A study of the relationship between parent self-efficacy, parental involvement, and academic achievement in early childhood

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Education

In

School and Clinical Child Psychology

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University of Alberta

Abstract

This study examined the relationship between parent self-efficacy and the quantity and quality of parental involvement. A second research aim was to investigate whether PSE mediated children's academic achievement through the quantity and quality of parental involvement, with a focus on home-based forms of parental involvement in children's education. Data was collected from kindergarten children who graduated from early learning programs in Edmonton, and their families ($N = 48$). Results indicated a significant and moderate negative relationship between PSE and parents' reported level of conflict with their child ($r = -.45$, $p < .01$), where higher levels of PSE were associated with lower levels of conflict between parent and child. No significant correlation was found between PSE and the quantity of parental involvement, nor with the closeness that parents felt with their child. The lack of significant relationship between PSE and academic achievement indicated that conditions for mediation were not met. However, hierarchical multiple regression indicated that parents' perceived level of closeness with their child was found to be a significant predictor of child academic achievement ($\Delta R^2 = .18$, $p = .01$). The findings of this study emphasize the importance of parental support for children's education at home during early childhood.

"And, when you want something, all the universe conspires in helping you to achieve it."

- *Paolo Coelho, The Alchemist*

Acknowledgements

This study was made possible through funding of the Edmonton City Center Church Corporation (E4C). In addition to this funding, I would like to give thanks to all my "co-conspirators" who have helped me throughout this process. First, thank you to my academic advisor, Dr. Christina Rinaldi, for all the support throughout the years we have worked together. Next, I would like to thank my committee members, Dr. Lia Daniels and Dr. Phil Sevigny for their help and guidance. I would also like to express my gratitude to all my "sisters" of our close cohort. It has been a great privilege to learn and grow with all you wonderful ladies! To my parents who risked so much and sacrificed everything in order to give us the chance to a better life. For this I will be forever grateful. And last but not least, my greatest thanks go to my family. Hector, Eva, and Marco, I could not have done this without your patience and understanding.

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Introduction

It has long been recognized that children's educational outcomes are determined not only by their own abilities, cognitive styles, personality traits, and emotions, but are also influenced by other key relationships (Schunk & Zimmerman, 1997). In fact, the positive impacts of parental involvement on children's academic outcomes have been recognized by school administrators and teachers, and by policy-makers who have increasingly integrated different aspects of parental involvement in new educational initiatives and reforms (Graves & Wright, 2011; Larocque, Kleiman, & Darling 2011; Mattingly, Prislin, McKenzie, Rodrigues, & Kayzar, 2002; Topor, Keaner, Shelton, & Calkins, 2010). Specifically, researchers have found that higher parental involvement in children's learning is associated with numerous beneficial educational outcomes that include children's higher academic achievement and self-efficacy beliefs, as well as higher self-regulatory knowledge and skills (Brody, Flor, & Gibson, 1999; Fan & Chen, 2001; Frome & Eccles, 1998; Grolnick et al., 2000; Hill & Craft, 2003; Jeynes, 2003; Xu & Corno, 2003).

When children enter school, they are faced with new challenges as they try to adjust to a new environment with new expectations. Researchers have found that parents who were more involved tended to have children who adapted better to the new school context after the transition to kindergarten (Lau & Power, 2018). Parental involvement in children's schooling, such as the communication of educational expectations, attitudes, and goals, is an academic socialization process that is significantly linked to children's learning and academic achievement (Dearing, Kreider, Simpkins, & Weiss, 2006; Jeynes, 2005; Park & Holloway, 2013; Sonnenschein & Thompson, 2012). Therefore, early learning programs are increasingly considering parental involvement as a core program component (Bierman, Welsh, Heinrichs,

Nix, & Mathis, 2015; Landry, Zucker, Williams, Merz, Guttentag, & Taylor, 2017; Pelletier & Brent, 2002). However, in order for parents to maintain their involvement, they must believe that their participation makes a difference in their child's educational outcome (Pelletier & Brent, 2002). Currently, many school programs that target parent involvement may be under the assumption that parents already possess a certain level of confidence, competence, and interest in their child's learning that may in fact be absent (Macleod, 1996).

One important construct for understanding the influences on parental involvement is parent self-efficacy (PSE) (Giallo, Treyvaud, Cooklin, & Wade, 2013). PSE is defined as parents' beliefs about their ability to parent successfully and is considered a strong determinant of parental behavior (Giallo et al., 2013). When it pertains to children's learning, parental self-efficacy is viewed as a parent's belief that they possess the necessary experience and skills to exert a positive influence on their child's school outcomes (Hoover-Dempsey, Bassler, & Brissie, 1992). Thus, parents who have higher PSE believe that they are more efficacious in their parenting role, and therefore are more likely to engage in parenting behaviors that are important for promoting their child's development (Coleman & Karraker, 1997; Jones & Prinz, 2005).

The Present Study

Considering the importance of parental involvement in promoting positive academic outcomes for children, it is therefore not surprising that researchers have shown substantial interest in studying the factors that may influence the nature and frequency of parents' involvement with their children (Giallo et al., 2013). A review of the literature on parental involvement has revealed mainly a focus on socio-economic factors. Although economic disadvantage may impact parental involvement, less attention has been focused on other characteristics of the parent, child, and family context that may influence the extent to which

parents will be involved in activities with their children at home (Giallo et al., 2013). For this reason, I examined the relationship between PSE, parental involvement, and child academic achievement. More specifically, my focus was to study the association between PSE and the quantity and quality of parental involvement. Furthermore, I looked at whether PSE mediates children's academic achievement through parental involvement. For the purpose of the present study, the focus was on home-based forms of parental involvement on children's academic outcomes.

Literature Review

Defining Parent Self-Efficacy

Parent self-efficacy (PSE) can be defined as the caregiver's or parent's belief about their ability to successfully raise their children (Jones & Prinz, 2005). However, in past studies, PSE has been given other designations. For example, parent self-efficacy (PSE) has often been mislabeled as parental "confidence", parental "competence" and parental "self-esteem" (Hess et al., 2004). While these terms have been used interchangeably, they are distinct constructs. Although the differences between Jones's and Prinz's definition of PSE and these other terms may be subtle, it is still important to consider their differences because establishing the correct terminology will ensure accuracy and consistency for the current study (Wittkowski et al., 2017). For this reason, I will clarify the differences between PSE and these other "labels" in this section.

First, PSE is not parental "confidence". By conducting a conceptual analysis, De Montigny and Lacharité (2005) were able to demonstrate that parental confidence is indeed a separate concept to PSE. In their attempt to further differentiate between the two constructs, Glidewell and Livert (1992) described PSE as a situation-specific construct that is subject to vary according to the task and the context. In contrast, they described parental confidence as stable

over time. In other words, parental confidence is different in that it is not situation-dependent, nor is it specific to the situation. Another important differentiation is that PSE is a theoretically defined construct, whereas confidence is a colloquial term that is unrelated to any specific theory (Pennell et al., 2012). Furthermore, PSE refers to a parent's judgment of what he or she "can do", irrespective of how efficacious they are at completing the task. For example, a parent with low PSE may be highly confident that they will fail at a task. This example illustrates the difference between a parent's level of PSE and their confidence with regards to a task.

Next, PSE is not parental "competence". In fact, parental competence has also been demonstrated to be a separate concept to PSE (De Montigny & Lacharité, 2005). Similar to PSE, parental competence refers to the ability to complete a task successfully and efficiently. However, the difference lies in the perspective. For PSE, the belief about the ability to complete a task successfully is based on the parent's own judgment. In contrast, parental competence is based on others' perspectives, or some external rating to be measured against, of how well the task will be completed by the parent (Pearsall & Hanks, 1998). In short, parental competence is described behaviorally, whereas PSE is defined as a cognitive construct.

Finally, PSE is not parental "self-esteem". In their conceptual analysis, Montigny and Lacharité (2005) also argued that parental self-esteem is a separate concept from PSE. According to Bandura (1997), PSE is a parent's judgement of their own personal capability to fulfil their role as a parent. In contrast, parental self-esteem is one's judgement of one's worth as a parent (Wittkowski, 2017).

Despite the differences, PSE does share similarities with some of the other constructs in that, like parental confidence and self-esteem, it also includes two global components: cognitive and emotional self-perceptions of parenting (Wittkowski, 2017). The cognitive component

consists of the beliefs or judgments that parents hold about their capability to perform parenting-related tasks (Farkas & Valdés, 2010; Jones & Prinz, 2005; Montigny & Lacharité, 2005) and their ability to influence children and their environment in order to promote children's positive development (Ardelt & Eccles, 2001). The emotional component consists of the parent's subjective rating of contentment and satisfaction that comes from being a parent (Coleman & Karraker, 2000; Johnston & Mash, 1989; Rogers & White, 1998). Therefore, with consideration for the cognitive and emotional components of PSE, I focused on the two dimensions by studying the degree to which parents feel competent, capable of problem solving, and at ease with parenting, as well as the extent to which parents feel anxious, frustrated, and poorly motivated in their role as a parent (Nunes et al., 2106).

Parenting Self-Efficacy in Families with Low Income

Researchers have found that parents from low-income families are more likely to feel inadequate in the parenting role than more advantaged parents (Stormshak et al., 2000). For example, one study involved mothers from low-income families who were recruited from Early Head Start, a U.S. government program that provides comprehensive child development for pregnant women and families with children under the age of 3. The mothers with lower levels of reported self-efficacy also reported higher levels of parenting stress and higher family risk, compared to mothers who reported higher levels of self-efficacy (Raikes & Thompson, 2005).

Mothers from low-income families in particular are likely to experience an accumulation of risk factors such as: financial strain, poor living conditions, single-parent status, and social isolation that increase the stress of daily life and reduce psychosocial support (Brooks-Gunn & Markman, 2005). In addition, mothers facing economic adversity may have more parenting challenges due to decreased resources and increased life stressors that lead to less positive

parenting practices (Elder et al., 1995; Farkes & Valdes, 2010). Taken all together, these factors can weaken parent self-efficacy and contribute to an environment that is more unpredictable, less developmentally stimulating, and less responsive compared to that experienced by socioeconomically advantaged children (Foster et al., 2005; Lengua et al., 2007).

Furthermore, economically disadvantaged parents are often affected by psychological distress that impacts their parenting abilities due to coping with chronic stress in their environment (Copeland & Harbaugh, 2017). Parents who feel depressed and challenged by their children's behavior may be less likely than other parents to engage actively in home-based learning activities such as book reading, because they lack the energy or confidence to do so (Jones & Prinz, 2005). This in turn may negatively impact their child's learning and development.

