude of effectiveness especially given the immediate success that follows from physically coercive moves.

Lastly, sibling and friend dyads were more likely to employ and be effective at using questioning power over negative reward power in both the conflict process and win/lose resolutions. Questioning power was also more effective than simple information power in win/lose resolutions. Perhaps probing and inquisitive approaches in the pursuit and at the end of a resolution were more conducive and effective than less sophisticated behaviors defining negative reward power (e.g., whining, crying, or pleading) given that the questioner places the respondent in a position where s/he is expected to comply/respond (Wang, 2006).

On a final note, legitimate power was composed of three sub-categories: (a) moral principles regarding issues of fairness and justice (e.g., "I had it first"); (b) authority regarding the issue of status and social rules (e.g., "you're not allowed to say that"); and (c) preferences regarding likes/dislikes and desires (e.g., "I want it"). As reflected in the results and contrary to expectations, sibling and friend dyads did not employ legitimate power differentially across relationship contexts or for that matter more often or more effectively than other power resources. In fact legitimate power was used less often than simple information, coercive, and elaborated information power in the conflict process and win/lose resolutions. Similarly, legitimate power was less effective than coercive

power in the conflict process and win/lose resolutions, as well as less effective than elaborated information power in the conflict process. Based on these findings, it is possible that the use of legitimate power may not be as prevalent in early childhood as in middle childhood. To address this issue, future research would benefit from conducting a longitudinal investigation to determine whether children would employ legitimacy as a resource of power across the early and middle childhood period.

Differences in Siblings' and Friends' Power Resources and Effectiveness

In contrast to patterns of similarities noted in sibling and friend dyads' use of power resources and effectiveness in conflict, important differences were highlighted when relationship context was taken into account. As predicted, sibling dyads used coercive power more often than friend dyads in the conflict process and win/lose resolutions. This finding corroborates earlier reports that characterize sibling conflicts as more aggressive, more affectively intense, and more likely to be resolved via coercion than friend conflicts (DeHart, 1999; Laursen et al., 2001). In addition, sibling dyads were more likely to use negative reward power such as crying and pleading (e.g., "come on, come on") than friend dyads in the conflict process and win/lose resolutions. This finding adds to reports of crying as a common reaction to sibling aggression, specifically with regards to younger siblings being more likely to cry overall and in response to acts of aggression by older siblings (Martin & Ross, 1995; Della Porta, Howe, & Abuhatoum, under review). Children's less sophisticated and destructive power behaviours (coercion, negative reward) in the sibling relationship may reflect the hierarchal nature of their relationship structure (Howe & Recchia, 2008; Howe et al., 2011). In contrast, friendships involve voluntary interactions that tend to be more reciprocal/egalitarian, thus

placing them at greater risk of termination should highly antagonistic interactions enter into the relationship. (Bukowski, Aquan-Assee, & Sippola, 1996; Hartup, 1989)

In contrast and as expected friend dyads were more likely to use simple information power in win/lose outcomes than sibling dyads, which is consistent with research that reports friends as more likely than siblings to resolve disputes by suggesting an alternative (DeHart, 1999; Laursen et al., 2001). When compared to sibling dyads' use of coercion and negative rewards in win/lose outcomes, friend dyads appear to employ more constructive power tactics (i.e., simple information) as a means to influence their partners' behaviour, despite using such means to obtain one's end goal. Thus, although conflicts may ultimately end in a destructive manner (i.e., win/lose outcomes), the method through which disputes terminate among friend dyads is comparatively more constructive than among sibling dyads. Given that the formation of friendships requires effective construction of dialogues (Gottman, 1983), the maintenance of friendships during episodes of conflict may likewise require interactions (i.e., simple information power) that are more likely to safeguard the continuation of the relationship (Bukowski et al., 2009; Furman & Buhrmester, 1985).

Relationship differences were also apparent in dyads' effectiveness at using power. Specifically, although sibling and friends did not differ in their power effectiveness as far as the specific resources of power were concerned, sibling dyads were more effective at using overall power in win/lose resolutions than friend dyads. Given the shared history of the sibling relationship, it may be that familiarity, close proximity, and intimacy within dyads affords siblings with more knowledge and awareness of one another's weaknesses, desires, and intentions, which may consequently lead to greater

overall success at influencing one another's behaviour, particularly when conflict is likely to end in a destructive manner (Howe & Recchia, 2008; Howe et al., 2011).

Conclusion

Despite the contributions of the present study, it had some limitations. First, the sample consisted of middle class, Caucasian Americans, which limits the generalizability of the results to more diverse populations. Second, the sample size was relatively small, which also consequently limits the generalizability of the findings; however, the play sessions produced a rich set of data. Third, certain types of power and conflict resolutions were dropped from the analyses due to infrequent use or occurrence. Nevertheless, it may be that the variables that were dropped are not employed with great frequency in this particular developmental period. Lastly, given that sibling and friend dyads were most effective at employing coercive power, which replicates prior research (Abuhatoum & Howe, 2013), future research would benefit from further investigation to determine whether siblings' and friends' effectiveness at using coercive power varies with other conflict elements such as the conflict issue or relationship quality of partners.

In sum, the findings obtained from the present study underscore the developmental significance of power in siblings and friends' conflictual relations in the early childhood period. By examining dyadic interactions, several points of interests were highlighted such as dyads' use of power resource versus effectiveness of power and cross-relationship differences, as well as similarities and differences that were noted in the conflict process and outcome (i.e., win/lose). Taken together, the findings provide new and novel insights regarding children's agency in conflict thus highlighting the contributions of children to their own socialization process (Kuczynski & Parkin, 2007).

Table 1

Definitions and Examples of Power and Conflict Coding Scheme

Power Resource	Sub-Categories	Definition	Example
Coercive	Physical	Physical coercion/force	Pushing, grabbing toy, hitting
	Verbal	Verbal aggression such as threats, insults, yelling	"You knocked down mine, I'm going to knock down yours"
Information	Simple	Demands or refutes without explanation	"Give me the fence"; "No, don't"
	Elaborated	Persuasion via justification, reasoning, explanation	"Put that there because that's the only tree that blew down"
Reward	Negative	Use of negative conditions towards desired outcome	Crying, whining, begging
	Positive	Use of positive conditions towards desired outcome	Praise, approval
Legitimate	Moral Principle	Defending rights of self or other	"No fair"; "I had it first"; "that's mine"
	Authority	Reference to social hierarchy, authority, or social rules	"You have to play, that's my mom's rule"
	Preference	Choose/assert one's desire/preference	"I want it"; "I need the barn"
Questioning		Inquiry based on when, where, why, and alternative questions	"Why did you do that?"; "Where's the gate?"; "How is it going to get back?"
Referent		Ability to influence others due to respect, admiration, likeability or lack thereof	"I like you", "You're being mean"; "I hate you"
Expert		References to one's superior knowledge or ability	"I know how to do it"; "This is how you do it"
Power Effectiveness		Degree to which children's power moves exert an influence or obtain one's goal;	4 coercive success / (2 coercive attempts + 4 coercive success) = 67% effectiveness of

	determined by attempts and successes	coercive power
Attempt	When one child tries to employ power to influence the behaviour of the other child or obtain a goal, but is not successful	See Table 2 & Appendix B
Success	When one child successfully employs power to influence the behaviour of the other child or obtain a goal	See Table 2 & Appendix B
Conflict Resolution		
Win/Lose	Outcomes that end with a winner and a loser	See Appendix A
Compromise	Conflicts that end in a win/win scenario wherein conditions are deemed acceptable by both partners	See Appendix A
Indeterminate	Outcome is unknown; ends without resolution	See Appendix A
Impasse	Outcomes that end in a lose/lose scenario wherein conditions are deemed unacceptable by both partners	See Appendix A

Table 2

Coding Example of Power Resources and Effectiveness

Turn	Child	Comments and Actions	Power	Effectiveness
1	F	I can play with it too (*grabs toy from sibling's play space*)	Legitimate; Coercive physical	L-Attempt; C-Success
2	S	No. It's mine.	Simple information; Legitimate	S-Attempt; L-Attempt
3	F	I can just play with it. I'm not going to knock it down.	Elaborated information	Attempt
4	S	Yes you are.	Simple information	Attempt
5	F	I'm just going to play with it.	Elaborated information	Success

Note. F = focal child; S = younger sibling. In this conflict sequence, the focal child grabs her sibling's toy and employs coercive physical power that is a success given her obtainment of the toy. At the same time, the focal child refers to a sense of fairness, "I can play with it too" (legitimate), but it met with opposition and therefore unsuccessful (attempt). In the second turn, the sibling refutes, "no" (simple information) and asserts her right to possession, "it's mine" (legitimate), but is unsuccessful (attempt) with both power moves. In the third turn, the focal child employs elaborated information by justifying her use of the toy, but is unsuccessful (attempt). In the fourth turn, the sibling makes a simple refute and is unsuccessful (attempt). In the final turn, the focal child employs elaborated information by justifying her use of the toy and is successful with her goal. Determining power effectiveness involves dividing the total number of successes by attempts and successes per child. In this example, the focal child was effective at using coercive physical power 100% of the time (e.g., 1 success / (0 attempt + 1 success).

Table 3

Descriptive Statistics for Power Resources, Effectiveness, and Conflict Resolutions

	Sibling Dyad	Friend Dyad
Power Resources	*M (SD)*	*M (SD)*
Coercive	.30 (.19)	.19 (.15)
Simple information	.30 (.14)	.35 (.19)
Elaborated information	.14 (.12)	.17 (.12)
Reward negative	.08 (.04)	.05 (.03)
Legitimate	.11 (.11)	.11 (.07)
Questioning	.10 (.07)	.08 (.06)
Power Effectiveness		
Attempts	.58 (.19)	.55 (.24)
Successes	.39 (.17)	.33 (.18)
Coercive	.52 (.27)	.43 (.34)
Simple demand	.25 (.25)	.20 (.18)
Elaborated information	.35 (.30)	.32 (.29)
Reward negative	.15 (.27)	.15 (.25)
Legitimate	.26 (.31)	.19 (.28)
Questioning	.30 (.36)	.33 (.40)
Overall	.39 (.17)	.33 (.18)
Conflict Resolutions		
Win/Lose	.82 (.25)	.77 (.33)

Compromise	.06 (.11)	.06 (.17)
Impasse	.03 (.08)	.02 (.07)
Indeterminate	.06 (.16)	.04 (.09)

Note. Means and standard deviations for Power Resources, Attempts, and Successes are based on the total scores identified as present or absent per line in the conflict sequence. Means and standard deviations for Power Effectiveness are based on the total number of successes divided by the sum of the attempts and successes per dyad. Means and standard deviations for Conflict Resolutions are based on the total number of conflict sequences observed in each play session per dyad.

Table 4

Power Resources by Sibling and Friend Relationship

	Sibling Dyad	Friend Dyad
	M (SD)	*M (SD)*
Coercive	.30 (.02)[a]	.19 (.02)[a]
Simple information	.30 (.02)	.35 (.02)
Elaborated information	.14 (.02)	.17 (.02)
Reward negative	.08 (.04)[a]	.05 (.03)[a]
Legitimate	.11 (.01)	.11 (.01)
Questioning	.10 (.01)	.08 (.01)

All $p < .001$

Note. Superscript letters represent where the significant differences lie between each dyad for each resource of power (e.g., "a" is significantly different than "a") across rows.

Table 5

Power Resources in Win/Lose by Sibling and Friend Relationship

	Sibling Dyad	Friend Dyad
	M (SD)	*M (SD)*
Coercive	.30 (.03)[a]	.18 (.02)[a]
Simple information	.29 (.02) [a]	.35 (.03) [a]
Elaborated information	.14 (.02)	.17 (.02)
Reward negative	.08 (.01)[a]	.06 (.01)[a]
Legitimate	.12 (.01)	.12 (.01)
Questioning	.10 (.01)	.08 (.01)

All $p < .001$

Note. Superscript letters represent where the significant differences lie between each dyad for each resource of power (e.g., "a" is significantly different than "a") across rows.

Bridging Studies: Dyadic to Individual Contexts in Early and Middle Childhood

The first study addressed which power resources are more likely to be present and effective during siblings' and friends' dyadic conflict interactions in early childhood when focal children were aged four. The findings extend recent work on power in children's sibling and family relationships in conflict (Abuhatoum & Howe, 2013; Della Porta & Howe, 2012; Recchia, Ross, & Vickar, 2010; Della Porta, Howe, & Abuhatoum, under review) by conducting a comparative analysis of children's dyadic interactions with their siblings and friends. According to Hinde et al. (2001), a science of relationships requires a dyadic perspective that encompasses an examination of the relationship context between two individuals. In doing so, one is afforded with a unique lens to study the developmental contributions that emanate from the similarities and differences observed across social relationships. Based on this theoretically supported premise, the present study adds to our current state of knowledge regarding the nature of children's early socio-cognitive development in sibling and friend relations. The first study identified key elements of how children co-construct knowledge and create schemas of interaction (Carpendale & Lewis, 2006; Laible & Thompson, 2007; Maccoby, 2007). Specifically, we found unique patterns of interaction that vary across relationship context and conflict process and outcome.