PSE as an Antecedent to Parental Involvement

In past studies, PSE has been examined as an antecedent, a consequence, a mediator, and a transactional variable (Prinz & Jones, 2005). The notion of PSE as an antecedent variable has involved viewing PSE as an influence over parenting competence. To be specific, it is posited that parents with high PSE will exude confidence in acquiring and exercising effective parenting skills. On the contrary, parents with low PSE may find it more difficult to parent effectively when they are faced with challenging situations with their child (Prinz & Jones, 2005).

PSE as an antecedent to parenting has been the focal point of studies in the past. In their effort to explore whether changes in parenting self-efficacy after attending a parenting program were related to changes in parenting stress and child behavior, Bloomfield and Kendall (2012) found a relationship between parenting self-efficacy and parenting stress, in that parents who felt less efficacious experienced higher levels of parenting stress, whereas parents with higher

parenting self-efficacy reported less stress related to their role as a parent. However, the study was limited to a small sample of parents (N=58) attending only one type of parenting program. In addition, the authors were unable to make any causal inferences between parenting self-efficacy and parenting stress due to the correlational nature of the study.

Carless, Melvin, Tonge, and Newman (2015) found that low levels of PSE were strongly associated with higher levels of family dysfunction and higher rates of school refusal in children. The authors posit that deficits in PSE may affect parents' ability to perform the parenting tasks required to manage school-refusal, leading to inadequate parenting strategies with overall dysfunction in the family system as a consequence. Like the study by Bloomfield and Kendall (2012), the generalizability of the findings of this cross-sectional study was limited by its modest sample size. Furthermore, the authors acknowledged that a longitudinal study is needed to fully understand the direction of the relationship between PSE, family dysfunction, and child behaviors.

Interestingly, researchers of a longitudinal study did find evidence supporting the idea of parenting self-efficacy as an antecedent causal variable in relation to parenting practices and children's conduct problems at home and at school (Dumka, Gonzales, Wheeler, & Millsap, 2010). Through the use of a longitudinal design and structural equation modeling, the authors found that PSE predicted positive parenting practices such as monitoring and consistent discipline, rather than the reverse. However, data collected from the 189 Mexican American families were exclusively obtained from maternal figures, without the perspective of fathers. Furthermore, the authors discussed how parenting values such as "sympatia" (harmonious interpersonal relationships) are important in Mexican American culture. It is therefore possible that parenting practices that include qualitative dimensions such as warmth may also exert an

influence, in addition to the quantity of positive parenting practices, in preventing children's conduct problems.

After reviewing past studies that have viewed PSE as an antecedent to parenting, the present study is guided by Ardelt and Eccles's (2001) conceptual model of PSE as an antecedent to parental involvement, which is based on theory by Bandura (1997). The crux of this conceptual model is that parents with high PSE will tend to be more involved with their children, whereas parents with low PSE will tend to be less involved. This concept applies to both the quantity and quality of parental involvement. With parental involvement broadly defined as the participation of significant caregivers in the education of their children (LaRocque, Kleiman, & Darling, 2011), the quantity of parental involvement can be defined as the frequency of this participation, while the quality of parental involvement can be defined as the nature of this participation in children's education.

According to this model, parents with higher PSE are also more likely to be involved in promotive parenting strategies. The researchers defined promotive parenting strategies as those which create positive experiences for their child and promote their child's development. Some examples are: encouragement of the development of their child's talents, and collaborative activity between parent and child (Ardelt & Eccles, 2001). The researchers posited that higher quality parental involvement would in turn increase the likelihood for children's success in the domain of academic achievement and self-control (Ardelt & Eccles, 2001). Ardelt and Eccles (2001) also discussed reverse effects, where parents with low PSE may struggle to use promotive parenting strategies and tend to give up easily when challenges arise. The model also suggests that PSE can also have an impact on children's positive school outcomes through parents' modeling of attitudes and beliefs (Ardelt & Eccles, 2001).

Following this conceptual model, the present study is based on the premise that parents who report higher levels of PSE will also report higher quantity and quality of involvement in their child's learning in the home. PSE will also have an indirect effect via PI on child academic achievement. If this conceptual model holds true, higher levels of PSE will also have a positive influence on children's academic achievement through its influence on the frequency and the nature of parental involvement at home.

Past research findings have supported this conceptual model of PSE, where researchers have found that parents with high levels of parenting self-efficacy tend to build warm and affectionate relationships with their children and to persevere in their parenting tasks (Coleman & Karraker, 1998; Teti & Gelfand, 1991). Parents who believe in their ability to support their child with regards to academic matters tend to be more involved in their children's education (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Eccles & Harold, 1996; Hoover-Dempsey, Bassler, & Brissie, 1992). For example, researchers trying to understand the factors that limit parental involvement in children's learning (Eccles & Harold, 1996) found that parents with a higher sense of control over helping their child acquire the skills needed for school were more likely to help with their children's schoolwork, and consequently held a more positive perception of their child's ability to adjust to school. Also, in their study of the socio-cognitive factors that influence children's academic aspirations, Bandura and colleagues (2001) found that the more strongly parents believed that they could impact their child's academic development, the higher the educational aspirations they held for their child. As aspiring parents, they were more likely to act in ways to support their child's academic achievements. These findings were consistent with those of an earlier study that involved multiple informants (Hoover-Dempsey et al., 1992). Hoover-Dempsey and colleagues (1992) found a significant positive correlation between both

self-reported PSE and teachers' perceptions of PSE, with parental involvement in kindergarten children's learning.

In observational studies of parents of younger children, PSE has also been linked to other parenting factors. For example, Teti and Gelfand (1991) found that PSE correlated with independently observed parenting competence, even after controlling for depression, social support, and child temperament. The researchers found the relationship to be a positive and moderate correlation. Researchers have also found that parent self-efficacy was positively associated with mothers' likelihood of engaging in individually chosen activities like reading to their preschoolers (Holloway, Yamamoto, Suzuki, & Dalesandro, 2008; Yamamoto, Holloway, & Suzuki, 2006). Although the relationship was small, the researchers found the correlation to be statistically significant. Thus, parents' decisions to become involved in their children's education appear to be affiliated with their self-efficacy levels (Yamamoto, Holloway, & Suzuki, 2016).

Defining Parental Involvement

Finding a clear definition for parental involvement was challenging because the multidimensional nature of this construct has led to a lack of agreement about definitions and to measurement inconsistencies across studies (Hill & Taylor, 2004). Like the issue with PSE, parental involvement in children's learning is open to various interpretations (Quadri, 2012). In some cases, it is measured by specific actions, such as attendance at parent-teacher conferences (Lau & Power, 2018). For others, it may be more broadly measured, such as the provision of an enriched home environment that supports learning (Cabus & Aries, 2017). In other words, there is no simple, or one single, way of defining parental involvement in the literature because there is little consensus about what it means to 'be involved' (Bracke & Corts, 2012).

A review of past research has revealed a lack of consensus regarding the definition of the construct, and the fact that "despite its intuitive meaning, the operational use of parental involvement has not been clear and consistent" (Fan & Chen, 2001, p. 3). Definitions have varied from very broad, such as "the dedication of resources by the parent to the child within a given domain" (Grolnick & Slowiaczek, 1994, p. 238), or the parents' investment in the education of their children (Larocque, Kleiman, & Darling, 2011), to more specific definitions that define parental involvement as "parents' behaviors in home and school setting meant to support their children's educational progress" (El Nokali, Bachman, & Votruba-Drzal, 2010, p.989).

In some studies, researchers have avoided providing a definition of parental involvement. Instead, they chose to focus on specific types of the involvement exhibited by parents (Kohl, Lengua, & McMahon, 2000). For example, Kohl and colleagues (2000) stated that parental involvement has been inconsistently defined and measured in past studies. The researchers believed that the lack of consensus on a definition is due to the fact that parental involvement is complex, and it encompasses many parental behaviors and attitudes. In their study, Kohl and colleagues (2000) examined the strengths and weaknesses of several models of parental involvement. The researchers then identified three dimensions of parental involvement that were common to the models they reviewed (e.g. parent-teacher contact to facilitate monitoring their children's school progress and helping their children with homework, parent involvement in school activities, and parent involvement directly with their child at home to facilitate intellectual stimulation and school success). Using these three dimensions, along with three dimensions aimed at measuring the quality of parental involvement (e.g. the quality of the relationship between parent and teacher, the teacher's perception of the parent's value of

education, and the parent's satisfaction with the child's school), Kohl and colleagues implemented a multi-dimensional conceptualization of parental involvement rather than provide a specific definition. The way that I define parental involvement, and the dimensions that it focuses on, is discussed in the following sections.

Parental Involvement in Children's Education

There is a general consensus among researchers and policymakers that parental involvement has positive effects on children's educational outcomes (Boonk, Gijselaersa, Ritzen, & Brand-Gruwela (2018). Broadly defined, parental involvement in children's learning is a construct with many components. It refers to the participation of significant caregivers in the education of their children, through home or school activities (LaRocque, Kleiman, & Darling, 2011). For the component of involvement in the home, an example can be helping their child with homework. Meanwhile, the dimension of involvement at school can include communicating with their child's teacher and supporting their child in school through volunteering in the classroom (Epstein & Dauber, 1991; Grolnick & Slowiaczek, 1994).

However, not all types of parental involvement have been found to be significantly related to child academic outcomes. McBride and colleagues (2005) examined the different types of father involvement in their child's learning. The types that the researchers identified were: communication with their children, communication with their children's schools, and direct involvement at the school. The researchers found that of these three types, only communication with the children was significantly associated with children's achievement. These findings highlight the importance of using several indicators of parental school involvement instead of a single global, composite variable in order to capture the different dimensions of parental involvement.

Furthermore, the nature of parents' interactions with their children has been found to be a stronger predictor of children's academic outcomes than the frequency of parental involvement at school (Jeynes, 2010; Zellman & Waterman, 1998). In their attempt to confirm the positive relationship between parent involvement and child outcomes, and to understand the factors that underlie it, Zellman and Waterman (1998) collected data from children, as well as their mothers and teachers. To capture the quality of parental involvement, the researchers videotaped the parent-child interaction during a conflict resolution task. To assess the quantity of parental involvement, parents were asked to rate the frequency with which they helped their child with their homework and the frequency of their involvement at school. The results suggested that how parents interact with their children is more important in predicting child academic outcomes than the extent to which they are involved. Zellman and Waterman (1998) pointed out that although all involved parents want their child to do well in school, some parents are more successful in helping their children than other parents. The authors explain that the difference lies in the quality, as well as the quantity, of their involvement. Specifically, they posit that the quality of the parent-child interaction influences the degree to which children are open to their parents' influence. Therefore, when parental involvement is limited and negative (e.g. controlling), the child is less likely to want to please their parent by doing well in school (Zellman & Waterman, 1998) and will be less likely to benefit from their parent's help.

The importance of including the quality of parental involvement has been supported in recent studies. In their review of 75 studies published between 2003 and 2017 on the link between parental involvement and children's academic achievement, Boonk and colleagues (2018) grouped the most prominent aspects of parental involvement into home-based and school-based involvement. They found that the most consistent and positive correlations were found for

home-based involvement, namely: reading at home, parents holding high expectations for their child's learning, parent-child communication, and parental encouragement and support (Boonk et al., 2018). Another interesting finding was that not all types of parental involvement were positively correlated with academic achievement. For example, mixed results were found for parental homework involvement. When researchers measured homework involvement as "homework checking" or "homework control", the relationship was found to be negative (Xu, Benson, Mudrey-Camino, & Steiner, 2010), whereas when homework involvement was supportive of child autonomy, the relationship was positive (Gonida & Cortina, 2014). This led the researchers to conclude that when it comes to parental involvement, the "more is better" approach does not always apply. It is also important to consider how parents are involved, or the quality of their involvement (Boonk et al., 2018).

Examining both the quantity and quality of parental involvement. Until recently, parental involvement was defined as a set of overt actions that can be quantified (Jeynes, 2010). Over time, researchers have developed their view, and now posit that although overt parental involvement, such as reading with their child, can have a positive effect on child outcomes, the warm, subtle component of parental involvement can also have an impact (Jeynes, 2005). Therefore, researchers are currently including both the quantity and quality aspects of parental involvement in their definitions (Jeynes, 2005). Since parental involvement in children's learning has been broadly defined as the participation of significant caregivers in the education of their children (LaRocque, Kleiman, & Darling, 2011), the quantity of parental involvement can be defined as the frequency of this participation, while the quality of parental involvement can be defined as the nature of this participation in children's education.

According to Jeynes (2010), children who feel close to their parents tend to do better academically and psychologically than children who do not enjoy this quality of relationship. Jeynes (2010) explains further that the two go hand in hand, such that an academically supportive home atmosphere is most likely to come from parents who have a strong and loving relationship with their children.

Cooper, Steenbergen-Hu, and Dent (2012) also added that, with regards to children's academic outcomes, "the type and quality of parent involvement may be critical to its effects, and these vary among parents in ways that current research only hints at" (p. 490). Their idea echoes the views of Pomerantz, Moorman, and Litwack (2007). In their review of parental involvement, Pomerantz and colleagues (2007) explained that by focusing on how parents become involved in children's schooling, we can highlight the importance of studying the quality of parents' involvement rather than only the extent of parental involvement. The authors offer an explanation as to how the quality of parental involvement can be beneficial to children's academic outcomes. However, the researchers only broadly defined parental involvement in children's learning as parents' commitment of resources to the academic arena of children's lives.

According to Pomerantz and colleagues (2007), parenting is intrinsically affective, and this may be especially true for parental involvement in children's schooling. One reason that parents may become involved with their children's schooling is to establish a sense of connectedness with them (Pomerantz, Wang, & Ng, 2005). For this reason, when parents are involved in their children's schooling, many parents may try to make their interactions with their children enjoyable, loving, and supportive. By keeping their involvement enjoyable and loving, parents may convey to children that although schoolwork can be challenging, it can still be an

enjoyable task. Thereby fostering an openness to learning in their children. However, when parents are involved in an irritable and critical manner, they may reinforce the idea that doing schoolwork is an unpleasant task.

The importance of the quality of parental involvement is also emphasized by research indicating that the quality of home learning environments has a strong and enduring effect on child outcomes over and above the influence of social risk factors such as parental education and socio-economic status (SES) (Bradley et al., 2001; Sylva et al., 2004). Although Dumont and colleagues (2012) only defined parental involvement generally as ‘‘the dedication of resources by the parent to the child within a given domain’’ (Grolnick & Slowiaczek, 1994, p. 238), they recognized the importance of examining parental involvement as a multi-dimensional construct. Through the perspective of children, they assessed three dimensions of the quality of parental home-based involvement with homework: perceived support, conflict, and parental competence to help. They used children’s perspective because they believed that children’s interpretations of parental involvement often shape their responses to that involvement. This supports Zellman and Waterman’s (1998) earlier idea that the quality of the parent-child interaction, which is one dimension of the quality of parental involvement, influences the degree to which children are open to their parents’ influence. Dumont and colleagues (2012) identified a link between students’ report of parent-child conflict during homework interactions and academic difficulties. They concluded that parental involvement in homework can very well be harmful if it is undesired by students and if it elicits negative emotions. Therefore, it is crucial to distinguish between the different dimensions of parental homework involvement and not to focus only on its quantity.

In a more recent study, Moroni and colleagues (2015) distinguished between the quantity and quality of parental involvement in homework. To measure the quantity of parental involvement, the researchers looked at the frequency with which parents helped their children with homework over the span of one week. For the quality dimension, they studied positive forms (characterized by autonomy and emotional support), and negative forms (characterized by intrusiveness and control) of parental involvement. The researchers found that the frequency of parental homework help was negatively correlated with students' academic achievement even after controlling for their prior achievement. Conversely, a different pattern was revealed when investigating the quality of parental homework help as perceived by children. When homework involvement was perceived as supportive, it was positively correlated with students' achievement. However, when children perceived parental involvement as intrusive and controlling in the homework process, parental involvement was negatively correlated with students' achievement. The researchers also concluded that there is a need to use multidimensional measures in order to come to consistent conclusions about the effectiveness of parental involvement (Moroni et al., 2015). According to the researchers, regardless of how a study defines parental involvement, the important thing is to account for the multidimensional nature of parental involvement and measure each dimension separately instead of collapsing the very heterogeneous aspects of parental involvement into one global measure (Moroni et al., 2015).

In the present study, drawing upon the work of Zellman and Waterman (1998), as well as Boon and colleagues (2018), I define parental involvement as the participation of parents in the education of their children at home or at school, with a focus on parental involvement at home. The focus on parental involvement in the home environment and not at school was to avoid any

confounding factors, such as work or lack of childcare for younger siblings, which could prevent parents from engaging in school-based involvement. I examined the quantity and quality of parental involvement. Specifically, I assessed the frequency of parents' active participation with their child's learning, and their communication with their child about school (quantity). In addition, I examined the quality of the parents' perceptions of their interactions with their child in general, specifically parents' overall perceptions of conflict and closeness in their relationship with their child (quality).

Parental Involvement and Child Academic Achievement

When children enter their first year of school, they are faced with new social and academic challenges while adjusting to a new school environment (Cabrera, 2010; Rimm-Kaufman & Pianta, 1999). Researchers have found that parental involvement is crucial during this early school transition (Fantuzzo, McWayne, & Perry, 2004). Moreover, parental involvement in supporting child learning, the teaching of the importance of education, and the provision of an enriching home environment have been shown to be positively correlated with young children's academic performance (Foster, Lambert, Abbott- Shim, McCarty, & Franze, 2005; Hill, 2001; Weigel, Martin, & Bennett, 2006).

Academic Achievement. Especially in the home setting, parental involvement, such as helping children with homework, is believed to be beneficial because parents can scaffold their children's learning in a one-on-one setting and transmit values about the importance of commitment to schoolwork (Hoover-Dempsey et al., 2001). The quantity of home-based involvement, such as frequent parent–child conversations, reading, and learning activities in the home, has been positively associated with better child academic outcomes (Okado, Bierman, & Welsh, 2014). Parents who frequently talk with their children, point out and explain things in the

environment around them, and comment on thoughts and feelings to help shape the child's attention skills and build the child's oral language skills (Burns et al. 1998; Hart & Risley 1995; Nord et al., 2000). Researchers who compared the quantity of school-based versus home-based involvement found that when parents are involved in their child's learning at home, this also provides an opportunity to model a positive valuing of school that may motivate their child to be more engaged in and excited about school, thereby nurturing their child's academic outcomes (Fantuzzo, McWayne, Perry, & Childs, 2004; Izzo et al., 1999; McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004).

Although research on parent involvement has focused on the frequency of traditional forms of involvement, such as attending PTA meetings and class volunteering, the quality of home-based parental involvement has also been positively associated with child academic achievement (Doctoroff & Arnold, 2017). By observing parent-child interactions during a homework-like task in the participants' homes, researchers found that parental involvement with high support for child autonomy was positively correlated with stronger reading skills in children. Additionally, high autonomy support, as well as parental involvement characterized by warm body language, affect, facial expressions, tone of voice and affection toward the child, were found to be significantly associated with greater child engagement in the homework task (Doctoroff & Arnold, 2017). The quality of the parent-child interaction has also been found to be linked to children's learning. For example, researchers have found that close and collaborative interactions between parent and child are related to children's literacy and numeracy outcomes (Lukie, Skwarchuk, LeFevre, & Sowinski, 2014). Through the combination of questionnaires and interviews, Lukie and colleagues (2014) found that parents who reported that they enjoyed interactions filled with meaningful conversations, enthusiasm, and sustained attention with their

child also reported more exposure to home literacy and numeracy activities compared to families who reported less collaborative parent-child interactions.

Cross Cultural Findings. The benefits of parental involvement for positive child academic outcomes have also been found across cultures. For example, Izzo and colleagues (1999) found that in a large sample of ethnically diverse children in kindergarten to Grade 3 followed over 3 years, more parental homework assistance contributed positively to children's achievement in the domains of reading and math. Meanwhile, in a meta-analysis of 42 studies (Jeynes, 2016) which examined the relationship between the quantity and quality of parental involvement and the academic achievement and school behavior of African American students, the results indicated that the quantity of parental involvement in the educational processes of their child was associated with higher scores on objective measures of academic achievement and better behavioral outcomes by nearly .4 of a standard deviation unit for both younger (pre-elementary and elementary school) and older (secondary school and college freshman) students. Jeynes (2017) was able to find the same link between the quantity of parental involvement and academic achievement in Latino children. In a meta-analysis of 28 studies, he found a significant relationship between parental involvement and academic achievement for both younger (grades K-5) and older (secondary school and college freshman) students. In his earlier meta-analyses, Jeynes (2016) considered different components of parental involvement such as parental style and parent-child communication (quality), as well as the frequency of parental participation in school activities, reading with their child, and homework monitoring (quantity).