Although a dyadic perspective adds to our understanding regarding the unique properties of sibling and friend relationships, a comprehensive view also requires an examination of the individuals that comprise the relationship context (Hinde et al., 2001), in conjunction with an examination of developmental change over time. Therefore, the aims of the second study were to: (a) examine individual differences in focal children's

power resources and effectiveness in conflicts with siblings and friends; and (b) examine the extent to which individual differences show continuity over time (early and middle childhood). With these two aims for Study 2, we compared focal children's use of power (resources, effectiveness) by relationship context (sibling, friend), conflict stage (process, outcome), birth order (younger, older), and developmental stage (early, middle childhood). A study of this nature allows for a broader view of children's individual use of power across relationship contexts and developmental stages.

Study 2: A Longitudinal Examination of Power in Sibling and Friend Conflict

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Abstract

This study examined power resources and effectiveness during the process and outcome of children's disputes with their sibling and friend across early and middle childhood. Participants included 65 families that were followed when focal children were aged 4 (Time 1) and then three years later when focal children were aged 7 (Time 2). Data based upon naturalistic observations were coded for conflict sequence identification (DeHart, 1999), power resources (coercive physical, coercive verbal, simple information, elaborated information, legitimate; French & Raven, 1959) and power effectiveness (attempt, success; Abuhatoum & Howe, 2013). In terms of relationship effects, focal children were more likely to employ coercive physical and legitimate power with their siblings than friends in the conflict process, whereas focal children were more likely to use simple information power with friends than with siblings. Focal children were also more effective using legitimate power with siblings than with friends in the conflict process. Conversely, when winning conflicts focal children were more likely to use information power with friends than with siblings. In terms of developmental effects, focal children were more likely to use coercive physical power at Time 1 than Time 2 and elaborated information power at Time 2 than at Time 1. In contrast, focal children were more effective using information power and coercion when winning conflicts with friends at Time 2 than at Time 1. Taken together, the results highlight variability in children's use of power based on relationship partner and developmental stage.

A Longitudinal Examination of Power in Sibling and Friend Conflict

The close relationships that children form with others in early and middle childhood are important contexts for facilitating their social, cognitive, and emotional growth (Dunn, 1983; Howe, Ross, & Recchia, 2011; Hartup, 1989; Volling, 2003). Specifically, the content and quality of interactions that comprise child-child relationships play a significant role in their socialization and development (Bowlby 1982; Carpendale & Lewis, 2006; Hinde, 1979). As in all close relationships, conflict between children is inevitable and constitutes a critical context to study patterns of interaction and development (Dunn, 2002; Hartup & Laursen, 1993; Howe & Recchia, 2008). During conflict, children are afforded opportunities to engage in agentic forms of behaviour (Cummings & Schermerhorn, 2003). An important means to study agentic behaviour in conflict is via an examination of power processes (i.e., resources, effectiveness) defined as behaviours used to exert an influence during the process and outcome of a dispute (Abuhatoum & Howe, 2013; French & Raven, 1959). Given that conflict often arises during play, children's play partners, typically siblings and friends, are also sometimes labeled as adversaries. Children's sibling and friend relationships constitute significant and unique contexts for development (Hughes & Dunn, 2007). In particular, the execution of power behaviours during conflict exchanges with siblings and friends provides children with ample opportunities to develop and refine their social competence skills (Hartup & Laursen, 1991, 1999; Parke & Buriel, 2006).

To date, only a few studies have investigated the developmental significance of power in children's conflict, typically by studying sibling and family relations (e.g., Abuhatoum & Howe, 2013; Della Porta, Abuhatoum, & Howe, under review; Della Porta

& Howe, 2012). However, as several theorists (e.g., Piaget, 1965; Hinde, 1979; Hartup, 1989) emphasize, children's friendships constitute another important context for development; particularly, with regards to learning to handle conflict (Hartup & Laursen, 1993). Therefore, the aim of the present study was to investigate: (a) individual differences in children's use of power resources and effectiveness in the process and outcome of conflict with their siblings and friends, and (b) the extent to which these patterns change or show continuity over a 3-year-period, from early to middle childhood.

Power and Conflict in Children's Relationships

A crucial dimension to consider in children's close relationships is the relative power that interpersonal partners hold within the dyad. The construct of power refers to the availability of resources a child has so that he or she can influence the behaviour of the other child (French & Raven, 1959; Raven, 1993, 2008; Raven, Schwarzwald, & Koslowsky, 1998). The power resources include: (a) coercive power (i.e., threat of physical or verbal punishment); (b) reward power (i.e., positive/negative reinforcement); (c) legitimate power (i.e., one's rights and obligations); (d) referent power (i.e., identification with another person's qualities, traits, or disposition); (e) expert (i.e., superior knowledge or ability), (f) information power (i.e., simple demands and elaborate reasoning); and (g) questioning power (Abuhatoum & Howe, 2013; Dunn & Munn, 1987; French & Raven, 1959; Phinney, 1986; Wang, 2006; for further definitions and examples see Table 1 and Appendix B). The bidirectional and interdependent nature of power renders the notion of influence as a noteworthy facet that may result in an individual changing his/her beliefs, attitudes, or behaviours (Erchul & Raven, 1997; French & Raven, 1959). In this light, children's power behaviours can be studied both in terms of

the resources used and the effectiveness with which the influential move is executed (i.e., eliciting a change in the opponent's behaviour or obtaining one's goal). The developmental significance of power (i.e., resources, effectiveness) is conceptualized in terms of children's agency; a multifaceted construct comprising cognitive, behavioural, and motivational dimensions that reflects self-initiated and intentional action (Cummings & Schermerhorn, 2003). Children engage in agentic behaviour during all developmental periods across relationships and contexts.

The conflict context, in particular, serves as an excellent platform to study children's use of power. First, conflicts are composed of social events marked by mutual opposition between two or more individuals (Deutsch, 1973; Vandell & Bailey, 1992). Second, conflicts have the capacity to be either destructive or constructive (Howe & Recchia, 2008). Destructive conflicts involve aggressive behaviours, unresolved issues, and inequitable resolutions, whereas constructive conflicts are characterized by collaborative resolutions involving negotiation and reasoning. Theorists and researchers both argue that conflict provides an important context for children's social-cognitive development (Howe et al., 2002; Piaget, 1965; Sullivan, 1953; Volling, 2003). Specifically, when in conflict, children are faced with competing perspectives that provide opportunities to consider alternative points of view and to negotiate solutions. Similarly, by executing influential (i.e., power) behaviours in conflict children become active in their own developmental process.

Given the prominence of conflict and power in children's lives, a worthwhile inquiry thus concerns variations in children's power use. For example, are there marked individual differences in children's use of power resources and effectiveness in the

process and outcome of conflict? Do they show stability across time and are they evident across relationship contexts, or does power use differ depending upon conflict partner?

Sibling and Friend Relationships: Contexts for Interaction and Development

Relationships with siblings and friends serve as critical contexts for studying children's interaction and development. The unique features that comprise sibling and friend relationships may thus account for developmental/individual differences in children's propensity to be effective when employing power resources in conflict. In particular, sibling and friend relationships vary along dimensions of symmetry, closeness, and voluntariness (DeHart, 1999; Hartup, 1989; Hinde, 1979).

First, the sibling relationship encompasses reciprocal (i.e., equal and returned) and hierarchal (i.e., unequal) interactions (Howe & Recchia, 2008; Howe et al., 2011). Although siblings may be viewed as equal partners, differences in age, developmental status, size, strength, knowledge, skills, and relative power render older siblings with more opportunities to influence younger siblings and control interactions (DeHart, 1999; Dunn, 1983). In fact, older siblings are more likely to initiate and win conflicts, and engage in more aggressive/coercive behaviours (Abuhatoum & Howe, 2013; Howe et al., 2002; Howe et al., 2011). Nevertheless, younger siblings are also active partners in the relationship; thus, both children are likely to gain access to and employ power effectively. In contrast, friendships are characterized by greater reciprocity, wherein partners are viewed in more egalitarian terms (Hartup, 1989); thus friendships can potentially handle disputes more constructively than siblings (DeHart, 1999; Raffaelli, 1997).

Second, the shared history of the sibling relationship renders a degree of closeness and familiarity that is accompanied by affectively intense interactions (e.g., positive,

negative, ambivalent), whereas friendships may be short-term and are characterized by mutual liking and similarity (Lecce, Pagnin, & Adriano, 2009; Bukowski et al., 2009; Rubin et al., 2006, 2015). Thirdly, unlike friendships that are voluntary and require the commitment of support and companionship (Dunn, 2007; Furman & Buhrmester, 1985), the sibling relationship is obligatory. Therefore, conflicts between friends may have more consequences that can potentially result in the end of the relationship (DeHart, 1999), thus perhaps requiring more constructive means of influence.

Developmental Changes in Sibling and Friend Conflict

Sibling and friend relationships have largely been investigated separately and to date there is a dearth of research investigating power processes in children's conflict with siblings and friends. However, there is a body of literature, albeit small, that has jointly examined longitudinal patterns in children's conflict interactions with their siblings and friends. One approach to measuring longitudinal patterns of change has been to study direct associations (i.e., carry-over effects) between children's sibling and friend conflict interactions, wherein individual differences in one relationship are linked to the other (DeHart, 1999; Stocker & Dunn, 1990). A second approach involves identifying similarities and differences in how children's conflict interaction strategies with their siblings and friends change over time.

For example, Dunn and colleagues (1995) compared children's self-oriented arguments (offered in the service of the speaker's own interest) and other-oriented arguments (turns that take into account the needs/desires of the other) in conflict at 33 and 47 months with older siblings and friends. There was no evidence of a carry-over effect; however, at 47 months children used more other-oriented reasoning with friends

than with older siblings. However, Dunn and Herrera (1997) reported evidence of a carry-over effect wherein children's other-oriented reasoning at 33 months with older siblings predicted later compromise and submission strategies during disputes with a friend at 72 months. Similarly, Herrera and Dunn (1997) found that 33-month-old children whose older siblings used other-oriented reasoning during their disputes were more likely to compromise and bargain with a friend at 72 months. In line with these findings, meta-analyses examining conflict resolution revealed that friends resolved conflicts more often with negotiation than coercion or disengagement, whereas siblings resolved conflicts more often with coercion than disengagement (Laursen, Finkelstein, & Betts, 2001). Similarly, DeHart (1999) examined sibling and friend conflicts between ages 2 1/2 – 6 1/2 years and found that sibling conflicts were more aggressive and affectively intense than friend conflicts. The same research group found that at age 4 the children used more relational aggression (e.g., spreading rumours, exclusion, ignoring) with their siblings than they did with their friends; however, by age 8 siblings and friends showed similar rates of relational aggression with decreases and increases noted between siblings and friends, respectively (Stauffacher & DeHart, 2005; 2006).

Overall, the results from the above studies highlight important associations across sibling and friend relationships, meanwhile illuminating that friends are especially likely to employ conciliatory strategies and outcomes, as compared to siblings. However, despite the developmental changes and differences that occur when children are in conflict with their siblings and friends, they rarely use strategies that lead to outcomes that end in conciliatory ways. That is, over 80% of sibling and friend conflicts in the early

childhood period end with a clear winner/loser (DeHart, 1999); a finding replicated in the sibling conflict literature (Howe et al., 2002; Howe et al., 2003; Howe et al., 2011).

Sibling conflict. Important individual differences in the sibling relationship are also highlighted in the literature. Regarding longitudinal patterns, Tesla and Dunn (1992) found that at 33 and 47 months children were more likely to use non-conciliatory arguments in defense of their own interests when fighting with older siblings. Furthermore, Dunn and Munn (1987) examined children's developing use of verbal justification in disputes at 18, 24, and 36 months; by 36 months children used justifications in disputes with their older sibling, which occurred via reference to their own feelings and social rules. Overall, although children were more likely to use reasoned argument during sibling conflict, their powers of reasoning were mostly employed to achieve their own immediate goals. Although compromises are desirable outcomes, they are rarely observed; yet, the reasoning and communicative skills children develop and use for their own ends and to defeat their opponents apparently contribute to children's social understanding (Dunn, Slomkowski, Donelan, & Herrera, 1995).

Longitudinal studies further suggest that developmental shifts may contribute to individual differences in siblings' destructive conflict resolution strategies. For instance, Martin and Ross (1995) found that first-born siblings aggressed more often than second-borns, but aggression declined over time with the difference being more apparent when children were 2 1/2 and 4 ½ years of age than two years later. Overall, wide variability exists in children's behavioural responses to different conflict partners (i.e., sibling, friend). In particular, findings highlight relationship specificity in children's interaction patterns, along with important individual differences observed within and across

relationships. However, one area that has yet to be examined is the means by which children employ power to influence their exchanges with siblings and friends.

Power Resources and Effectiveness in Conflict

Regarding children's use of agency in conflict, the analysis of power may vary in form and content across relationship contexts and time, as well as by the conflict outcome (e.g., win/lose) and process towards the resolution (Perlman et al., 2000). Further, assessments of power in children's conflict have generally been limited to sibling and family relations in early childhood. For example, Perlman, Garfinkel, and Turrell (2007) examined children's use of power (verbal and physical aggression) in conflict at 2 and 4 years old and two years later. Across both time points, older siblings' use of physical power marginally predicted their later use of physical power, whereas verbal power was stable over time. In contrast, younger siblings displayed consistent patterns in physical power, whereas their use of verbal power doubled along with increased opposition between ages 2 and 4. Apparently over time younger siblings play an increasingly active role, as their competencies of understanding and communication skills develop.