In short, the findings of the above studies support the conclusion that both the quality and quantity of parental involvement should be considered when looking at the impact of parental involvement on child outcomes, such as academic achievement and adaptability.

Child Outcomes: Why Focus on Academic Achievement?

Although early learning programs can help prepare young children for school, researchers have found parental involvement to be crucial when children enter kindergarten (Fantuzzo, McWayne, & Perry, 2004). By the time children enter school, there is an expectation that they have acquired sufficient language knowledge, pre-reading knowledge, pre-mathematics knowledge, cognitive abilities, social and emotional development (School Readiness Act, 2005). For the purpose of the present research, my focus was on a specific child outcome: academic achievement.

Academic achievement. Academic achievement can be broadly defined as performance outcomes that indicate the extent to which a student has accomplished specific goals that were the focus of activities in an instructional setting, such as school (Steinmayr et al., 2017). There are many different indicators of academic achievement. These indicators can range from global indicators, such as grade point average, to some specific indicators, such as standardized test scores in a specific academic area like mathematics or reading (Fan & Chen, 2001). A review of the literature has shown that various measures have been implemented in studies to assess academic achievement, such as school grades (Fehrmann, Keith, & Reimers, 1987), standardized test scores (Miedel & Reynolds, 2000), teacher ratings of academic performance (Grolnick & Slowiaczek, 1994), and ratings of classroom behavior (Ketsetzis, Ryan, & Adams, 1998).

Having different indicators and various ways of measuring academic achievement may have resulted in inconsistencies in past investigations. Research findings have pointed to the notion that the impact of parental involvement may be related to how academic achievement is measured (Fan & Chen, 2001). More specifically, the relationship between parental involvement and child academic achievement has been found to be significantly stronger if global measures

(e.g. grade point average) are used, rather than a specific (e.g. grade on an in-class test) or non-standardized measures (e.g. teachers' ratings of students' achievements compared to their peers) of academic achievement (Englund et al., 2004; Mattingly et al., 2002; Wilder, 2014). Further investigation revealed a stronger link between parental involvement and academic achievement if the measure of achievement was more general, such as combining scores in several academic domains. Conversely, the correlation between both constructs were significantly weaker if academic achievement was measured only in specific areas, such as math or reading (Wilder, 2014).

In addition, it has been suggested that the use of standardized tests to measure academic achievement may be more useful in examining the impact of parental involvement because standardized testing can minimize potentially confounding variables such as idiosyncratic teacher grading styles and teacher perceptions (Kaufman et al., 2012). With consideration to these past research findings, I examined academic achievement through the use of combined standardized test scores in several academic domains.

Theoretical Framework

The relationship between parent self-efficacy, parental involvement, and academic achievement for children in kindergarten is grounded in theory. As such, an overview of Social Cognitive Theory is presented in order to provide a theoretical framework that guided the present research study.

Understanding PSE and parental involvement through Social Cognitive Theory (Bandura 1997). The conceptual model of PSE as an antecedent to parental involvement can be understood through Social Cognitive Theory (Bandura, 1977). According to Bandura (1977), self-efficacy is generally defined as an individual`s perceived knowledge and beliefs about their

ability to successfully perform a behavior to produce a desired outcome. In other words, self-efficacy refers to the beliefs that individuals hold about their capacity to exert control over events in their lives (Bandura, 1982). An individual's sense of self-efficacy can influence their choice of activities and settings, as well as the amount of effort they will put forth in the face of challenges (Popp & You, 2016). Individuals with high self-efficacy are more likely to engage in tasks and will persist longer at those tasks, even when those tasks are difficult (Bandura, 1986). Conversely, if an individual believes that he or she is unable to achieve a desired effect through their action, then the person is less likely to act (Bandura, 1977). In short, people's thoughts and beliefs affect how they behave (Bandura, 1986).

Social Cognitive Theory (Bandura 1997) explains this. An individual's performance in certain tasks based on the interaction of 3 factors: (a) personal factors (which are cognitive, biological and affective factors), (b) their behavior, and (c) and environmental events (Crothers et al., 2008). In order to evaluate their self-efficacy, individuals draw on four sources (Bandura, 1994). The first source is mastery experiences. In this case, past successful performances are likely to raise an individual's self-efficacy, whereas less successful performances are likely to lower it. Next is through vicarious experiences, where the individual can gauge their own abilities by watching others perform a task. In addition, a person's self-efficacy is impacted by their response to social persuasion. For example, encouragement or praise from the people around them can raise self-efficacy, whereas criticism reduces it. Finally, another source of self-efficacy comes from an individual's somatic and emotional states. For example, happiness is more likely to instill higher self-efficacy than fear (Bandura & Adams, 1977).

Bandura's theory of self-efficacy can be extended to parenting self-efficacy (PSE).

PSE is viewed as a more specific dimension of broader self-efficacy and is seen as the expectation that parents hold about their abilities to parent effectively (Jones & Prinz, 2005) and to foster their child's development (Ardelt & Eccles, 2001; Verhage et al., 2013). Drawing on Bandura's (1997) explanation that an individual's performance in certain tasks is based on the interaction of personal factors, their behavior, and environmental events, it would make sense that a parent's belief of their ability to successfully support their child's learning (personal cognitive factor) will influence the quantity and quality of their involvement with their child (behavior), which in turn will impact their child's outcome (environmental events). Furthermore, parents' beliefs about their ability to help their child's learning can be formed by how successful they view their past involvement, by comparing their involvement to that of other parents, through the praise or criticism that they receive from other people about their parenting, and by how anxious or confident they feel towards helping their child. With this theoretical viewpoint in mind, it is easy to understand why parents with high PSE are able to acquire and exercise effective parenting skills, whereas parents with low PSE tend to give up easily when faced with parenting challenges (Jones & Prinz, 2005).

Purpose of Study and Research Questions

I used a correlational design to examine if parental involvement mediates the effect of parent self-efficacy on child academic achievement. First, I investigated the relationship between parents' perceptions of their parenting (PSE) and the quantity and quality of their involvement in their child's education in the home context. I then looked at whether PSE mediates child academic achievement through parental involvement. Figure 1 illustrates the conceptual framework that guided the present study.

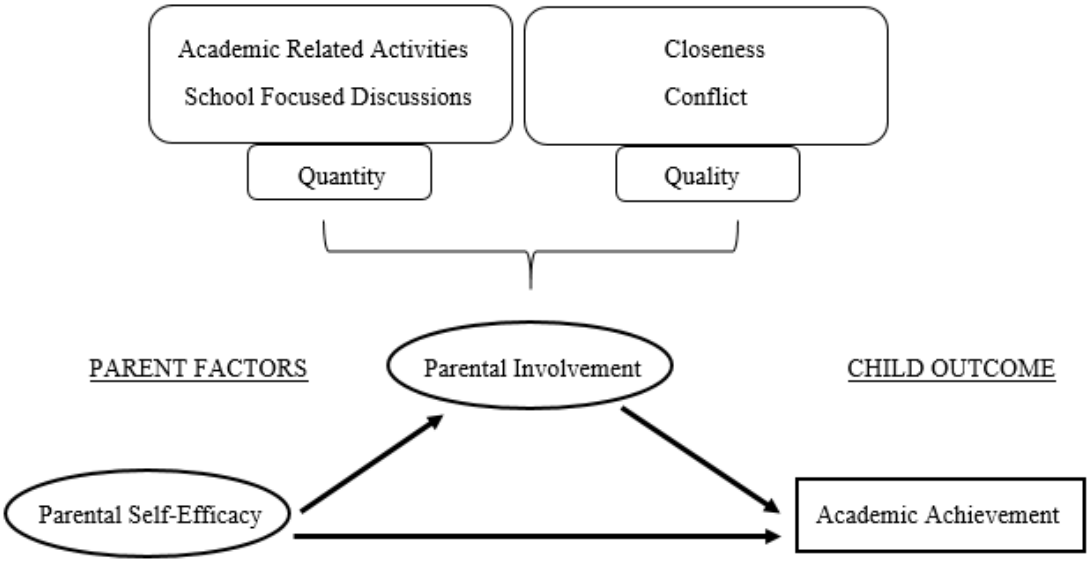

Figure 1. Conceptual Framework

Here are my study questions:

1. What is the relationship between PSE and the quantity and quality of parental involvement?

According to Bandura (1986), individuals with high self-efficacy are more likely to engage in tasks and will persist longer at those tasks, even when those tasks are difficult. However, if an individual believes that he or she is unable to achieve a desired effect through their action, then the person is less likely to act (Bandura, 1977). This theory is consistent with the research findings that parents with high PSE tend to acquire and exercise effective parenting skills, while parents with low PSE tend to find it more difficult to parent effectively when they are faced with challenges (Prinz & Jones, 2005). Based on theory and past empirical findings, I predict that higher levels of PSE will be positively correlated with higher quantity of parental involvement in academic related activities and school focused discussions. As for the quality of parental involvement, I predict that higher levels of PSE will be positively associated with

higher reported levels of closeness between parent and child, while PSE will correlate negatively with reported levels of conflict.

2. Is the relationship between PSE and child academic achievement mediated through the quantity and quality of parental involvement?

It is yet unclear from existing research whether PSE and parental involvement mediate the effect of one another (Okado, Bierman, & Welsh, 2014). However, based on the premise that parents with low self-efficacy are less likely to persist in the face of challenges and are less likely to remain involved in their child's education than parents with higher PSE (Hoover-Dempsey & Sandler, 1998), I predict that PSE will influence child academic achievement indirectly through the quantity and quality of parental involvement.

Method

Participants

Participants were recruited from the *School Readiness Project: Understanding Early Learning*, a larger study conducted in partnership between the University of Alberta and early learning preschool programs in Edmonton via the CAP-C initiative. Participants for the larger study were recruited through eight locations of Early Head Start programs in Edmonton. The eight early learning programs that participated in the larger study included ABC Head Start (four sites), E4C (two sites) and Oliver Center (two sites) preschool programs. The eligibility criteria for families to attend the early learning programs requires that family incomes fall within the low-income guidelines set by the Federal Government of Canada. According to the Federal Government, the low-income cut-offs are income thresholds below which a family must devote 20 per cent more of its income than the average family devotes to the necessities of food, shelter and clothing (Office of the Parliamentary Budget Officer, 2017). Given that researchers in the

past have found that parents from low-income families are more likely to feel inadequate in the parenting role than more advantaged parents (Stormshak et al., 2000), I feel that the sample of the current study was appropriate for the focus of the research.

For the current study, children who were enrolled in early learning programs were assessed later in kindergarten. This assessment involved standardized tests, in order to assess their academic achievement. In addition to the child assessments, parents completed questionnaires that measured their sense of competence in parenting and the quantity and quality of their involvement related to their child's learning.

The eight early learning program sites distributed consent letters to the families of graduates of their preschool programs to offer families the opportunity to participate in the kindergarten follow-up. Families who consented to the kindergarten follow-up were contacted by telephone by research assistants in order to schedule home visits. Of the 80 families who participated in the larger study, data was collected during the kindergarten follow-up from 51 participants (26 girls, 25 boys), with a mean age of 66.9 months ranging from 54 – 75 months (*SD* = 5.2 months). However, data was missing for 3 families due to parents not returning the questionnaires.

Of the 48 participants, children were enrolled in various kindergarten school sites in Edmonton. Parent data was collected from one parent for each family (either mother or father). Families identified themselves as Canadian (25.5%), Arab/West Asian (23.5%), Black/African (19.6%), Aboriginal (3.9%), South Asian (13.7%), White/Caucasian (3.9%), Eastern European (2.0%), Chinese (2.0%), and Latin American (2.0%).[1] Parents were either married (54.9%), single (23.5%), common-law (9.8%), or separated (7.8%).[2] The age range of the parents were reported as: 25 or younger (3.9%), 26-35 (37.3%), or 36-45 (51.0%), or 46-55 (3.9%).[3]

Procedure

The present study was part of the *School Readiness Project: Understanding Early Learning*, a larger study conducted in partnership between the University of Alberta and early learning preschool programs (ABC Head Start, E4C and Oliver Center) in Edmonton. The larger study ethics was received from the University of Alberta's Research Ethics Board, School Readiness Project (Pro00051424), and my thesis work was covered under the main study's research objectives as the Ethics application also included an agreement that additional research questions and theses could be tied to this project work. For the present study, no new measures were implemented, and no new data were collected. Therefore, the current study is covered under the larger project's ethics approval.

Trained research assistants collected data with participants at the participants' home during the kindergarten follow-up year. Prior to data collection, research assistants received instructions and training for all of the child and parent measures. Each home visit during the kindergarten follow-up lasted between 60-90 minutes with each family.

Measures

Demographic questionnaire. Parents completed a questionnaire regarding family and child information. The questionnaire included questions about the child's name, age, date of birth, gender, preschool program, kindergarten program. Questions about the family included information about the parent's ethnicity, age, citizenship, years lived in Canada, level of education, relationship status, employment, as well as languages spoken in the home.

Parent self-efficacy. Parents were asked to complete the *Parent Sense of Competence Scale* (PSOC; Gibaud-Wallston & Wandersman, 1978). For the purpose of this study, only one parent (either mother or father) completed the questionnaire. The PSOC scale is the most

frequently used tool in assessing parenting self-evaluations (Nunes et al., 2016). Comprised of 16 items, the PSOC scale is an adaptation of Gibaud-Wallston and Wandersman's (1978) parental sense of competence. The measure includes two subscales: efficacy and satisfaction.

The Efficacy subscale reflects the degree to which the parent feels competent, capable of problem solving, and at ease with parenting (e.g., being a parent is manageable, and any problems are easily solved). The Satisfaction subscale reflects the extent to which the parent feels frustrated, anxious, and poorly motivated in the parenting role (e.g., being a parent makes me tense and anxious) (Nunes et al., 2016). Using a Likert scale, parents are asked to indicate their level of agreement with each item by circling a number between 1 (strongly disagree) and 6 (strongly agree).

As reported by Nunes et al. (2016), The PSOC scale has substantial strengths including good content validity, strong internal consistency with Cronbach's alpha's ranging from .80 (Ohan et al., 2000) to .855 (Polit & Beck, 2012)., some normative data (C˘ rnc˘ec et al., 2010), test–retest reliability (e.g. test–retest reliability between 0.73 and 0.74 according to Gibaud-Wallston, 1977), and indicators of both convergent and discriminant validity. For example, significant and negative correlations with *Child Behavior Checklist* scores have been reported (Johnston & Mash 1989; Ohan et al., 2000) and the Satisfaction subscale has shown strong correlations with measures of child behavior, parent well-being, and parenting style (Rogers & Matthews, 2004). For the present sample, although the Chronbach's alpha for the PSOC was low at .65, it was still within the acceptable range. It should be noted that six items (1, 6, 7, 11, 13, and 15) were removed after it was determined that they did not correlate well with the other items.

Parental involvement. The *Parent Involvement Questionnaire* (PIQ; Pianta, 2001: Tan & Goldberg, 2009) was used to assess parents' self-reported quantity and quality of parental involvement in activities that relate to their child's learning. This parent measure was adapted from a combination of the *About Parental Involvement* scale (Tan & Goldberg, 2009) and Pianta's (2001) *Student-Teacher Relationship Scale: Short form*.

Items adapted from the *About Parental Involvement* scale (Tan & Goldberg, 2009) were used to capture the quantity of academic related activities and school-focused discussions in the home. The academic related activities factor assessed behaviors that involved parents' active participation at home with their children's learning (e.g., I read books together with my child, I practice math skills with my child, I help my child with school projects and activities). Meanwhile, the school-focused discussions factor included items such as: "I talk to my child about his/her friendships at school" and "I talk to my child about how he/she is feeling about school activities". Parents indicated how frequently they participated in each activity or discussion using a 5-point scale that ranged from 1 (not yet) to 5 (everyday). The scales of the *About Parental Involvement* have shown strong reliability, with Cronbach's alphas ranging from .72-.85 (Strauss, 2000). For the present study, the Chronbach's alpha for the academic related activities factor was .73. Meanwhile, the reliability for the school-focused discussions factor was higher, with Chronbach's alpha of .87.

To capture the quality of home-based parental involvement and parents' perceptions of conflict and closeness in their relationship with their child, items were adapted from the *Student-Teacher Relationship Scale: Short form* (Pianta, 2001). This 15-item scale included two subscales: parent-child closeness and parent-child conflict. The parent-child closeness subscale is comprised of 7 items such as: "I share an affectionate, warm relationship with my child" and "If

upset, my child will seek comfort from me". The parent-child conflict subscale is made up of 8 items. Examples are: "When my child's in a bad mood, I know we're in for a long and difficult day" and "My child easily becomes angry at me". Parents responded to items using a 5-point Likert scale that ranged from 1 (Definitely does not apply) and 5 (Definitely applies). The reliability of the closeness and conflict subscales of the *Student-Teacher Relationship Scale: Short form* has been found to be strong (Wyrick & Rudasill, 2009), both with Cronbach's alpha of .87. For the present sample, the Chronbach's alpha for parent-child closeness was .76. The reliability for parent-child conflict was slightly higher at .77.

Academic achievement. The *Woodcock-Johnson Tests of Achievement*, 3rd Ed. (WJ-3; Woodcock, McGrew, & Mather, 2001) was used to assess children's academic achievement. The WJ-3 is an individually administered, standardized measure that is used in educational, clinical and research settings. The WJ-3 can be implemented to measure children's general achievement ability, as well as specific achievement skills. The WJ-3 contains 22 tests measuring five curricular areas: reading, mathematics, written language, oral language and academic knowledge. Specific combinations of the 22 tests form clusters for interpretive purposes. In the present study, six tests were administered to all participants to assess their academic skills: Letter-Word Identification, Spelling, Passage Comprehension, Applied Problems, Oral Comprehension and Word Attack. The results of these six subscales comprised an overall brief achievement score that was used to assess their academic outcomes.

The Letter-Word Identification subtest measures children's letter and word identification skills. During the test, the child is asked to identify words and letters on a test easel. The Spelling subtest is a measure of children's ability to correctly write orally presented letters and words. Children were asked to write specific upper and lower-case letters of the alphabet and specific

words. The Passage Comprehension subtest assesses symbolic learning, or the ability to match a pictographic representation of a word with an actual picture of the object. Applied Problems tests the ability to analyze and solve practical math problems. Children are asked to listen to a problem, and then perform simple calculations. Oral Comprehension assesses the ability to understand spoken passages and provide missing words based on syntactic and semantic clues. For the Oral Comprehension test, children are required to listen to a passage with a missing word. They are then asked to respond with the correct word that completes the passage. Finally, Word Attack measures the ability to apply phonic skills to the pronunciation of pseudowords. Children are asked to produce the sounds for single letters. Then they are asked to read aloud pseudoword letter combinations that are phonically consistent in English orthography. The raw scores were converted into standardized W-scores. For the present study, a standardized cluster score, Brief Achievement, was derived from the tests administered.

The authors of the measure reported the reliability split-half coefficients of the tests and cluster scores for children aged three to five years old to be: 0.97 - 0.99 for Letter-Word Identification, 0.77 - 0.90 for Spelling, 0.94 - 0.96 for Passage Comprehension, 0.92 - 0.94 for Applied Problems, 0.85 - 0.90 for Oral Comprehension, 0.93 - 0.94 for Word Attack, and 0.92 - 0.97 for Brief Achievement.

Data Analyses

To begin with, descriptive analyses were conducted to explore the demographic information and the distribution of the data to determine if all values were within appropriate ranges. To answer the first research question, correlations were conducted to examine the relationship between all variables, with a focus on parent self-efficacy and parental involvement. For the second research question, the statistical conditions for mediation were first reviewed in

order to determine if conditions were met to conduct mediation analysis. Finally, multiple regression analysis was conducted between parent self-efficacy, parental involvement, and child academic achievement. All analyses were conducted using IBM SPSS Statistics program (version 24), with a significance level of $\alpha < .05$. All results of the analyses are reported in the results section.

Results

Statistical analyses were conducted in a series of steps to address the two questions. The results of these analyses will be described in this section. The detailed results for each of the two research questions are presented below.

Descriptive Statistics

Means, standard deviations and ranges for children's academic achievement (as measured by the *WJ-3 Brief Achievement*), as well as for parent self-efficacy and the various components of parental involvement, are all reported in Table 1The skew and kurtosis for all variables are also presented as z-scores in Table 1. According to Field (2013), z-scores within the ±1.96 limit suggest that the departure from normality are not too extreme. In addition, for optimal estimates of the parameters that define a model, it is more important for the residuals in the population be normally distributed (Fields, 2013). This assumption is verified in the preliminary analyses below.