In addition, Perlman and Ross (2005) examined siblings' sequential use of physical and verbal power at ages 2 and 4. Specifically, power differentials in favour of the older sibling were apparent with reciprocity of power and reasoning evident in responses to their younger siblings' use of power, followed by more overall power moves directed toward their younger siblings. Importantly, however, methods of influence have also been studied through other means such as parent-child and siblings' perceptions of power resources in conflict (Della Porta & Howe, 2013); while Abuhatoum and Howe (2013) employed an expanded notion involving power effectiveness during naturally

occurring sibling conflicts in early and middle childhood. In the latter study, researchers investigated power resources in relation to conflict issues and resolutions, as well as power effectiveness in the process of conflict. Siblings were most effective when coercive power was employed and were also more likely to use information power in compromise outcomes. Sibling status differences were also noted, as older siblings were more likely to use coercive power in win/lose outcomes, whereas younger siblings were more likely to employ legitimate power regardless of the conflict issue or resolution.

More recently, Della Porta, Howe, and Abuhatoum (under review) investigated power effectiveness during naturally occurring family conflicts and reported that whereas younger siblings were more effective with reward power, older siblings were more effective with legitimate power. Although initial insights regarding children's use of power in conflict have been gleaned by the studies reviewed above, the present study furthers our understanding by examining children's power resources and effectiveness in sibling and friend conflict across the early and middle childhood periods.

The Present Study

Although siblings and friends are significant relationship partners for young children, children's use of power in those relationships has received little attention. In light of the theoretical and empirical relevance of power and conflict in children's lives, the purpose of the present study was to conduct a comparative analysis of children's power resource use and effectiveness in the process and outcome of conflict within and across relationship contexts (i.e., sibling, friend) and time (early and middle childhood). This analysis was conducted over a 3-year period by tracing developmental differences when focal children were aged 4 and 7. At each time point focal children were observed

in two play sessions: one session with an older or younger sibling and one session with their same-aged friend. To this end, cross-relationship comparisons included the focal child's use of power with their sibling as compared to the focal child's use of power with the friend. In contrast, sibling birth order comparisons included older focal children's power use compared to the younger focal children's power use. The following research questions and hypotheses were addressed.

First, what types of power resources do focal children use with their siblings and friends in the conflict process and outcome across the two developmental periods? During the conflict process it was expected that focal children would be more likely to use: (a) coercive power with siblings than with friends (DeHart, 1999; Stauffacher & DeHart, 2005); and (b) information power more often with friends than with siblings (Dunn et al., 1995; Laursen, Finkelstein, & Betts, 2001). These findings were expected to be more evident at Time 1 (T1), in early childhood, than at Time 2 (T2), in middle childhood. It was further expected that focal children would use information power in compromise outcomes more often with friends than with siblings (Gottman, 1992).

Second, what types of power resources do focal children who are older siblings use in the conflict process and outcome across the two developmental periods, compared to focal children who are younger siblings? At T1 it was predicted that younger focal siblings would be more likely to use legitimate power in the conflict process than older focal siblings, whereas older focal siblings would be more likely to use coercive power in win/lose outcomes than younger focal siblings (Abuhatoum & Howe, 2013). However, it was predicted that siblings' (i.e., older focal, younger focal) use of coercive power would decline on the cusp of middle childhood at T2 compared to T1 (Martin & Ross, 1995;

Stauffacher & DeHart, 2006). Moreover, at T2 it was predicted that all children would use more information power and expert power given their greater cognitive abilities compared to three years earlier at T1.

Third, what types of power do focal children use most effectively with their siblings and friends in the conflict process and outcome across the two developmental periods? Based on the characteristics of the two relationships (DeHart, 1999; Howe et al., 2011), it was predicted that focal children would be more effective at using coercive power with siblings than with friends across both time points.

Fourth, what types of power do older focal siblings use most effectively compared to younger focal siblings in the conflict process and outcome across the two developmental periods? It was predicted that older and younger siblings would show similar rates of effectiveness, but both would be most effective at using coercive power (Abuhatoum & Howe, 2013). Lastly, due to children's social and cognitive maturation over the 3-year period across time points, it was also expected that all children would be more effective at using information power in the conflict process at T2 as compared to T1.

Method

Participants

Sixty-five families from small towns and suburban communities in Western New York State participated in a longitudinal study examining sibling and friend interaction in early and middle childhood. Families were recruited through word-of-mouth and fliers. At T1, sibling pairs consisted of a 4 1/2 year-old focal child (*M* age = 56.4 mos.; *SD* = 5.71 mos.) observed with a younger (*n* = 37; *M* age = 34.9 mos.; *SD* = 5.3 mos.) or older sibling (*n* = 28; *M* age = 75.8, mos.; *SD* = 11.2 mos.). The sibling dyadic gender

composition included 33 same-gender (17 brothers, 16 sisters) and 32 mixed-gender pairs (16 brother-sister, 16 sister-brother). Forty-six families, participated in a follow up (T2) study approximately three years later. The focal children (*M* age = 94.58 mos.; *SD* = 6.59 mos.) were observed with a younger (*n* = 21; *M* age = 74.29 mos.; *SD* = 5.66 mos.) or older sibling (*n* = 25; *M* age = 114.00, mos.; *SD* = 7.12 mos.). The dyadic gender composition included 27 same-gender (19 brothers, 13 sisters) and 19 mixed-gender pairs (11 brother-sister, 8 sister-brother).

Across both time points, families selected a friend of the focal child to participate (T1 friends' *M* age = 57.8 mos.; T2 friends' *M* age = 96.88). Each family selected a friend who was, in order of importance: (1) a frequent playmate, (2) the same age, and (3) the same sex as the focal child. If parents had difficulty meeting all three criteria, they were asked to address the first two criteria. In four families, an opposite-gender friend participated (three boys with older sisters, one boy with a younger sister). Parents rated the closeness of the friendship on a 5-point scale (i.e., 1 = acquaintance, 3 = friend, 5 = best friend) to ensure the children were close friends (*M* = 3.96, *SD* = .81). Reflecting the relative transience of preschool friendships, all but 23 of the focal children were videotaped with different friends at T2.

Procedure

The T1 and T2 procedure for the semi-structured play sessions included two 15-minute counterbalanced videotaped sessions of the focal child playing with a sibling and friend at home over two visits. At T1, dyads were given one of three counterbalanced wooden play sets (farm, village, or train) to facilitate play: farm set (32 sibling, 30 friend

dyads); village set (31 sibling, 31 friend dyads); train set (2 sibling, 3 friend dyads[3]). At T2, dyads were given either a village (19 sibling, 22 friend dyads) or a train set (27 sibling, 23 friend dyads). The research assistant provided the children with the play set and then joined the mother in a different room to ensure the children's privacy. Research assistants' blind to the study's purpose transcribed video recordings of children's verbal and physical exchanges. The unit of analysis for the measures described below is based on the transcribed behavioural and verbal exchanges (i.e., conversational turns).

Coding Measures

Conflict. DeHart (1999) previously identified and coded conflict on the transcripts based on mutually opposed behaviour (Vandell & Bailey, 1992). Conflict sequences began when the first line of the sequence started with an oppositional move and ended with a resolution. Based on DeHart, conflict sequences were coded for: (1) instigator (i.e., first child to make an oppositional move in the sequence), (2) turns, defined as the number of alternating behavioural or verbal exchanges between children in the conflict sequence, and (3) resolutions identified once per sequence (win/lose, compromise, impasse, and indeterminate; for definitions and examples see Table 1 and Appendix A).

Interrater reliability for the conflict coding measures at T1 was established on 20% (26/130) of the transcripts, randomly selected. Cronbach's alpha was .93 for overall conflict frequency and .89 for total turns in conflicts. Percent agreement for conflict outcomes in terms of winner/loser was 94%; correcting for chance agreement, Cohen's *kappa* was .88, whereas percent agreement for win/lose outcomes was .96; correcting for

[3] The low number of dyads playing with the train set at T1 is due to the train set being accidently given to the 5 dyads at T1 by the RAs. The train set was supposed to be used at T2 only.

chance agreement, Cohen's *kappa* was .84. For T2 data, interrater reliability was established on 23% (21/92) of the transcripts, randomly selected. Cronbach's alpha was .91 for overall conflict frequency and .80 for number of oppositional turns. Percent agreement for conflict outcomes in terms of winner/loser was 84%; correcting for chance agreement, Cohen's *kappa* was .62, whereas percent agreement for win/lose outcomes was .91; correcting for chance agreement, Cohen's *kappa* was .85. According to Fleiss (1981), a kappa value between .60 and .75 is good, and a value greater than .75 is excellent.

Power resources. In the present study, conflict sequences were coded for power resources based on Abuhatoum and Howe (2013): (a) coercive (verbal, physical), (b) reward (positive, negative), (c) legitimate (moral principles, authority, preference), (d) referent, (e) expert, (f) information (simple, elaborate), and (g) questioning (French & Raven, 1959; Raven, 1993; Wang, 2006; for definitions and examples, see Table 1 and Appendix B). Power was coded in each conversational turn of the conflict sequence as either present or absent; more than one type of power could be coded per turn.

Power effectiveness. Based on Abuhatoum and Howe (2013), the effectiveness of power was coded (for definitions and examples, see Table 1 and Appendix B) and signifies the degree to which children's use of power qualified as an attempt or a success. When a child tried to use a power resource to achieve a desired outcome or influence the behaviour of the other child, but was nonetheless unsuccessful, attempts were coded. Whereas, when a child was effective in achieving his/her desired goal or influencing the behavior of the other child, a success was coded. Two-step behavioural contingencies determined attempts and successes, wherein the child's immediate behavioural response

indicated the success or lack thereof (i.e., attempt). Finally, the success rate for each power resource was calculated according to the total number of successes divided by the sum of the attempts and successes per child [e.g., 2 successes / (3 attempts + 2 successes) = 40% success rate]. Table 2 includes a coding example of conflict and power.

Interrater reliability. The power reliability coding was performed by the first author and a naïve research assistant on 20% of T1 and T2 sibling dyad conflict sequences (135/670) and 20% of T1 and T2 friend dyad conflict sequences (97/483). Cohen's *kappa* revealed high levels of agreement for each type of power: coercive = .90 legitimate = .83, simple information = .93, elaborated information = .89, negative reward = .94, and questioning = .96. Discrepancies regarding power codes were resolved through discussion.

Results

Descriptive Statistics

At T1, 347 sibling conflicts (n = 63, M = 5.51, SD = 3.13, range = 1–15 per dyad) were identified, along with 326 friend conflicts (n = 58, M = 5.62, SD = 3.50, range = 1–16 per dyad), whereas at T2, there were 238 sibling conflicts (n = 44, M = 5.41, SD = 2.84, range = 1–14) and 241 friend conflicts (n = 41, M = 5.88, SD = 3.42, range = 1–18). The number of conversational turns in the conflict sequences varied at T1 (sibling conflict range = 4–121; friend conflict range = 3-133) and at T2 (sibling conflict range = 9–108; friend conflict range = 3–156). Data analyses were conducted using proportion scores with the family as the unit of analysis. As a result of low frequencies, negative reward power and questioning power were dropped from the analyses, whereas expert power was collapsed with elaborated information power due to conceptual similarity in

the sophistication of these power strategies. Referent power and positive reward power were excluded due to their non-occurrence. Similarly, conflict outcomes involving compromise, impasse, and indeterminate were dropped from the analyses due to low frequencies. Descriptive statistics for the focal child's use of power resources and effectiveness are presented in Table 3. Descriptive statistics regarding conflict outcomes are presented in Table 4.

Analyses reported below were performed for the focal child's use of power resources (coercive verbal, coercive physical, legitimate, simple information, elaborated information) and effectiveness during the sibling and friend conflict. Mixed factorial repeated measures ANOVA were used with power as the dependent variable. Bonferroni corrections were employed for all post-hoc tests with an alpha level of $p < .05$. Mauchly's test of sphericity was violated in some analyses and the degrees of freedom were corrected with Huynh-Feldt or Greenhouse-Geisser estimates as appropriate.

Preliminary Analyses

To test for gender effects a series of one-way ANOVAs were performed with sibling gender composition (i.e., focal boy-brother, focal girl-sister, focal boy-sister, focal girl-brother) and friend gender composition (i.e., focal boy-boy, focal girl-girl) as the independent variable and power resources and effectiveness as the dependent variables. A significant main effect was revealed for friend gender composition and coercive power effectiveness, $F(1, 59) = 7.11$, $p < .01$ (see Table 1 in Appendix C). At T1, girl-girl dyads ($M = .54$, $SD = .39$) were more effective at coercive power than boy-boy dyads ($M = .29$, $SD = .32$).

Power Resources by Conflict Process across Relationship and Time

To compare what types of power resources focal children used with their siblings and friends in the process of conflict, proportion scores were calculated according to focal child's use of power per relationship context; for example, by dividing all cases where the focal child used coercive power in the sibling relationship by the total power resources used. A 2 (relationship context: sibling, friend) x 2 (time: T1, T2) x 2 (focal child's birth order: older, younger) x 5 (power resources: coercive verbal, coercive physical, legitimate, simple information, elaborated information) mixed factorial repeated measures ANOVA was performed with time and relationship context as the within subjects factors and the focal child's birth order as the between subjects factor. Analyses revealed a significant main effect of power resources, $F(3.47, 111.17) = 62.76$, $p < .000$, $\eta^2 = .66$. Focal children were most likely to use simple information ($M = .39$, $SE = .02$) and were more likely to use coercive physical power ($M = .20$, $SE = .02$) over both coercive verbal power ($M = .09$, $SE = .01$) and legitimate power ($M = .12$, $SE = .01$). Focal children were also more likely to use elaborated information ($M = .20$, $SE = .01$) over coercive verbal and legitimate power.

In addition, findings revealed a significant relationship x power resources interaction, $F(2.67, 85.45) = 8.94$, $p < .000$, $\eta^2 = .22$ (see Table 5). Focal children were more likely to use coercive physical ($M = .25$, $SE = .03$) and legitimate power ($M = .15$, $SE = .01$) in the sibling than in the friend session ($M = .15$, $SE = .02$; $M = .10$, $SE = .02$, respectively), which provides support for the hypotheses. In contrast and as expected, focal children were more likely to use simple information ($M = .45$, $SE = .02$) in the friend than the sibling session ($M = .33$, $SE = .02$). Lastly, results revealed a significant

time x relationship x power resources interaction, $F(2.73, 87.23) = 2.71$, $p < .05$, $\eta^2 = .08$ (see Table 6). As predicted, focal children were more likely to use coercive physical power in the sibling session at T1 ($M = .31$, $SE = .05$) than at T2 ($M = .18$, $SE = .03$). Focal children were also more likely to use elaborated information in the sibling relationship at T2 ($M = .22$, $SE = .02$) than at T1 ($M = .15$, $SE = .02$), which provides partial support for the hypotheses. However, contrary to expectations, focal child's birth order did not reveal significant effects, as all other interactions were non-significant, p values > .14.

Power Effectiveness by Conflict Process across Relationship and Time

To compare what types of power focal children used most effectively with their siblings and friends in the conflict process, proportion scores were calculated according to focal child's use of power per relationship context, for instance, by dividing all cases where the focal child was successful at using coercive power in the sibling relationship by total attempts and successes for coercive power use in the sibling relationship. A 2 (relationship context: sibling, friend) x 2 (time: T1, T2) x 2 (focal child's birth order: older, younger) x 4 (power effectiveness: coercive, legitimate, simple information, elaborated information) mixed factorial repeated measures ANOVA was performed with time and relationship context as the within subjects factors and birth order as the between subject factor. Of note, Levene's test indicated unequal variances for the focal child's use of coercive verbal power in the friend session at T1 ($F = 14.90$, $p = .001$), therefore coercive verbal and coercive physical were collapsed into one variable (i.e., coercive power).

Analyses revealed a significant main effect of time, $F(1, 32) = 5.26$, $p < .05$, $\eta^2 = .14$, indicating that focal children were more effective at using power at T2 ($M = .36$, $SE = .01$) than at T1 ($M = .30$, $SE = .02$). Findings also revealed a significant main effect of power effectiveness, $F(2.06, 65.85) = 23.34$, $p < .000$, $\eta^2 = .42$. Providing partial support for the stated hypothesis, focal children were most effective when using coercive power ($M = .52$, $SE = .04$) and were more effective at using elaborated information power ($M = .35$, $SE = .03$) over both simple information ($M = .24$, $SE = .02$) and legitimate power ($M = .21$, $SE = .03$). Furthermore, findings revealed a significant relationship x power effectiveness interaction, $F(3, 96) = 6.02$, $p < .001$, $\eta^2 = .16$ (see Table 2 in Appendix C), indicating that focal children were more likely to be effective at using legitimate power in the sibling relationship ($M = .29$, $SE = .05$) than in the friend relationship ($M = .14$, $SE = .03$). Similar to the previous set of findings, focal children's birth order did not reveal significant effects given that all other interactions were non-significant, p values > .15.

Power by Win-Lose Outcome across Relationship and Time

Focal child's use of power resources and effectiveness as it relates to the conflict outcome in the sibling and friend session constituted the second method of analysis. However, given that the vast majority of conflict sequences ended in win-lose outcomes (see Table 3), an exploratory analysis was conducted with regards to the focal child's use of power resources and effectiveness in relation to their likelihood of winning a conflict in the sibling and friend session.

Power resources. To compare focal children's use of power resources as it related to their likelihood of winning a conflict in the sibling and friend session, proportions

scores regarding power resources were calculated; for example, by dividing the type of power used by the sum of all types of power used when conflicts were won (i.e., focal child coercion win / focal child coercion win + focal child information win + focal child legitimate win). A 2 (relationship context: sibling, friend) x 2 (time: T1, T2) x 2 (focal child's birth order: older, younger) x 3 (power resources: coercive, legitimate, information) mixed factorial repeated measures ANOVA was performed with time and relationship context as the within subjects factors and birth order as the between subject factor. Due to low means (i.e., infrequent use of power as it relates to winning a conflict) coercive verbal and coercive physical were collapsed into one variable (i.e., coercive power). Moreover, due to Levene's test indicating unequal variances for the focal child's use of elaborated information power in the sibling session at T1 ($F = 7.37$, $p = .01$), simple information and elaborated information were collapsed into one variable (i.e., information power).

Analyses revealed a significant main effect of time, $F(1, 33) = 26.36$, $p < .000$, $\eta^2 = .45$, indicating that focal children were more likely to win conflicts using power at T2 ($M = .30$, $SE = .01$) than at T1 ($M = .17$, $SE = .02$). Findings also revealed a significant main effect of power resources, $F(1.29, 42.67) = 93.35$, $p < .000$, $\eta^2 = .74$. Focal children were more likely to win conflicts using information power ($M = .45$, $SE = .03$) over both coercive ($M = .15$, $SE = .01$) and legitimate power ($M = .11$, $SE = .01$), followed by coercive over legitimate power. Furthermore, findings revealed a significant time x power resources interaction, $F(1.62, 53.29) = 28.93$, $p < .000$, $\eta^2 = .47$ (see Table 3 in Appendix C). Focal children were more likely to win conflicts using coercive ($M = .29$, $SE = .05$) and information power ($M = .60$, $SE = .04$) at T2 than at T1 ($M = .11$, $SE = .02$;

M = .27, SE = .04, respectively). Lastly, findings revealed a significant relationship x power resources interaction, $F(1.68, 53.36) = 7.09$, $p < .000$, $\eta^2 = .18$ (see Table 4 in Appendix C). Focal children were more likely to win conflicts using information power (M = .50, SE = .04) in the friend than in the sibling session (M = .37, SE = .04).

Power effectiveness. To compare focal children's effective use of power as it related to their likelihood of winning a conflict in the sibling and friend session, proportion scores were calculated; for example, by dividing all cases where the focal child was successful at using coercive power as the winner in the sibling relationship by total attempts and successes for coercive power use with siblings. A 2 (relationship context: sibling, friend) x 2 (time: T1, T2) x 2 (focal child's birth order: older, younger) x 3 (power effectiveness: coercive, legitimate, information) mixed factorial repeated measures ANOVA was performed with time and relationship context as the within subjects factors and birth order as the between subject factor.

Analyses revealed a significant main effect of time, $F(1, 33) = 4.84$, $p < .05$, η^2 = .13, indicating that focal children were more likely to win conflicts being effective with power at time 2 (M = .35, SE = .03) than time 1 (M = .28, SE = .02). Findings also revealed a significant main effect of power effectiveness, $F(2, 66) = 16.71$, $p < .000$, η^2 = .34. Focal children were more likely to win conflicts being effective with coercive (M = .41, SE = .04) and information power (M = .34, SE = .03) over legitimate power (M = .19, SE = .03). Furthermore, findings revealed a significant time x relationship interaction, $F(1, 33) = 6.69$, $p < .05$, $\eta^2 = .17$ (see Table 5 in Appendix C). Focal children were more likely to win conflicts being effective with power in the friend session at T2 (M = .41, SE = .04) than at T1 (M = .23, SE = .03). Lastly, findings revealed a significant

time x relation x power effectiveness interaction, $F(2, 66) = 4.01$, $p < .05$, $\eta^2 = .11$ (see Table 6 in Appendix C). Focal children were more likely to win conflicts being effective with coercive power ($M = .57$, $SE = .07$) and information power ($M = .45$, $SE = .05$) in the friend session at T2 than at T1 ($M = .28$, $SE = .06$; $M = .27$, $SE = .04$, respectively) with the latter finding (i.e., information power) providing support for the hypotheses.

Discussion

Children have the capacity to initiate and resist purposeful behaviour using strategic methods of influence (Cummings & Schermerhorn, 2003; Goffman, 1970; Rheingold, 1969). A focus on children's agency of this nature (i.e., power) in the context of conflict informs our understanding of the contributions children make to their own developmental and socialization processes, a notion supported by social constructivist theory (Carpendale & Lewis, 2006; Kuczynski & Parkin, 2007; Piaget, 1971; Vygotsky, 1978). Likewise, sibling and friend relationships have been identified as significant contexts for children's socio-cognitive development (Hughes & Dunn, 2007). To this end, the present study conducted a longitudinal investigation regarding children's power resources and effectiveness in the process and outcome of conflict with their siblings and friends across early and middle childhood. Specifically, focal children's power resources and effectiveness were compared across sibling and friend conflicts.

Employing Power Resources and Effectiveness with Siblings and Friends

Despite the unique features that define sibling and friend relationships (DeHart, 1999; Hartup, 1989; Hinde, 1979), cross relationship similarities were noted in focal children's power resources and effectiveness in the conflict process. In terms of power resources, focal children were most likely to use simple information power, followed by

coercive physical and elaborated information power over coercive verbal and legitimate power. In contrast, focal children were most effective at employing coercive power (physical and verbal), followed by elaborated information power. The pattern of findings highlight overall comparative use of power and reveals that focal children's hierarchy of power resource use may be due to what is more readily accessible as opposed to readily effective, especially when factors such as relationship context and developmental period are not taken into account. It may be that during children's conflictual exchanges simple information power constitutes the main form of opposition, wherein unelaborated commands to stop aggression (e.g., "don't tear apart my spot"), refute an idea (e.g., "it's not a train"), contest a move (e.g., "put that back"), or make a demand ("give me that") are most commonly used (e.g., Martin & Ross, 1995; Phinney, 1985).

However, as the conflict episode unfolds children may begin to employ more strategic forms of interactions (McIntosh & Punch, 2009), alternating between more physically coercive moves and/or elaborated arguments depending perhaps upon the variables (e.g., topic of dispute) at play in the conflict context. For example, while constructing a train set one focal child said, "Hold it" (simple information) as she began to dismantle the train track in the shared play space and in response her friend replied, "Don't tear it apart" (simple information) as she placed her hands on the track pieces to prevent further dismantling (coercive physical), to which the focal child replied, "This thing needs to be this way 'cause we need to do a thing that connects it like this" (elaborated information), and the friend submitted. This example illustrates the strategic means by which coercive and elaborated information power may be used in conjunction with one another as the conflict sequence progresses; thus the conflict may pull for

alternative forms of influence for personal gain.

As noted above, focal children were comparatively more effective at employing coercive (physical and verbal) power than any other type of power in the conflict process, which partially supported predictions. Children's success at influencing their opponents' behaviour or obtaining their goals through coercive means in the conflict process appears to be a consistent finding documented in children's dyadic conflict interactions (Abuhatoum & Howe, 2013), perhaps due to its instrumental, albeit destructive use.

In contrast, elaborated information power may be more effective than simple information and legitimate power due to the higher order reasoning involved in convincing or persuading an opponent during a disagreement. Legitimate power, for instance, is composed of statements regarding moral principles (e.g., "that's not fair"), preferences (e.g., "I want that"), and authority ("you're not allowed to say that"), whereas simple information power as previously stated is composed of unelaborated demands/refutes (e.g., "no", "don't do that"). These two power resources are much less sophisticated than elaborated arguments that offer reasoning and justification to one's actions or intentions (e.g., "No, because I know you're gonna knock out all the people and they're going to fall"). In this manner, elaborated information power appears to require more complex cognitive faculties such as theory of mind skills (ability to attribute mental states to oneself and others) and/or use of internal state language (references to beliefs, goals, intentions, etc.) to be effective at persuading their opponent, and perhaps play an important role in mitigating conflict interactions (e.g., McElwain & Volling, 2002). Indeed this speculation would benefit from future investigation.

When comparing focal children's use of power resources and effectiveness in the

conflict process with their likelihood of winning a conflict, additional patterns were noted. For instance, similar to simple information power being most likely to be used in the conflict process, focal children were most likely to win conflicts using information (simple and elaborated) power. This pattern of findings extends prior research that reports younger siblings in early childhood as being more likely to use reasoned argument for their own self-interest when in conflict with older siblings (Dunn & Munn, 1987; Tesla & Dunn, 1992). Furthermore, in contrast to coercive (physical and verbal) power being most effective in the conflict process, focal children were most likely to win conflicts effectively with coercive (physical and verbal) *and* information (simple and elaborated) power. The process of conflict both mimics and differs from the resolution of conflict in important ways, meanwhile highlighting the utility of information power both as a resource and as an especially effective means to control the outcome of a dispute.