Parent variables. In general, parents reported moderate levels of parent self-efficacy (PSE). However, variability was found among the parents' reported level of PSE. With regards to the quantity of parental involvement, parents reported moderate to high levels of involvement in academic related activities and school-focused discussions with their child. Variability was also found in the parents' reported frequency of involvement in their child's learning at home. As

for the quality of parental involvement, as a group, parents reported high levels of closeness with their child and relatively low levels of conflict. It is interesting to note that there was little variability in the reported levels of closeness, while more variability was found in parents' perceptions of conflict in their relationship with their child. The values for skewness revealed a negatively skewed distribution outside of the ±1.96 limit for school-focused discussion and closeness. This indicated that there were many high scores in the distribution of scores for both variables. In addition, the high and positive kurtosis value for closeness indicated a leptokurtic distribution that is different from normal (Field, 2013).

Child academic achievement. Children's academic outcome in kindergarten, as measured by the *WJ-3 Brief Achievement* scores, are presented as standard scores with a mean of 100 and a standard deviation of 15. For the *WJ-3 Brief Achievement*, composite standard scores ranging from 90 to 110 are considered in the average range.

The results of the descriptive analysis indicated that the study children's group mean fell within the average range with regards to their academic achievement in kindergarten. Variability was also found in children's academic achievement. In addition, the high and positive value for kurtosis was outside the ±1.96 limit, indicating a slight leptokurtic distribution that is different from normal (Field, 2013).

Table 1.

Descriptive Statistics

	M	*SD*	*Range*	*Skew*	*Kurtosis*
Parent Self-Efficacy	3.07	.70	1.80-4.70	1.05	-.16
Parental Involvement					
Quantity					
Academic activities	3.38	.70	1.75-4.50	-1.58	-.63
School discussions	4.17	.83	1.40-5.00	-3.27	1.96
Quality					
Closeness	4.75	.35	3.14-5.00	-7.67	13.43
Conflict	2.04	.72	1.00-3.75	1.22	-1.13
Academic Achievement	97.04	12.32	62-130	.01	2.55

Note. N=48. Parent self-efficacy was assessed with the *Parent Sense of Competence Scale* while parental involvement was assessed with the *Parent Involvement Questionnaire*. Child academic outcome was measured by the *WJ-3 Brief Achievement*. Skew and Kurtosis are reported as z-scores.

Question 1: What is the relationship between PSE and the quantity and quality of parental involvement?

In order to address the first question, correlation analyses were run in order to determine the relationship between all variables. The resulting correlation matrix is presented in Table 2. According to Cohen (1988), r = .10 to .29 is 36 indicative of a small relationship, r = .30 to .49 is indicative of a moderate relationship, and $r \geq .50$ is indicative of a large relationship among variables.

With regards to the quality of parental involvement, the results indicated a significant and moderate positive relationship between PSE and parents' reported level of conflict with their child. Contrary to my hypothesis, the results suggest that higher levels of PSE are associated with higher levels of conflict between parent and child. A significant and moderate positive

relationship was also found between children's academic achievement and the level of closeness that parents felt with their child. Also, the results showed a large and significant positive relationship between parents' reported involvement in academic related activities and school-focused discussions at home with their child.

However, no significant correlation was found between PSE and the level of closeness that parents felt with their child. Similarly, no significant correlation was found between parent self-efficacy and the quantity of parental involvement. This lack of correlation between PSE and the quantity of parental involvement was found for both components of the quantity of parental involvement that were examined in this study, namely the frequency of involvement in academic-related activities and school-focused discussions. Although these results were not statistically significant, it is interesting to note the low correlation and unexpected direction of the relationships, where higher PSE was associated with lower quantity of involvement in academic-related activities and school-focused discussions, as well as lower levels of perceived closeness between parent and child.

Table 2.

Correlation Matrix for Study Variables

Measure	1	2	3	4	5	6
1. PSE	1					
2. AA	-.17	1				
3. SD	-.16	.52··	1			
4. CL	-.07	.14	.18	1		
5. CO	.35·	-.07	-.15	-.16	1	
6. AAch	-.01	-.00	-.06	.34·	.15	1

Note. N=48. PSE = Parent self-efficacy; AA = Quantity of parental involvement in academic activities; SD = Quantity of parental involvement in school-focused discussions; CL = Quality of parental involvement regarding closeness; CO = Quality of parental involvement regarding conflict; AAch = Child academic achievement;
$^{*}p < .05$, $^{**}p < .01$

Preliminary Analyses

For research question 2, preliminary analyses were conducted in order to verify that the related statistical assumptions were met. Prior to conducting linear regression analysis for the second research question, the assumptions of linear regression and mediation (Tabachnick & Fidell, 2013) were tested. Histograms and plots of residuals were used to assess normality of distribution of errors and variance of residuals. An examination of the histogram and plots of residuals revealed that the assumption of normal distribution of errors was not violated. Scatter plots were then used to determine linearity, which revealed that the assumption of linearity was met. Meanwhile, no outliers were detected using Mahalanobis distance (Tabachnick & Fidell, 2013). Furthermore, The Durban-Watson test of independence of errors was examined and all values were within acceptable parameters (Field, 2013). Lastly, according to the equation $N \geq 50 + 8m$, where m is the number of independent variables for testing regression (Tabachnick &

Fidell, 2013), the sample size for the present study ($N = 48$) would be considered small. This would mean that caution is needed when drawing conclusions about the general population. However, a more recent study (Austin & Steyerberg, 2015) found that linear regression models require only two subjects per variable for adequate estimation of regression coefficient, confidence intervals, and standard errors. Based on this criterion, the sample size of this study was adequate for linear regression analysis.

Question 2: Is the relationship between PSE and child academic achievement mediated through the quantity and quality of parental involvement?

Conditions for mediation. To answer the second research question, statistical conditions were first reviewed in order to determine if conditions were met for mediation. According to Baron and Kenny (1986), mediation is tested through three regression models, where model 1 predicts the outcome from the predictor variable, model 2 predicts the mediator from the predictor variable, and model 3 predicts the outcome from both the predictor variable and the mediator. The four conditions of mediation are met when the predictor significantly predicts the outcome variable, the predictor significantly predicts the mediator, the mediator significantly predicts the outcome variable, and the predictor variable must predict the outcome variable less strongly in model 3 than in model 1 (see Table 2). Based on the lack of significant relationship between PSE (predictor) and child academic achievement (outcome), the conditions for mediation were not met.

Regression. Although the conditions of mediation were not met, a two-stage hierarchical multiple regression was conducted to examine how the parent variables contribute to the variance in child academic achievement. Parent self-efficacy was entered as the predictor variable in the first stage. The four parental involvement variables (academic related activities,

school-focused discussions, closeness, and conflict) were entered in the second stage. The parent factors were entered in this order following the theory and research which support PSE as an antecedent to parental involvement.

The results of the hierarchical multiple regression analysis (Table 3) were consistent with the pattern of correlations presented in Table 2. At stage one, PSE did not contribute significantly to the regression model ($F(1,46) = .07$, $R^2 = .001$, *ns)*. This indicated that parent self-efficacy was not a significant predictor of child academic achievement. In the second stage, when the components of the quantity and quality of parental involvement were added as predictors, the change in R^2 was not statistically significant ($F(5,42) = 1.65$, $R^2 = .17$, *ns)*. Therefore the increase in the variability in academic achievement could not be accounted for by the regression models. However, only parents' perceived level of closeness with their child was found to be a significant predictor of child academic achievement.

Table 3.

Multiple Regression Analyses Predicting Child Academic Achievement From Parent Variables

	B	SE B	β	*t*	*p*
Model 1					
Constant	95.16	8.34		11.41	.00*
PSE	.70	2.68	.04	.26	.80
Model 2					
Constant	32.77	27.30		1.20	.24
PSE	-.34	2.78	-.02	-.12	.90
PI Quantity					
Academic activities	.16	2.92	.009	.05	.96
School discussions	-1.57	2.48	-.11	-.63	.53
PI Quality					
Closeness	13.59	5.12	.39	2.66	.01*
Conflict	3.44	2.63	.20	1.31	.20

Note. N=48. Sig.=2-tailed significance. R^2 = .001 for Model 1; ΔR^2 = .16 for Model 2 (p = .11). Child academic outcome was measured by the *WJ-3 Brief Achievement.* Parent self-efficacy was assessed with the *Parent Sense of Competence Scale* while parental involvement was assessed with the *Parent Involvement Questionnaire*.
* $p < .05$, ** $p < .01$

Discussion

The goal of the present study was to examine the relationship between PSE and the quantity and quality of parental involvement, as well as investigate whether the relationship between PSE and children's academic achievement is mediated through parental involvement. In this section, I will first explain the results and discuss how they relate to the existing literature. Then I will discuss the limitations of the current study. Last, I will discuss the implications of the present investigation and offer suggestions for future research.

PSE and Parental Involvement

The first research question of the present study looked at the relationship between PSE and the quantity and quality of parental involvement. More specifically, the focus was on the frequency (quantity) of involvement in academic-related activities and school-focused discussions at home, as well as parents' perceived level of conflict and closeness with their child (quality).

Quantity of parental involvement. Contrary to my prediction, I found no significant correlation between PSE and the quantity of involvement. Although no significant results were found, it was interesting to note the size and direction of the relationships. Dissimilar to theory and my hypothesis, there was a low and negative correlation between PSE and both academic-related activities and school-focused discussions. This suggests that, for the current study group of parents, as the level of parent self-efficacy increased the parents participated less in academic-related activities and school-focused discussions with their child in the home. These findings are in divergence with Social Cognitive Theory (Bandura 1997), which posits that individuals with high self-efficacy are more likely to engage in tasks and will persist longer at those tasks, even when those tasks are difficult (Bandura, 1986).

In addition, the results of this study are contrary to those of past research. For example, while examining the relationship between parent involvement and PSE, Pelletier and Brent (2002) found that parents who perceived themselves as more effective were more involved in their children's education at the pre-school level. The researchers implemented semi-structured interviews in order to capture both parents' and teachers' perceptions of the quantity of parental involvement and parental efficacy beliefs in relation to the child's social and academic development. It is noteworthy that Pelletier and Brent measured both PSE and parental involvement as domain-specific constructs, specifically in the area of child academic development. Meanwhile, the current study implemented the *Parenting Sense of Competence Scale* (PSOC), a domain-general measure that focuses broadly on the extent to which a parent feels competent in the parenting role, without any focus on specific parenting tasks or any particular domain of parenting. Given that PSE is a situation-specific construct that is subject to vary according to the task and the context (Glidewell & Livert, 1992), it may be necessary to measure PSE in the same related domain that parental involvement is measured in because parents' general sense of competence in the parenting role may not be the same as their beliefs about their ability to support their child's learning and education at home.