Furthermore, although direct personal control over conflict outcomes (i.e., win/lose, compromise) is one way to determine power differentials or lack thereof among dyadic partners (Perlman et al., 2000), findings highlight how the construct of power effectiveness (i.e., more, less, or similarly effective) can be another means to differentiate symmetry or asymmetry of power structures in children's close relationships during conflict episodes. That is, given that focal children did not differ in their effective use of coercive, elaborated, and information power across relationship contexts in either the conflict process or in relation to winning a conflict, symmetry of power structures across relationship contexts is suggested by the findings, but warrants further study.

Power Resources and Effectiveness: Effects of Relationship Context

Due to the unique set of features that comprise sibling and friend relationships

(DeHart, 1999; Hartup, 1989; Hinde, 1979), children's use of power resources and effectiveness are suggested to vary according to the relationship context. The present findings documented five differences in terms of focal children's power use across relationship contexts. Firstly, as hypothesized, focal children were more likely to use coercive physical power in the conflict process of the sibling session than in the friend session, which provides support for the hypotheses. This type of sibling antagonism is consistent with reports in prior literature (DeHart, 1999; Laursen et al., 2001; Stauffacher & DeHart, 2005), which may reflect the shared history and intimacy of the sibling relationship that gives rise to affectively intense interactions, especially since siblings must share space and possessions on a daily basis (Shantz & Hobart, 1989; Howe & Recchia, 2008; Howe et al., 2011).

Second, focal children were more likely to use legitimate power in the conflict process of the sibling session than in the friend session and, third, were more likely to be effective at using legitimate power in the conflict process of the sibling session. These findings build upon previous reports regarding resource use and effectiveness of legitimate power in sibling and family conflict (Abuhatoum & Howe, 2013; Della Porta et al., under review) by highlighting legitimate power as a resource particular to the sibling relationship. Given that legitimate power is characterized by references made to one's rights and obligations (French & Raven, 1959), such as moral principles (e.g., "You have more than me"), preferences ("I want these [animals] back"), and authority (e.g., "you're not allowed to do that"), it may not be surprising that legitimacy as a form of influence is more characteristic of the sibling interaction. Certainly, property rights, space, and object ownership are the most commonly cited issues that drive siblings' disputes in

childhood (Dunn & Munn, 1987; Hay & Ross, 1982; Ross, 1996; Perlman et al., 2000). DeHart (1999) also reported similarity of issues in friend and sibling conflict.

Fourth and as expected, focal children were more likely to use simple information power in the process of conflicts with friends than with siblings. Fifth, focal children were also more likely to win conflicts using information power with friends than siblings. Thus, although focal children were more likely to employ physically coercive exchanges and refer to their rights and obligations in the sibling relationship, focal children were more likely to assert themselves via simple demands/refutes and through elaborated forms of reasoning with friends. These findings are consistent with literature that reports friends as being more likely than siblings to respond to oppositional behaviour through conciliatory means such as suggesting an alternative or engaging in other-oriented reasoning (DeHart, 1999; Dunn et al., 1995). These more conciliatory types of interactions may reflect the voluntary nature of friendships, namely that they are characterized by mutual, reciprocal, and positive exchanges necessary for maintaining the relationship (Buhrmester, 1992; Dunn, 2002; Hinde, 1979).

Siblings and Friends' Power Resources and Effectiveness across Time

Given the similarities and differences noted across sibling and friend relationships, the present findings also revealed evidence of a developmental trend in focal children's use and effectiveness of power resources. In particular, similar patterns of change across relationship contexts revealed that focal children were more effective at using power in the conflict process at T2 than at T1. Apparently at T2, focal children were more skilled at influencing their opponent's behaviour during ongoing conflicts. An increase in focal children's power effectiveness at T2 may reflect the development of more advanced skills

based on a history of knowledge and experience concerning what works and does not work to produce a change in an opponent's behaviour. Furthermore, focal children were also more likely to win conflicts using coercive (physical, verbal) and information (simple, elaborated) power at T2 than at T1. This pattern suggests that over time focal children developed a repertoire of skills and knowledge that is learned and applied through and within sibling and friend conflict interactions. The selective use of different power resources in the two relationships may also indicate that children have a flexible understanding regarding the nature of their social relationships in conflict, which may mean that experiences in one relationship are relevant to those in the other (i.e., carry over effect; DeHart, 1999; Dunn & Herrera, 1997; Stocker & Dunn, 1990; Updegraff, McHale, & Crouter, 2002).

Patterns of developmental change were also noted with regard to partner differences. As predicted, focal children were more likely to use coercive physical power in the conflict process with siblings at T1 than at T2. Findings are consistent with prior reports documenting a decline in sibling aggression from the early to middle childhood period (Martin & Ross, 1995; Stauffacher & DeHart, 2005, 2006). Interestingly, focal children were also more likely to use elaborated information power in the conflict process with siblings at T2 than at T1, which provides support for the hypothesis. Focal children's employment of more sophisticated forms of reasoning over time is in line with literature indicating that siblings generate more complex and cognitively advanced strategies (e.g., other-oriented reasoning) as they progress from early to middle childhood (Dunn & Munn, 1987; Perlman et al., 2007), which may reflect maturation in their social understanding (Dunn, 1999; Hughes, 2011).

In contrast, findings revealed that focal children were more likely to win conflicts with friends by being effective with coercive (physical and verbal) power and information (simple and elaborated) power at T2 than at T1, with the latter finding providing support for the hypotheses. As children enter the middle childhood period they may be differentiating what power resources work effectively, with whom, and when. Given that siblings have a shared, long, and co-constructed history in using coercive tactics (e.g., DeHart, 1999; Martin & Ross, 1995), it may be that as they enter middle childhood they begin to execute these interactions in different relationships. On the other hand, friendships also become in some ways more like sibling relationships over time (i.e., more intimate, familiar, and enduring). Seven-year-olds may be more secure about remaining friends in spite of conflicts and thus less afraid to use coercive power with friends (Hartup & Laursen, 1993). In addition, friends at this age are more likely to have developed their own shared interaction history, including coercive patterns, than they were at younger ages. At the same time, the use of more sophisticated strategies (i.e., elaborated information) at T2 in the friend relationship suggests that as children transition from early to middle childhood their social understanding and cognitive capacities grow with them (Hughes, 2011). Lastly, information power is comparatively less assertive than coercive exchanges characteristic of the sibling relationship and may be used more effectively with friends due to the reciprocal and voluntary nature of their relationship (Dunn, 2007; Furman & Buhrmester, 1985; Hartup, 1989).

The overall pattern of findings paints an interesting picture. Whereas antagonistic interactions among siblings decrease over time, coercive exchanges among friends become more effective over time. Similar patterns have also been reported with regard to

decreases in relational aggression between siblings and increases between friends by middle childhood (Stauffacher & DeHart, 2006), as well as increases in emotional intimacy between siblings and decreases between friends across early to middle to late adolescence (Updegraff, McHale, & Crouter, 2002). Relatedly, narrative accounts of harm across sibling and friend relationships from middle childhood to early adolescence became somewhat more similar with age (Recchia, Wainryb, & Pasupathi, 2013). These findings appear to suggest that as children progress from early to middle childhood, their friendships may begin to resemble sibling relationships due to increased intimacy and familiarity, whereas sibling relationships may become more egalitarian and similar in structure to friendships.

The lack of significant effects found for focal children's birth order was quite striking and may speak to the notion that birth order is not experienced as a fixed hierarchy (McIntosh & Punch, 2009), as power exchanges among siblings can be contested, resisted, and negotiated throughout the course of conflict. Certainly birth order plays an important role in shaping the nature of strategic interactions among siblings; however, as illustrated by the present findings, developmental roles can be challenged and at other times invoked. A deeper investigation regarding children's perceptions of role hierarchies and agentic (i.e., power) interactions in conflict may illuminate the fluidity of birth order in the early to middle childhood period.

Conclusion

Despite its contributions, the present study has some limitations. For example, the sample was comprised of middle class, Caucasian Americans and thus constrains the generalizability of the results. The attrition of participants at T2 also reduced the

statistical power; however, the rich and detailed observational coding yielded a nuanced pattern of findings that illuminate the role of power in children's conflict interactions across two important relationship contexts in early and middle childhood. Finally, although the sample of friends recruited at T1 was the not the same as those recruited at T2, the focus of the investigation was on the focal child's behaviour in light of partner effects.

Overall, our goal of describing longitudinal patterns in relationship experiences involved identifying similarities and differences in how children's various uses of power with their siblings and their friends in conflict changed over a three-year period. The findings of the present study support the existing literature concerning the developmental significance of conflict and children's agentic interactions; however, important contributions regarding relationship partners in the early to middle childhood period are advanced. Young children clearly use a range of strategic power interactions that vary in effectiveness across the conflict episode, time, and social context. Conflict is indeed a critical context that affords children with important opportunities of development as they learn how to navigate their relationships and social world.

Table 1

Definitions and Examples of Power and Conflict Coding Scheme

Power Resource	Sub-Categories	Definition	Example
Coercive	Physical	Physical coercion/force	Pushing, grabbing toy, hitting
	Verbal	Verbal aggression such as threats, insults, yelling	"You knocked down mine, I'm going to knock down yours"
Information	Simple	Demands or refutes without explanation	"Give me the fence"; "No, don't"
	Elaborated	Persuasion via justification, reasoning, explanation	"Put that there because that's the only tree that blew down"
Reward	Negative	Use of negative conditions towards desired outcome	Crying, whining, begging
	Positive	Use of positive conditions towards desired outcome	Praise, approval
Legitimate	Moral Principle	Defending rights of self or other	"No fair"; "I had it first"; "that's mine"
	Authority	Reference to social hierarchy, authority, or social rules	"You have to play, that's my mom's rule"
	Preference	Choose/assert one's desire/preference	"I want it"; "I need the barn"
Questioning		Inquiry based on when, where, why, and alternative questions	"Why did you do that?"; "Where's the gate?"; "How is it going to get back?"
Referent		Ability to influence others due to respect, admiration, likeability or lack thereof	"I like you", "You're being mean"; "I hate you"
Expert		References to one's superior knowledge or ability	"I know how to do it"; "This is how you do it"
Power Effectiveness		Degree to which children's power moves exert an influence or obtain one's goal;	4 coercive success / (2 coercive attempts + 4 coercive success) = 67% effectiveness of

	determined by attempts and successes	coercive power
Attempt	When one child tries to employ power to influence the behaviour of the other child or obtain a goal, but is not successful	See Table 2 & Appendix B
Success	When one child successfully employs power to influence the behaviour of the other child or obtain a goal	See Table 2 & Appendix B
Conflict Resolution		
Win/Lose	Outcomes that end with a winner and a loser	See Appendix A
Compromise	Conflicts that end in a win/win scenario wherein conditions are deemed acceptable by both partners	See Appendix A
Indeterminate	Outcome is unknown; ends without resolution	See Appendix A
Impasse	Outcomes that end in a lose/lose scenario wherein conditions are deemed unacceptable by both partners	See Appendix A

Table 2

Coding Example of Power Resources and Effectiveness

Turn	Child	Comments and Actions	Power	Effectiveness
1	F	I can play with it too (*grabs toy from sibling's play space*)	Legitimate; Coercive physical	L-Attempt; C-Success
2	S	No, it's mine.	Simple information; Legitimate	S-Attempt; L-Attempt
3	F	I can just play with it. I'm not going to knock it down.	Elaborated information	Attempt
4	S	Yes you are.	Simple information	Attempt
5	F	I'm just going to play with it.	Elaborated information	Success

Note. F = focal child; S = younger sibling. In this conflict sequence, the focal child grabs her sibling's toy and employs coercive physical power that is a success given her obtainment of the toy. At the same time, the focal child refers to a sense of fairness, "I can play with it too" (legitimate), but it met with opposition and therefore unsuccessful (attempt). In the second turn, the sibling refutes, "no" (simple information) and asserts her right to possession, "it's mine" (legitimate), but is unsuccessful (attempt) with both power moves. In the third turn, the focal child employs elaborated information by justifying her use of the toy, but is unsuccessful (attempt). In the fourth turn, the sibling makes a simple refute and is unsuccessful (attempt). In the final turn, the focal child employs elaborated information by justifying her use of the toy and is successful with her goal. Determining power effectiveness involves dividing the total number of successes by attempts and successes per child. In this example, the focal child was effective at using coercive physical power 100% of the time (e.g., 1 success / (0 attempt + 1 success).

Table 3

Descriptive Statistics for Power Resources and Effectiveness by the Focal Child during the Sibling and Friend Session

	Sibling Session		Friend Session	
	Time 1	Time 2	Time 1	Time 2
Power Resources	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Coercive verbal	.11 (.11)	.09 (.09)	.09 (.09)	.08 (.11)
Coercive physical	.25 (.25)	.17 (.14)	.14 (.14)	.14 (.12)
Legitimate	.13 (.13)	.17 (.14)	.11 (.13)	.07 (.09)
Simple information	.32 (.18)	.37 (.18)	.44 (.18)	.46 (.18)
Elaborated information	.19 (.17)	.21 (.16)	.23 (.16)	.24 (.14)
Power Effectiveness				
Coercive (verbal & physical)	.49 (.37)	.47 (.34)	.35 (.38)	.54 (.34)
Legitimate	.18 (.32)	.27 (.37)	.11 (.22)	.17 (.33)
Simple information	.18 (.27)	.24 (.21)	.18 (.21)	.31 (.21)
Elaborated information	.29 (.35)	.29 (.31)	.24 (.33)	.48 (.35)

Note: Means and standard deviations are based on proportion scores regarding focal child's use of power resources and effectiveness in the sibling and friend session of conflict.