On the other hand, the PSOC was implemented in more recent studies which also found a significant relationship between parent self-efficacy and the quantity of parental involvement (Kwok, Ling, Leung & Li, 2013; Trahan, 2017). However, in both studies parental involvement was not measured in a narrow domain such as the present study. Instead, for these two studies, the researchers chose to implement a scale that measured parental involvement in multiple dimensions, such as discipline and teaching responsibility, school encouragement, supporting mother, providing financially, time together, praise and affection, developing talents and future

concerns, reading and homework support, and attentiveness. Based on my review of these past studies, the insignificant findings of the current study may have resulted from measuring PSE in a general domain, while parental involvement was measured in the specific area of academic support at home.

Another possible explanation for the lack of significant findings may stem from parents' self-report of PSE. According to Prinz and Jones (2005), some studies of PSE may have included a greater number of participants who reported PSE inaccurately. As a result, the validity of PSE measurement may be limited, thereby reducing the likelihood of detecting effects. Given the low Chronbach's alpha for the PSOC in this study, it is possible that the items of this measure of PSE required too much interpretation from the current sample of parents, and therefore the validity of the measure was compromised.

Quality of parental involvement. With regards to the quality of parental involvement, the present study found no significant correlation between PSE and closeness. Meanwhile, the results indicated a significant and moderate positive relationship between PSE and parents' reported level of conflict with their child. This suggests that higher levels of PSE are associated with higher levels of conflict between parent and child, which was unexpected.

Despite the large body of research on PSE and the quantity of parental involvement, the amount of research on PSE and the quality of parental involvement remains limited. Although past research has found that parents who see themselves as lacking control over their children's development tend to engage in poorer quality parenting (Guzell & Vernon-Feagans, 2004), an extensive search of the existing literature did not yield any studies that focused specifically on the relationship between PSE and the qualitative dimensions of closeness and conflict.

However, in my effort to examine whether the results of the present study support those of extant literature, I found that my lack of significant findings for the correlation between PSE and closeness was contrary to the findings of Okado and colleagues (2013). In their study, the researchers found that parenting difficulties and parental involvement in reading were negatively correlated. Even though the researchers did not define their variables as PSE and closeness, parenting difficulties were measured as feelings of low efficacy in the parenting role, while involvement in reading also included whether parents felt warm and close to their child when they read together.

With regards to conflict, the results of this study were inconsistent with my theoretical prediction that higher levels of PSE would be associated with lower levels of conflict. As for previous research, a search of the literature revealed one study involving the dimension of parent-child conflict and parent competence related to children's education (Dumont et al., 2012). In their study, the researchers found no significant relationship between perceived parents' competence to helping with homework and parent-child conflict with homework. However, it is noteworthy that both perceived parents' competence and level of conflict were measured through the perspective of children and not their parents.

Research has shown that there is a greater correspondence between observer and child reports of parenting than between observer and parent reports (Sessa, Avenevoli, Steinberg, & Morris, 2001). This suggests that children's reports may be more valid than parents' reports (Gonzales, Cauce, & Mason, 1996), possibly because students are less likely to exhibit a self-presentation bias than parents (Dumont et al., 2013). Also, given that the quality of parental involvement influences the degree to which children are open to their parents' influence (Zellman & Waterman, 1998), it would make sense to include children's perceptions on parent-

child conflict. By overlooking children's perspective on the level of parent-child conflict, the present study excluded important multi-informant data, which may have contributed to the unexpected results. It is also important to keep in mind that PSE is the belief about the ability to complete a task successfully based on the parent's own judgment, while parental competence is based on others' perspectives. Making this distinction is important, because it serves as a reminder that parent self-efficacy and parental competence are two separate constructs. This difference may explain the inconsistency of the positive correlation between PSE and conflict in the present study with the insignificant findings of the study by Dumont and colleagues (2013).

PSE, Parental Involvement, and Child Academic Achievement

The aim of the second research question was to explore whether the relationship between PSE and academic achievement was mediated through both the quantity and quality of parental involvement.

Mediation. The current study found no significant relationship between PSE (predictor) and academic achievement (outcome). Therefore, the conditions for mediation were not met. This lack of significant results between PSE and academic achievement was inconsistent with previous research. In the past, studies that implemented narrow-domain measures of PSE which captured parental sense of competence in tasks associated with helping children learn have provided direct and indirect evidence to support the association between PSE and child academic achievement (Prinz & Jones, 2005). For example, Bogenschneider and colleagues (1997) found that children of parents with higher PSE reported higher school grades. Meanwhile, other studies supported an indirect link between PSE and academic performance, where PSE was found to act indirectly via parental involvement and monitoring (Hoover-Dempsey et al., 2001; Shumow & Lomax, 2002).

Predictors of academic achievement. Although the conditions of mediation were not met, multiple regression was conducted to examine how the parent factors may have contributed to the variance in child academic achievement. Of all the parent variables, only closeness was found to be a significant predictor of academic achievement. These results support Jeynes's view (2010) that children who feel close to their parents tend to do better academically than children who do not enjoy this quality of relationship. Although Jeynes focused on communication between parent and child in his review (and not specifically closeness), he explained that communication can cause parents and children to grow closer and often this closeness facilitates the free expression and experience of love. As explained previously, when parental involvement is warm, the child is more likely to want to please their parent by doing well in school (Zellman & Waterman, 1998) and will be more likely to benefit from their parent's help. Consistent with past research that found the quality of parents' interactions with their children to be a stronger predictor of children's academic outcomes than the frequency of parental involvement at school (Jeynes, 2010; Zellman & Waterman, 1998), the present study also found that closeness contributed significantly to the variance in academic achievement.

Limitations

The current study is not without its limitations. First, this was a correlational study with only one time point. Therefore, no causal inferences could be made between parental factors and child outcome due to the correlational nature of the study. Ideally, mediation studies should include longitudinal data. Furthermore, the generalizability of the findings of this study was limited by its small sample size.

Next, a big caveat of the present study is the reliability for PSE scale was quite low. It is possible that the scale items required too much interpretation for the sample population of the

current study. Given that scale items were removed because they did not correlate well with the other items, the validity of the measure of PSE may have been limited. This study also relied solely on parent report for data on the quantity and quality of parental involvement. According to Dumka and colleagues (2010), a critical limitation of past research is the use of the same reporter to assess PSE, parenting practices, and child outcome. The researchers believed that the reliance on a single informant can obscure the differentiation of these constructs and the true nature of the relationships between them. Therefore, the use of multiple reporters (e.g., parents, children, teachers) is necessary to provide a more comprehensive assessment of these constructs (Dumka et al., 2010). Considering this view, not including children's perspective on both the quantity and quality of parental involvement may have been a critical oversight.

Finally, the conceptual model of the present study viewed the relationship between parent variables and child outcome as unidirectional, without considering the contributions of children. In fact, it has been shown that the way parents become involved in the homework process is often a reaction to their child's academic functioning (Grolnick, Gurland, DeCourcey, & Jacob, 2002; Pomerantz & Eaton, 2001). Additionally, reciprocal relationships have been observed between the quality of parental homework involvement and children's academic achievement, where low achievement resulted in more parental control, and more parental control was associated with lower achievement. The same study also found that high academic achievement resulted in more parental responsiveness and structure, and more parental responsiveness and structure were associated with better academic achievement (Dumont et al., 2013). Therefore, overlooking the possibility of a bidirectional relationship between PSE, parental involvement, and academic achievement was a significant limitation.

Implications and Future Direction

The limitations and lack of significant results of the current study restricts my ability to infer any implications for children and their family. However, I will discuss the implications for future studies.

First, future studies that aim to investigate PSE as it relates to academic achievement may benefit from implementing a more domain-specific measure of PSE. Specifically, one that relates to parents' sense of competence with regards to supporting their children's education. Next, instead of a correlational design with only one time point, a longitudinal design with multiple data collection points may yield more meaningful results in the future. To address the possible bias that could arise from self-report, one way may be to include multiple informants. For example, future studies may incorporate both parents' and children's perspectives on parental involvement. Also, although the present investigation aimed to incorporate the perspective of fathers instead of only focusing on mothers, I was limited to collecting data from one parent for each family (either mother or father), with a greater number of mothers participating than fathers. Based on the understanding that a lack of attention to fathers in parenting self-efficacy studies may overlook the role that self-efficacy plays in father involvement (Trahan, 2017), future studies may ensure that data is collected equally from both fathers and mothers. Finally, a significant direction for future research on parents' involvement in children's education will be to consider the characteristics that children contribute to their interactions with parents (Pomerantz et al., 2007). In other words, it is necessary to consider the possibility of a bidirectional relationship between parent factors and what children bring to the table.

Conclusion

Given the importance of parent involvement in promoting outcomes for children, it is not surprising that there has been considerable interest in understanding what may influence the nature and frequency of parents' engagement in activities with their children (Giallo et al., 2013). However, more research is needed to investigate the relationship between parenting factors and child outcomes. For this reason, the present study aimed to add to the existing literature on the relationship between parent self-efficacy, the nature and extent of parental involvement in their child's education, and child academic achievement. Despite its limitations, the present study emphasizes the importance of supporting children's education at home. In addition, it highlights the need for more investigation into the distinction between the quality and quantity of parental involvement in order to better understand the parenting factors that contribute to the promotion of young children's learning and development.

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Appendix A

Footnotes

[1] The final percentages did not add up to 100 percent due to missing data from some families.

[2] The final percentages did not add up to 100 percent due to missing data from some families.

[3] The final percentages did not add up to 100 percent due to missing data from some families.

Appendix B

/Family Information

Child's Name: _____

Person filling out form (Relationship to Child): _____

Child's Age: _____ Child's Birth date: **Month** _____ **Day** _____ **Year** _____

Child's Gender: ○ Male ○ Female

Which of these best describes your ***racial/ethnic background***? (Check as many as apply)

The racial/ethnic background you feel best describes you might be based on the colour of your skin, the kinds of foods you eat at home, the holiday you celebrate with your family, or other activities you do with your family. Remember there us no right or wrong answer.