Table 4

Descriptive Statistics for Conflict Outcomes

	Sibling Session		Friend Session	
	Time 1	Time 2	Time 1	Time 2
Conflict Outcome	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Win/lose	.82 (.25)	.93 (.11)	.77 (.33)	.93 (.11)
Compromise	.06 (.11)	.03 (.08)	.06 (.17)	.04 (.09)
Indeterminate	.03 (.08)	.02 (.06)	.02 (.07)	.01 (.04)
Impasse	.06 (.16)	.02 (.07)	.04 (.09)	.02 (.06)

Note: Means and standard deviations are based on proportion scores regarding conflict outcomes in the sibling and friend session across time points.

Table 5

Power Resources by Relationship

	Sibling Session *M (SE)*	Friend Session *M (SE)*
Coercive verbal	.10 (.01)	.09 (.01)
Coercive physical	.25 (.03) [a]	.15 (.02) [a]
Legitimate	.15 (.01) [b]	.10 (.02) [b]
Simple information	.33 (.02) [c]	.45 (.02) [c]
Elaborated information	.18 (.02)	.22 (.02)

All $p < .000$

Note. Superscript letters represent where the significant differences lie between target children in the sibling versus friend conflict session for each resource of power (e.g., "a" is significantly different than "a") across rows.

Table 6

Time by Power Resources by Relationship

	Sibling Session		Friend Session	
	Time 1	Time 2	Time 1	Time 2
	M (*SE*)	*M* (*SE*)	*M* (*SE*)	*M* (*SE*)
Coercive verbal	.10 (.02)	.09 (.02)	.09 (.02)	.08 (.03)
Coercive physical	.31 (.05) [a]	.18 (.03) [a]	.14 (.03)	.16 (.02)
Legitimate	.14 (.02)	.15 (.02)	.12 (.02)	.08 (.02)
Simple information	.30 (.03)	.37 (.03)	.43 (.03)	.46 (.03)
Elaborated information	.15 (.02) [b]	.22 (.02) [b]	.22 (.03)	.23 (.02)

All $p < .05$

Note. Superscript letters represent where the significant differences lie between target children in the sibling versus friend conflict session for each resource of power across time (e.g., "a" is significantly different than "a").

General Discussion

The overarching goal of the present research studies was to investigate various forms of power (i.e., resources, effectiveness) used by children in the process and outcome of conflict across two important relationship contexts (sibling, friend) and developmental periods (early, middle childhood). A critical component of this investigation involved a cross-sectional and longitudinal examination of individuals and relationships as contextual determinants for child behaviour and development (Hinde, 1979). That is, children's interactions were studied from two vantage points through the interplay of relationship effects and actor-partner effects. To this end, the first study examined siblings' and friends' dyadic use of power in the early childhood period, whereas the second study examined focal children's use of power with their siblings and friends over a 3-year-period, from early to middle childhood.

This approach of examining children's interactions from the two vantage points has several advantages. Firstly, children differ from one another in myriad ways (e.g., age, gender, race, etc.) and some of these sources of variation can be attributed to both actor and partner effects (Hartup & Laursen, 1993). That is children's behavioural interactions are suggested to vary within and across relationship contexts, depending upon the relationship partner in question (i.e., sibling, friend). Thus, an investigation into cross relationship similarities and differences at the dyadic and individual level allows for an understanding of the multiple ways in which the relationship context can be a source of variance in children's power behaviours and developmental outcomes. Secondly, the findings from the present studies provide support for relationship theories (Hinde, 1976, 1979; Dunn, 1983), social constructivist theories (Carpendale & Lewis, 2006; Piaget,

1971; Vygotsky, 1978), and dyadic power theory (Dunbar, 2004). According to relationship theorists, the reciprocal and hierarchal interactions that characterize children's sibling and friend relationships have been identified as important contexts for children's socio-cognitive development. Moreover, the power behaviours that children engage in during their conflict interactions is in line with social-constructivist theory, which postulates that children are active learners who co-construct their own knowledge about the world via their social interactions. The bidirectional nature of children's power interactions is further emphasized by dyadic power theory, which acknowledges the contributions of both individuals in the interaction. Thirdly, the information obtained from the two studies aides in an understanding of key aspects of child development, namely with respect to the notion of agency (i.e., power) that reflects the children's self-initiated and intentional action. That is, children's power interactions represent an important means through which children and their relationship partners contribute to one another's socialization (Cummings & Schermerhorn, 2003); a known rhetoric echoed by social constructivist theory noted above.

The pattern of findings obtained from the two studies highlight important similarities and differences in children's execution of power behaviours. Overall, simple information power was referenced most often across both studies, followed by coercive power, and then elaborated information power. These findings may suggest that simple demands and refutes are one of the primary modes of verbal communication during sibling and friend conflict interactions both in the early and middle childhood periods (Phinney, 1986; Ross, 1996; Shantz & Hobart, 1989). Coercive tactics may be the next most referenced resource of power due to children's failed attempts at controlling the

conflict interaction via simple information. As results from both studies revealed, coercive power was overall the most effective means to influence behaviour and obtain one's goal, perhaps due to its instrumentality in obtaining immediate success and the nature of disputes (e.g., objects/possessions) generally typical in early and middle childhood (Abuhatoum & Howe, 2013; Howe et al., 2002). Lastly, elaborated information power (i.e., reasoning) may not have been as easily accessible for children as other types of power due to its cognitive sophistication and complexity, which was clearly evidenced as a highly effective resource next to coercive power. Findings suggest that elaborated information power may have been more effective than simple information, legitimate power, and negative reward power due to its capacity to advance the partner's social understanding of the transgression at hand (Grusec & Goodnow, 1994**)**.

Interestingly, Study 2 documented developmental effects of elaborated information power, thereby attesting to the cognitive sophistication of this resource noted above. Specifically, focal children were more likely to employ elaborated information power with their siblings in the conflict process at T2 than at T1. Similarly, focal children were more likely to be *effective* using information (simple and elaborated) power when winning conflicts with their friends at T2 than at T1and were more likely to employ information (simple and elaborated) power when winning conflicts at T2 than at T1. Perhaps developmental effects regarding focal children's use of information power may be related to the combined use of elaborated with simple information, thus suggesting that as children progress from the early to middle childhood period, their cognitive capacities and social understanding mature with them (Dunn, 1999; Hughes, 2011). This speculation warrants further study.

A noteworthy difference between the two studies regards the greater range and effectiveness of power resources employed by dyads in Study 1 than in Study 2. Specifically, sibling and friend dyads used questioning power and negative reward power with greater frequency and effectiveness in Study 1 than Study 2; however these types of power were dropped from the analyses in Study 2 due to infrequent use. Results showed that dyads, irrespective of the relationship context, used questioning power more often and more effectively than negative reward power in the process of conflict, as well as more effectively than simple information power and negative reward power in win/lose outcomes. Findings suggest that the probing and inquisitive nature of questioning power may be a more effective and sophisticated strategy that places the respondent in a position where s/he is expected to comply/respond (Wang, 2006). Furthermore and as noted above, negative reward power was more characteristic of the sibling than friend relationship. Together these findings highlight the advantage of adopting a dyadic perspective, which helps to elucidate unique cross relationship differences in children's power behaviours. Although children may not rely heavily upon questioning and negative rewards as a source of influence at the individual level in early and middle childhood, these strategic interactions are a part of their repertoire of dyadic behaviours in early childhood, which serves as an important indication of children's cognitive abilities and volition (Goffman, 1990; Kuczynski, 2003).

Additional patterns were also noted when power resources were studied dyadically compared to longitudinally and at the individual level. For instance, sibling dyads used more coercive (physical and verbal) power than friend dyads in Study 1; however Study 2 elucidated greater use of coercive physical power compared to coercive

verbal power by focal children in the sibling relationship at T1 than at T2. Findings indicate that older and younger siblings together used more verbally and physically coercive exchanges than friend dyads; however, when examined at the individual level, physically coercive exchanges trumped the verbal component of coercion, particularly for siblings in early childhood. Although siblings' greater use of coercion than friends is not a new or surprising finding (e.g., DeHart, 1999), the current results add to the literature by delineating what type of aggressive behaviours (i.e., physical) are used more often, meanwhile elucidating how children's power behaviours can vary by the relationship context at the dyadic and individual level.

Furthermore, consistent findings regarding siblings' greater use of coercion than friends at T1 as indicated across both studies is contrasted with findings reporting focal children as more likely to win conflicts with friends by being effective with coercive (physical and verbal) power at T2. The overall pattern of findings indicates that as siblings' coercive exchanges decrease over time, friends' coercive exchanges increase via effectiveness, which is in line with prior research regarding changes in siblings' and friends' relational aggression across early and middle childhood (Stauffacher & DeHart, 2006). Findings may reflect developmental changes in the structure of both relationships such that sibling relationships may become more egalitarian and friendships may become more hierarchal due increased intimacy and familiarity.

Results from Study 1 also showed that friend dyads used simple information power more frequently than sibling dyads in win/lose resolutions. These findings are in line with results from Study 2, which reported that focal children were more likely to use simple information power with friends than with siblings in the conflict process and were

more likely to win conflicts using information (simple and elaborated) power with friends than with siblings. Focal children were also more effective at using information (simple and elaborated) power with friends than with siblings at T2 than T1. Overall, findings suggest that children's reasoning powers are a salient feature of friendships, particularly in the context of conflict. Although children may use their reasoning power to influence their partner or obtain their goal, the use of this particular strategy over others constitutes a less assertive means to navigate the conflict episode, which in turn may preserve the maintenance of the friendship (Bukowski, Motzoi, & Meyer, 2009; Furman & Buhrmester, 1985), and also reflect the reciprocal nature of the friend relationship (Dunn, 1983; Hartup, 1989; Hinde, 1979).

A point of departure between the two studies, however, was with respect to children's use of legitimate power. In Study 1, both sibling and friend dyads used legitimate power least often and least effectively compared to other types of power; however, in Study 2 focal children were more likely to employ legitimate power and be effective at using legitimate power with their siblings than with their friends during the conflict process. Whereas earlier reports of differences between both studies were noted to emerge among dyadic use of questioning and negative reward power, the pattern of differences reported here rests at the individual level, thus elucidating variations in power use depending on the level of analysis. That is, examination of the relationship context at the individual level shows a different perspective for how actors use power as an influential action. In the sibling relationship, focal children used legitimate power more often and more effectively than in the friend relationship. These findings may reveal what focal children have learned based on a history of previous interactions with their siblings

(Shantz & Hobart, 1989). In other words, siblings may have gathered knowledge on which types of power are most likely to be influential towards others and in achieving their goals. This social constructivist perspective denotes which types of power may have been co-constructed within the family unit (Carpendale & Lewis, 2006; Piaget, 1971; Vygotsky, 1978). Future research would benefit from an examination of reciprocal interactions within and across sibling and friend conflict interactions to further delineate cross relationship differences and/or similarities in children's use of legitimate power.

Lastly, sibling dyads were more effective at using power in win/lose outcomes at T1 than friend dyads, whereas focal children were more likely to win conflicts with friends being effective with power at T2. Given that siblings have a shared, long, and co-constructed history in using various forms of power in conflict (Perlman et al., 2000), it may be that as they enter middle childhood they begin to execute these interactions in different relationships and in an effective manner perhaps due their growing socio-cognitive abilities (Hughes, 2011). Certainly, this speculation warrants further study.

In sum, the two coordinated studies provide novel and complex findings on siblings' and friends' various uses of power (i.e., resources, effectiveness) in early and middle childhood. In particular, the first study underscores the developmental significance of siblings' and friends' dyadic power interactions in conflict during the early childhood period by highlighting cross-relationship differences and similarities in the conflict process and outcome (i.e., win/lose). Relatedly, the second study identified longitudinal patterns concerning focal children's use of power in conflict with their sibling and friend over a three-year period noting differences and similarities across the conflict episode, time, and social context. The findings within and across both studies

highlight that children use a range of strategic power interactions that significantly contributes to their development and socialization process (Kuczynski & De Mol, 2015; Kuczynski & Parkin, 2007).

Limitations

Although the studies provide initial and comprehensive insights regarding children's use of power in conflict, some limitations are worth mentioning. First, the small sample size utilized in this research may have restricted the statistical power of the results, especially given the attrition of participants at the second time point. Nonetheless, the rich and detailed observational coding revealed a nuanced pattern of findings regarding power in children's conflict interactions. Second, the middle-class, Caucasian, American population limits the generalizability of the findings and future research would benefit from employing a more ethnically, culturally, and economically diverse sample. Third, certain resources of power and conflict resolutions were dropped from the analyses due to infrequent use or occurrence. It may be that the variables that were dropped are not prevalent in the early and middle childhood period, a speculation requiring further investigation. However, an examination of dyadic interactions at T2 may possibly reveal a greater range of power behaviours and may be revisited for future research. Fourth, to maintain statistical rigor the subcategories of coercive power (physical, verbal) were collapsed for some of the analyses, which compromised methodological consistency across the process and outcome of conflict, but nonetheless revealed interesting and consistent patterns in children's use of power. Lastly, given the longitudinal nature of the study, the sample of friends recruited at T1 was the not the same as those recruited at T2.

Nevertheless, the focus of the present investigation was on the focal child's behaviour and provided novel insights regarding actor-partner effects.

Future Research Directions

Regardless of the limitations noted, the results from these two complementary studies shed light on important directions for future research. These studies are the first to our knowledge that examined cross relationship differences in children's power resources and effectiveness. Although the two studies provide initial and comprehensive findings by displaying variability in use of power by relationship context at the dyadic and individual level, future research would benefit from further investigation regarding variations in children's power behaviours according to the topic of the dispute, affective states (i.e., negative/positive), along with finer-grained coding that would assess contingent (i.e., if-then) interaction patterns. Future studies can also add to the present research program by examining relationship quality and social understanding (i.e., theory of mind, internal state language) as unique and interactive correlates of power behaviour in sibling and friend conflict, which may elucidate the underlying mechanisms at play regarding children's power use.

Future research would also benefit from a longitudinal investigation examining the links and contrasts in children's power behaviour in sibling and friend conflict across the early and middle childhood period. For example, are individual differences in siblings' experiences associated with differences in friendship experiences? The similar and different patterns of developmental changes noted in the two relationships in the present dissertation may illuminate why associations between the two relationships are or are not

apparent. Regarding cross-sectional designs, it would be beneficial to understand the differences in power execution in a normative and clinical sample of families.

General Conclusions

In conclusion, the results from the present studies provide a detailed and richer understanding of the power processes at play in siblings' and friends' conflict interactions during the early and middle childhood periods. Findings from this dissertation together with other research investigating child development (e.g., social understanding, bullying, social and emotional competence, peer relationships) can be used to inform and support positive developmental outcomes for children. For example, the knowledge gained from this investigation provides parents with pertinent information that inform child-rearing beliefs and practices in early and middle childhood. Firstly, the power struggles children engage in when they are involved in conflict interactions can be viewed as playing a significant role in the development of children's conflict management skills. Whereas siblings engaged in more antagonistic interactions, friends engaged in less assertive interactions; however children across both relationships were shown to make socio-cognitive advances across time as reflected in their use of power. These differences imply that although there are clear power differentials that characterize the sibling and friend relationships in the context of conflict, children in early and middle childhood prove to be challenging partners that provide one another with opportunities for growth and learning. The developmental significance of these findings highlight the importance of providing ample opportunities for children to engage in play with both sets of interaction partners in the early and middle childhood period. The episodes of conflict known to arise out of the context of play, as suggested here is critical for children's

development. The similarity of findings noted across relationship contexts revealed evidence of a developmental trend, thereby suggesting that children developed a repertoire of skills and knowledge that are learned and applied through and within sibling and friend conflict interactions. Thus, when parents provide children with ample opportunities to engage in play with different relationship partners, children's socio-cognitive capacities may extend through their cross relationship interactions.

Furthermore, the results of this study suggest that the structural characteristics of the sibling and friend relationship also change from early to middle childhood, as decreases in physically coercive exchanges among siblings were noted along with increases in effective coercive exchanges among friends. These findings highlight the fluidity of children's interaction patterns across time and help to inform parents regarding the interaction patterns that may be typical in the early versus middle childhood period, as far as power behaviours in conflict are concerned. Observations of how these relationships change and the links between cognitive development and such relationship changes can provide key evidence for parents and educators regarding critical periods of transition between the early to middle childhood years. In particular, knowledge of such power attributes can provide the needed tools to help children engage in more adaptive ways to resolve conflicts.

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Appendix A

Conflict Coding Scheme

This coding scheme is based on DeHart (1999).

I. Definition of Conflict

A conflict is an exchange containing mutual opposition—in other words, each partner must do or say something oppositional to the other. Oppositional behavior includes objecting to something the other child has done or said, interfering with what the partner wants to do, disagreeing with the partner, taking or trying to take an object from the partner, accusing the partner of something, or intentionally doing something to bother the partner.

The shortest possible conflict consists of two oppositional turns, one by each partner:

Turn 1: Child A behaves oppositionally toward Child B.

Turn 2: Child B behaves oppositionally toward Child A.

Example:

Turn 1: Child A takes a toy away from Child B.

Turn 2: Child B takes it back. (No further opposition from Child A).

If Child A does something innocent (experimenter's judgment call), Child B objects, and Child A does not respond, the exchange is not a conflict. However, if Child A does object, the exchange is a conflict.

Example:

Turn 1: Child A: "I'm going to set my village up like this." [innocent remark]

Turn 2: Child B: "No, that's not how you do it." [oppositional remark]

Turn 3: Child A: "Yes, it is." [oppositional remark]

Longer conflicts are just continuations of these 2- or 3-turn conflicts.

II. Turns

A. Each conflict consists of a series of turns, more or less alternating between the partners.

A turn may consist of:

-One utterance or behavior;

-An utterance and a behavior by the same person at more or less the same time, with a common purpose; or

-A series of utterances and/or behaviors by the same person, with little pause between them, and with a common purpose.

A new turn begins when:

-The other partner says or does something;

-The current speaker/actor pauses for more than 5 seconds; or

-The current speaker/actor's utterances or behaviors show a clear change in purpose.

B. Start counting turns with the first utterance or behavior in the conflict sequence. If the conflict starts with an oppositional behavior, the oppositional behavior is counted as the first turn.

Example:

Turn 1: Child A takes toy from Child B.

Turn 2: Child B grabs toy back.

Turn 3: Child A shrieks.

If the conflict starts with an oppositional behavior in response to an innocent behavior, the innocent behavior is counted as the first turn, even though it occurred before there was any opposition.

Example:

Turn 1: Child A picks up toy that was not clearly in Child B's possession.

Turn 2: Child B protests.

Turn 3: Child A refuses to return toy.

C. Single non-oppositional turns that occur in the middle of a conflict should be counted.

D. Do not count utterances or behaviors addressed to any third parties, unless they are appeals for intervention or appear to be addressed to the partner as well as to the third party. (Include all turns involving third parties).

E. Stop counting turns with the last utterance or behavior in the conflict sequence that is clearly a response to the partner and is clearly related to the topic of the conflict. If the conflict ends with a turn indicating resolution of the conflict, include it. (This includes ignoring/disengaging behavior)

Example:

Turn 1: Child A: "Let's put the rooster on top of the fence."

Turn 2: Child B: "No."

Turn 3: Child A: "Okay, we'll put him on the barn."

Some end with oppositional turns and others with non-oppositional turns.

F. The conflict is considered over if:

1. There is two non-oppositional turns in a row (from one partner or from both partners).
2. There is a pause of 10 sec. or more.

3. One partner disengages and stops responding to the other, even if the other partner keeps trying to get a response.

III. Instigator

The instigator is the first partner to make an oppositional move, either verbal or non-verbal. Remember, the first oppositional move will not always be the first turn in the conflict.

Examples:

If YS grabs toy from OS and OS responds indignantly, YS would be the instigator. If YS says, "Can I have a duck?" and OS responds, "No, it's mine." OS would be the instigator.

IV. Conflict outcome: Gives information about who wins

A. Older sib/young sib or peer/target wins (OS/YS/P/T)

One partner gets what he or she wants. If conflict is not about resources, one partner's position prevails, either because they connive partner they are right or because partner stops opposing them.

B. Partial equity (PE)

Both partners get part of what they want, but outcome is not equitable.

C. Compromise (COMP)

Both partners get part of what they want, and outcome is equitable; or, both partners agree on some alternate, equitable solution (i.e., one child gets what she/he wanted, other child gets something else that is equally desirable.)

D. Impasse (IMP)

Neither partner gets what they want; unable to resolve conflict.

E. Indeterminate (IND)

It is not clear what the final outcome of the conflict is (e.g., children are fighting over toy and you can not see who gets it or camera is turned off before conflict ends.)

Appendix B

Power Coding Scheme

This coding scheme is based on and adapted from Abuhatoum & Howe, 2013; Della Porta & Howe, 2012; French & Raven, 1959; Punch, 2005; Raven, 1993.

Definition of Power

The resources person A utilizes so that s/he can influence person B (French & Raven, 1959; Raven et al., 1998). The power of A is not only dependent on the utilization of resources, but is also based on the dependence of B upon A, insofar as B has a demand for those resources, or insofar as the amount of resistance on the part of B can or cannot be overcome by A (Emerson, 1962). Given that power is a multidimensional construct, the following coding scheme differentiates between power bases and power effectiveness.

Coding rules

- Not all lines in the transcripts represent a type of power. Only those lines that fit the descriptions and conditions outlined by the coding scheme can be identified as a power type. Responses to a question are not coded as power behavior (e.g., FC: "Is this your first turn?" S: "Yes")
- Repeated moves should not be re-coded
- More than one type of power can be identified in one move (e.g., S: "No, you go after me" (Simple Information) – in a loud whiny voice (Reward Negative)). Or (e.g., "Stop!" - Simple information because it is a demand and Coercive Verbal because of raised voice)

- If one actor is talking to two partners, code as same type of power, separate move and partner, and code power effectiveness with the appropriate partner's response.

Power Resources

This coding scheme is based on and adapted from the following sources (Abuhatoum & Howe, 2013; Della Porta & Howe, 2012; French & Raven, 1959; Punch, 2005; Raven, 1993).

Coercive Power

Refers to the threat of punishment, whereby the recipient anticipates/receives punishment by the agent of influence when s/he fails to conform to the expectations/requests. Involves physical or psychological force in imposing one's way on others, assuming that the other individual is resisting or opposing. Also defined as a child's perception that another person has the ability to punish them if they fail to conform to his or her expectation/request, but since exchange is dyadic, each partner can exercise coercive power. As well, it is considered positive punishment involving negative conditions that decrease/weaken the likelihood of an outcome/behavior.

- ***Verbal Aggression (or nonverbal)***
    - Simple threats (verbal or nonverbal, without if-then consequence). Some examples include: name-calling; sarcasm; yelling; abusive remarks; insults; aggressive demands to instill fear.

- *Note: When a child simply says "No" in response to the other actor, this does not qualify as a verbal protest, unless the child says "No" aggressively ("No" vs. "No!").
- Nonverbal: Include physical coercive actions that are not directed at another person or object. For example, plugging ears so as to not listen to partner, banging fist against the table as indication of anger or frustration, flicking a toy out of frustration as opposed to being aimed at the other child, talking in front of other child's face in provoking fashion (violation of space).

- ***Physical Aggression***
  - Any form of physical action directed to another person in a coercive fashion.
  - Hitting, grabbing, slapping, punching, throwing or pushing toys at partner, pushing partner or partner's hand away, tugging or pulling on a toy, destroying or messing up something the partner has been playing with.
  - ***Note:** handling objects within the context of a conflict does not necessarily denote the use of coercive power. There has to be a clear indication of force or threat of force directed at another person.

Reward Power

Refers to an individual's ability to influence others' behaviors by using material or time and space rewards.

- ***Positive reinforcement:*** Positive conditions that strengthen a desired outcome/behaviour (will most likely occur during the negotiation process of a conflict). If-then positive rewards for appropriate behavior.
    - Verbal or non-verbal praise/approval, offer of material goods (bribing), allocation of time and space or positive affect.
- ***Negative reinforcement:*** negative conditions that strengthen a desired outcome/behaviour.
    - Whining, fussing, begging, complaining, pleading, crying, frown begging.
    - ***Note:** ["No" in this example is differentiated by the "No" under Coercive power (verbal protests) because the "No" is characterized by a whiny voice rather than by an aggressive verbal protest].

Referent Power

An individual's ability to influence others because s/he is respected, admired, or liked. Based on the identification/dis-identification with the influencing agent or admiration; points out similarities with partner; imitation; or the opposite.

- ***Note:** The statement "because I hate you" exemplifies referent power because the implied purpose of the comment is to get Person B to feel bad so that Person B in turn, may change their behaviour in a manner that is favorable to Person A

Legitimate Power

Refers to a person's rights and obligations. The person in power has a legitimate right to influence the behaviour of another.

- ***Moral Principles:*** Having the *right* to argue your case or defend yourself; can include issues regarding possession, fairness, distribution of justice, sense of right and wrong. Can also involve someone defending the rights of another person.
- ***Authority****:* Authorities have power to influence or command thought, opinion or behavior. Children exert authority over their children as they make reference to social rules and higher status.
    - An example would be situations in which a child asserts a rule such as, "you are not allowed to say that you know" or "we have to play, that's my mom's rule" or consequences of rules such as, "you're going to get in trouble". Other examples include references to hierarchy such as, "you're not the boss". Legitimate authorities do not have to persuade subordinates that the behavior demanded of them is preferable for them, but merely that it is required. When legitimate authorities issue demands, they have to communicate to their subordinates that these are indeed demands, which system members are obligated to obey, rather than requests or suggestions whose acceptance is left to the members' personal preference (Kelman, 2006)
- ***Preferences:*** Desire expressed towards objects, but not people; having the right or opportunity to so choose or to assert one's desire when faced with a threat.
    - Examples: Like/dislike, want, need, "I don't care"- lack of preference

- *Note: When a child exercises the use of legitimate power in isolation, although this child may be exercising their resource of legitimate power to persuade the other child to give up the toy, or allow them to do what they want, or have them back off, these instances of legitimate power *should not be coded as information power* unless the child explains or uses further reasoning to argue their case.

Expert Power

An individual's ability to influence another's behavior because of recognized competence, talents or specialized knowledge. Refers to one's superior knowledge or ability in comparison to that of another. Based upon: (1) Person A's explicit knowledge or expertise in a designated area or (2) Person A indicating implicitly that they have greater expertise or that the other child lacks greater knowledge.

- e.g., S: "You don't know how to build any track"
- e.g., FC: "I, I know how to do it better than you"

Information Power (Phinney, 1986; Dunn & Munn, 1987)

Refers to the act of persuasion based on information or logical argument.

- ***Simple:*** One instance of a demand/request (without indication of authority), instruction/direction or refusal without explanation. Straightforward rejection, denial or calling upon child to get attention (e.g., "Andrew") and stop behavior, reprimand or accusation (e.g., "you cheater"). Labeling such as "this is a car".

- ***Elaborated:*** Provide reasons, explanations or justification about one's own behavior or another's behavior.
    - Can be an extension of a counter-argument
        - e.g., FC: "That's a statue"; P: "No, that looks like a bathroom to me". - The child is providing a reason why he disagrees
    - Some explanations may occur in the form of offering a compromise
        - e.g., FC: "No, I do the big ones, you do the little ones".
    - Elaborated information can co-occur with simple information on the same line.
        - e.g., S: "NAME, get your foot out (simple information). And put that down right here, cause that's the only tree that blew down (elaborated information). Okay?"
    - Consequences of action**.** Refers to logical outcome of actions' material consequences. Clearly indicate action and subsequent consequence (e.g., if-then statements).
        - e.g., S: "If you put the train on the track, then it can go like this"

Questioning (Wang, 2006)

Questions are a means for dominant actors to exert power in verbal interaction.

- Semantically, a question expresses desire for information, questions expect and anticipate a response and information that imposes the questioner's will on the addressee – an obvious exercise of influence.

- A question implies that the next conversational turn will be an answer.
- A question is coded as a type of power when a child is seeking information, is used as a form of request or asking for an explanation as to their sibling or friend's behaviour or actions.
- A response to a question should be coded as a power move, as the response is in direct relation to the question (the respondent is either submitting or not submitting to the questioner)
- Three classes of questions
    - Yes/No/Clarification: Expects an affirmation or negation (e.g., "Is he coming?")
    - Wh: When, where, why: Expects a reply from an open range of possible replies (e.g., "When is he coming?")
    - Alternative questions: Expect as the reply one of two or more options presented in the question (e.g., "He's coming, isn't he?" "Do you want to use the red cup or the green cup?")

Power Effectiveness

This coding scheme is based on Abuhatoum and Howe (2013).

Power effectiveness refers to the degree to which children's power moves successfully exert an influence on the other child's behaviour or obtain one's goal; it concerns who is the more or less powerful child in the dyad. Power effectiveness is

determined by attempts and successes. Determining power effectiveness involves dividing the total number of successes by attempts and successes per child (e.g., 1 coercive success / (0 coercive attempt + 1 coercive success) = 100% effectiveness of coercive power.

Attempts and successes:

- Two-step behavioural contingencies - specific behaviours are followed by specific responses
- If person A uses a power strategy, then the effectiveness of the use of the power strategy will depend upon: (a) person B's response, (b) whether the influence attempt was successfully achieved or not (whether or not B's behaviour was successfully influenced or changed), (c) desired outcome was achieved

Coding rules:

- More than one type of power can be identified on the same line, but if both types of power are an attempt or both types of power are a success, then both types of power are equivalent to one instance of an attempt or one instance of a success per line
- The coding of attempts and successes can occur at the same time on the same turn. This tends to be the case most often when coercive power (e.g., grabbing a toy) is accompanied by other types of power, but not always.

Attempt

When one party tries to effectively employ the use of power as a means to achieve a desired outcome or influence the behaviour of the other individual, but is not successful in doing so. This is determined in relation to the targets behaviour (1 point)

1) Person A does not successfully change or influence Person B's behaviour, but is rather met with opposition or resistance.
    - e.g., Younger tries to persuade/convince Older, but does not successfully do so and at the same time is met with opposition/resistance
        - Y: I just had two pieces. - ***Legitimate (MP) power attempt***
        - O: And I only had two. You had four. - ***Legitimate (MP) & Elaborated Information power attempt***
        - Y: [Places roof piece on big barn] No, that is only two [points to small barn]. I had three. - ***Elaborated Information power attempt***
        - O: No you did this one. [Points to big barn roof piece Y put on] - ***Elaborated Information power attempt***
        - Y: No. - ***Simple Information power attempt***

2) Behaviour of influencing agent is an overt attempt
        - Y: Back in the barn, Kelly. [Tries to grab horse from older sibling] – ***Simple Information and Coercive Physical power attempt***
        - O: [taps horse on roof of big barn]

- Y: [tries to grab horse from older sibling]

  Coercive physical power attempt

3) Person B does not revoke/resist person A's power attempt. This may occur due to a lack of a response on the part of Person B (Person B ignoring person A) or Person B may disengage and move on to engage in something else.
   - E.g., Older employs the use of coercive verbal power and makes an appeal to a third party, but the effectiveness of this power is an attempt because this is the last turn in the conflict sequence and Older does not further influence her brother nor does she get what she wants.
     - Y: But I wanna guy… I don't have any guy. [O pushes Y's head to push him back from her area with three shoves to the head. Y is not deterred, keeps reaching for piece and takes what he wants while knocking over another piece]
     - ***O: Ahh Chris! He keeps wrecking my stuff. - Attempt***
   - E.g., Younger employs the use of legitimate power (A), but the effectiveness of this power is an attempt because Older does not revoke, resist, or respond to Younger's use of legitimate power, but moves on.
     - Y: Shawn, you're not the boss.
     - O: Yes I am because you're little, you're only three years old [puts fence area together completely]
     - ***Y: You're still not the boss - Attempt***

- O: Daniel, where's the animals, some animals to put in here? [To put into fence area] Do you have any animals that you can put in here? [motions to fence area]

Success

Occurs when one child effectively employs the use of power as a means to achieve a desired outcome or influence the behaviour of the other individual. This is determined in relation to the targets behaviour.

1) Reciprocated behaviour is successfully influenced or changed, but at the same time the target of influence may oppose by other means.
    - E.g., Younger effectively persuades/convinces Older
        - Y: This is easier.

          Innocent behaviour
        - O: Eas-IER. [*doesn't hear Y correctly and raises her voice; piece falls to ground and she picks it up*]

          Information power attempt (trying to correct Y by emphasizing "IER")
        - **Y: I said easier. - Information power success**
        - O: It's easier but it isn't easy. I don't think!

          Information power attempt
        - Y: It is! Right.

          Coercive power (V) & Information power attempt
        - O: It isn't too easy.

Information power attempt

- Y: It is too easy.

Information power success

- O: Really?
- Y: Ya.

- e.g., Younger effectively convinces Older that the toy is hers. (Family 56, #5)
  - **Y: No, that's my pig. - Information power & Legitimate power success**
  - O: I know, but he could slide through there.

2) Desired outcome is successfully and *overtly* achieved at the expense of Person B not getting what he or she wanted in the beginning, process, or ending of a conflict.

**Note: When Person A achieves a desired outcome at the end of a conflict, details regarding Person B's behaviour are not necessarily needed. When Person A gets what he or she wanted, regardless of whether or not Person B surrenders, loses interest, or does not care, the use of Person A's power is still considered to be a success simply by virtue of Person A obtaining what he or she wanted.

- e.g., Younger effectively employs the use of coercive power because younger obtains her goal at the expense of Older not getting what she wanted at the beginning and ending of the conflict (Family 29, #2)
  - Y: Just figured out that has to go [*grabs a toy piece that is on O's side*]. Somewhere where she sits**.**

- O: *[Grabs toy piece that is in Y's hand and pulls her arm back while younger sibling still holds onto toy]*
- Y: I had it first *[pulls arm back while both she O hold onto toy]*
- O: *[grabs a hold of the table with both hands and pulls back]*
- **Y: [*pulls horse out of O's hands*] She goes to check her pets *[referring to animals in pen].* These are her pets that she wants. Coercive power success**

- e.g., Older effectively employs the use of coercive power because she obtains her goal at the expense of Younger not getting what she wanted in the middle of a conflict (Family 29, #1)
  - Y: No Kelly, that goes in the barn. [*Referring to the horse O took and tries to grab horse from O*]
  - **O: *[pulls arm back to keep horse out of younger sibling's reach]* Coercive power (P) success**
  - Y: Back in the barn, Kelly. [*Continues to try and grab horse from older sibling*]
- e.g., Older successfully employs the use of expert power because he obtained what he wanted at the expense of Younger getting what he wanted at the end of a conflict.
    - O: But that's not the way you do it, Daniel. [*takes small barn away from Y and starts assembling it*]
    - Y: Yeah, you can do whatever you want to. [*protesting against O*]

- O: Well you can't attach the roof *[referring to Y not knowing how to or being able to attach the roof]*.
- Y: Shawn! [*Raises his voice*] you're not the boss!
- **O: {Mumbles something like} Cause I can put my stuff on [*assembles small barn but has a bit of a hard time putting on roof pieces*] Expert power success**

- e.g., A child can get what they want based on them having the last word and not being refuted – this is consistent with the Conflict Coding Scheme of conflict outcomes.
    - T: Yeah this is so fun
    - P: Yep not fun for you, fun for me
    - T: **fun for me not you – Simple success**

Appendix C

Study 2 – Tables

Table 1

Focal Children's Power Effectiveness in Friend Session by Gender Composition

	Time 1		Time 2	
	Boy-boy	Girl-girl	Boy-boy	Girl-girl
Power Effectiveness	M (SD)	M (SD)	M (SD)	M (SD)
Coercive (verbal & physical)	.29 (.32) [a]	.54 (.39) [a]	.48 (.36)	.60 (.31)
Legitimate	.14 (.25)	.08 (.18)	.16 (.29)	.19 (.39)
Simple	.27 (.28)	.20 (.18)	.26 (.18)	.35 (.19)
Elaborated	.30 (.34)	.36 (.33)	.50 (.35)	.46 (.33)

All $p < .01$

Note. Superscript letters represent where the significant differences lie between gender compositions for power effectiveness (e.g., "a" is significantly different than "a").

Table 2

Power Effectiveness by Relationship

	Sibling Session *M (SE)*	Friend Session *M (SE)*
Coercive	.56 (.01)	.48 (.05)
Legitimate	.29 (.05) [a]	.14 (.03) [a]
Simple information	.22 (.02)	.26 (.02)
Elaborated information	.31 (.04)	.40 (.04)

All $p < .001$

Note. Superscript letters represent where the significant differences lie between target children in the sibling versus friend conflict session for each effectiveness of power (e.g., "a" is significantly different than "a").

Table 3

Time by Winner's Power Resources

	Time 1 *M* (*SD*)	Time 2 *M* (*SD*)
Coercive	.11 (.02) [a]	.20 (.02) [a]
Legitimate	.12 (.02)	.10 (.02)
Information	.27 (.04) [b]	.60 (.04) [b]

All $p < .001$

Note. Superscript letters represent where the significant differences lie between target children across time (e.g., "a" is significantly different than "a").

Table 4

Winner's Power Resources by Relationship

	Sibling Session *M* (*SE*)	Friend Session *M* (*SE*)
Coercive	.17 (.02)	.14 (.02)
Legitimate	.11 (.02)	.12 (.02)
Information	.37 (.04) [a]	.50 (.04) [a]

All $p < .000$

Note. Superscript letters represent where the significant differences lie between target children in the sibling versus friend conflict session for each resource of power (e.g., "a" is significantly different than "a").

Table 5

Time by Relationship

	Time 1 *M* (*SE*)	Time 2 *M* (*SE*)
Sibling Session	.33 (.04)	.29 (.04)
Friend Session	.23 (.03) [a]	.41 (.04) [a]

All $p < .05$

Note. Superscript letters represent where the significant differences lie between target children in the sibling versus friend conflict session for power across time (e.g., "a" is significantly different than "a").

Table 6

Time by Winner's Power Effectiveness by Relationship

	Sibling Session		Friend Session	
	Time 1	Time 2	Time 1	Time 2
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Coercive	.49 (.07)	.32 (.06)	.28 (.06) [a]	.57 (.07) [a]
Legitimate	.17 (.06)	.22 (.06)	.15 (.05)	.22 (.07)
Information	.32 (.06)	.33 (.05)	.27 (.04) [b]	.44 (.05) [b]

All $p < .05$

Note. Superscript letters represent where the significant differences lie between target children in the sibling versus friend conflict session for effectiveness of power across time (e.g., "a" is significantly different than "a").