- ○ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese)
- ○ South Asian (e.g., East Indian, Pakistani, Sri Lankan)
- ○ South East Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian)
- ○ Japanese
- ○ Chinese
- ○ Korean
- ○ Filipino
- ○ Black/African (E.g., Haitian, Jamaican, Somali, Sudanese)
- ○ Latin American (e.g., Mexican, Guatemalan)
- ○ Aboriginal (e.g., Inuit, Métis, First Nations)
- ○ Canadian
- ○ White/Caucasian/Western European (e.g., British, French)
- ○ Eastern European (e.g., Russian, Ukrainian, Polish)
- ○ Portuguese
- ○ Other (tell us more): _____

Citizenship of parent filling out this form:

- ○ Canadian Citizen
- ○ Immigrant
- ○ Refugee
- ○ Other: _____

How many years have you lived in Canada?

- ○ Less than 2 years
- ○ 2-5 years
- ○ More than 5 years

What languages are spoken in your home? (check as many as apply)

- ○ English
- ○ French
- ○ Cree
- ○ Blackfoot
- ○ Ojibway
- ○ Karen
- ○ Oromo
- ○ Somali
- ○ Nuer
- ○ Mandarin
- ○ Cantonese
- ○ Chinese (other dialects)
- ○ Japanese
- ○ Vietnamese
- ○ Filipino (Tagalog)
- ○ Punjabi
- ○ Hindi
- ○ Urdu
- ○ Spanish
- ○ Italian
- ○ Turkish
- ○ Arabic
- ○ Polish
- ○ Ukrainian
- ○ German
- ○ Portuguese
- ○ Other: _____

How often do you speak a language other than English at home (e.g., Cantonese, Punjabi, etc.)?

- ○ Never
- ○ Once in a while
- ○ Sometimes
- ○ More than half the time
- ○ All of the time

Relationship status of mother (female caregiver) parent:

- ○ Single
- ○ Divorced
- ○ Married
- ○ Separated
- ○ Common-law
- ○ Widowed

Mother's (or female caregiver) age range (your age):

- ○ 13-17
- ○ 18-25
- ○ 26-35
- ○ 36-45
- ○ 46-55
- ○ 56+ years

Father's (or male caregiver) age range (your age):

- ○ 13-17
- ○ 18-25
- ○ 26-35
- ○ 36-45
- ○ 46-55
- ○ 56+ years

What is the highest grade or year of school that you (mom or female caregiver) finished?

- ○ 8 years of schooling or less
- ○ Junior high school graduate
- ○ Partial high school training
- ○ High school diploma/GED
- ○ Certificate in Trade/Technology
- ○ Partial college/University
- ○ College/University degree
- ○ Graduate/Professional education

What is the highest grade or year of school that you (dad or male caregiver) finished?

- ○ 8 years of schooling or less
- ○ Junior high school graduate
- ○ Partial high school training
- ○ High school diploma/GED
- ○ Certificate in Trade/Technology
- ○ Partial college/University
- ○ College/University degree
- ○ Graduate/Professional education

Which of these describes your (mom or female caregiver) job?

- ○ Work full time
- ○ Work part time
- ○ Don't work
- ○ Stay at home
- ○ Student
- ○ Student and work
- ○ Retired
- ○ Other (tell us more)

Which of these describes your (dad or male caregiver) job?

- ○ Work full time
- ○ Work part time
- ○ Don't work
- ○ Stay at home
- ○ Student
- ○ Student and work
- ○ Retired
- ○ Other (tell us more)

Thank you for taking the time to complete this survey!

Appendix C

Being A Parent – Mother

Name: _____ Date: _____

Listed below are a number of statements. Please respond to each item, indicating your agreement or disagreement with each statement in the following manner.

If you strongly agree, circle the letters SA
If you agree, circle the letter A
If you mildly agree, circle the letters MA
If you mildly disagree, circle the letter MD
If you disagree, circle the letter D
If you strongly disagree, circle the letter SD

1.	The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.	SA A MA MD D SD
2.	Even though being a parent could be rewarding, I am frustrated now while my child is at his/her Present age.	SA A MA MD D SD
3.	I go to bed the same way I wake up in the morning – feeling I have not accomplished a whole lot.	SA A MA MD D SD
4.	I do not know what it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.	SA A MA MD D SD
5.	My mother was better prepared to be a good mother than I am.	SA A MA MD D SD
6.	I would make a fine model for a new mother to follow in order to learn what she would need to know in order to be a good parent.	SA A MA MD D SD
7.	Being a parent is manageable, and any problems are easily solved.	SA A MA MD D SD
8.	A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.	SA A MA MD D SD
9.	Sometimes I feel like I'm not getting anything done.	SA A MA MD D SD

10.	I meet my own personal expectations for expertise in caring for my child.	SA A MA MD D SD
11.	If anyone can find the answer to what is troubling my child, I am the one.	SA A MA MD D SD
12.	My talents and interests are in other areas, not in being a parent.	SA A MA MD D SD
13.	Considering how long I've been a mother, I feel thoroughly familiar with this role.	SA A MA MD D SD
14.	If being a mother of a child were only more interesting, I would be motivated to do a better job as a parent.	SA A MA MD D SD
15.	I honestly believe I have all the skills necessary to be a good mother to my child.	SA A MA MD D SD
16.	Being a parent makes me tense and anxious.	SA A MA MD D SD

Appendix D

Being A Parent – Father

Name: _____ Date: _____

Listed below are a number of statements. Please respond to each item, indicating your agreement or disagreement with each statement in the following manner.

If you strongly agree, circle the letters SA
If you agree, circle the letter A
If you mildly agree, circle the letters MA
If you mildly disagree, circle the letter MD
If you disagree, circle the letter D
If you strongly disagree, circle the letter SD

1.	The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.	SA A MA MD D SD
2.	Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age.	SA A MA MD D SD
3.	I go to bed the same way I wake up in the morning – feeling I have not accomplished a whole lot.	SA A MA MD D SD
4.	I do not know what it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.	SA A MA MD D SD
5.	My father was better prepared to be a good father than I am.	SA A MA MD D SD
6.	I would make a fine model for a new father to follow in order to learn what he would need to know in order to be a good parent.	SA A MA MD D SD
7.	Being a parent is manageable, and any problems are easily solved.	SA A MA MD D SD
8.	A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.	SA A MA MD D SD

9.	Sometimes I feel like I'm not getting anything done.	SA A MA MD D SD
10.	I meet my own personal expectations for expertise in caring for my child.	SA A MA MD D SD
11.	If anyone can find the answer to what is troubling my child, I am the one.	SA A MA MD D SD
12.	My talents and interests are in other areas, not in being a parent.	SA A MA MD D SD
13.	Considering how long I've been a father, I feel thoroughly familiar with this role.	SA A MA MD D SD
14.	If being a father of a child were only more interesting, I would be motivated to do a better job as a parent.	SA A MA MD D SD
15.	I honestly believe I have all the skills necessary to be a good father to my child.	SA A MA MD D SD
16.	Being a parent makes me tense and anxious.	SA A MA MD D SD

Appendix E

We are interested in the types of activities parents engage in at home with their child during the early childhood years. Please remember that there are no "wrong" answers. Some parents may simply have more or less time to engage in home activities, and may engage in different activities depending on their child's age. Please try to answer as openly and honestly as possible by circling the most accurate response to each item.

Focusing on the previous month, how often have you engaged in the following activities with your child:	Not Yet	Once or Twice this Month	Once a Week	Multiple Times a Week	Everyday
I read books together with my child	1	2	3	4	5
I explain/teach my child things that he/she does not understand at preschool	1	2	3	4	5
I practice math skills with my child (e.g., addition, subtraction, counting, writing numbers)	1	2	3	4	5
I help my child with preschool projects and activities	1	2	3	4	5
I engage in science activities with my child (e.g., cooking and baking)	1	2	3	4	5
I play games with my child such as cards, singing, puzzles, Lego or board games	1	2	3	4	5
I help my child practice letters and sounds	1	2	3	4	5
I explain to my child the meaning of new or unfamiliar words (in any language)	1	2	3	4	5
I discuss with my child what he/she does during their preschool day	1	2	3	4	5
I talk to my child about his/her friendships at school	1	2	3	4	5
I talk to my child about how he/she is feeling about preschool activities	1	2	3	4	5
I ask my child to tell me about what his or her classmates are like	1	2	3	4	5
I talk to my child about his/her interactions with their teacher at preschool	1	2	3	4	5

If any other family members engage in home-based activities with your child, please indicate which family members and the types of activities they also engage in:

_____
_____
_____
_____
_____

We are interested in the relationships that parents have with their child during early childhood. Please reflect on the degree to which each of the following statements currently applies to your relationship with your child. We know that some children are simply harder to parent than others so please answer as openly and honestly as possible.

	Definitely Does Not Apply	Not Really	Neutral, Not Sure	Applies Somewhat	Definitely Applies
I share an affectionate, warm relationship with my child	1	2	3	4	5
My child and I always seem to be struggling with each other	1	2	3	4	5
If upset, my child will seek comfort from me	1	2	3	4	5
My child is uncomfortable with physical affection or touch from me	1	2	3	4	5
My child values his/her relationship with me	1	2	3	4	5
When I praise my child, he/she beams with pride	1	2	3	4	5
My child spontaneously shares information about himself/herself	1	2	3	4	5
My child easily becomes angry at me	1	2	3	4	5
It is easy to be in tune with what my child is feeling	1	2	3	4	5
My child remains angry or is resistant after being disciplined	1	2	3	4	5

Dealing with my child drains my energy	1	2	3	4	5
When my child's in a bad mood, I know we're in for a long and difficult day	1	2	3	4	5
My child's feelings toward me can be unpredictable or can change suddenly	1	2	3	4	5
My child is sneaky or manipulative with me	1	2	3	4	5
My child openly shares his/her feelings and experiences with me	1	2	3	4	5

Appendix F

Table 4.

Descriptive Statistics With Reverse Coded PSOC

	M	*SD*	*Range*	*Skew*	*Kurtosis*
Parent Self-Efficacy	4.51	.61	3.31-5.75	-.15	-.80
Parental Involvement					
Quantity					
Academic activities	3.38	.70	1.75-4.50	-1.58	-.63
School discussions	4.17	.83	1.40-5.00	-3.27	1.96
Quality					
Closeness	4.75	.35	3.14-5.00	-7.67	13.43
Conflict	2.04	.72	1.00-3.75	1.22	-1.13
Academic Achievement	97.04	12.32	62-130	.01	2.55

Note. N=48. Parent self-efficacy was assessed with the *Parent Sense of Competence Scale* while parental involvement was assessed with the *Parent Involvement Questionnaire*. Child academic outcome was measured by the *WJ-3 Brief Achievement*. Skew and Kurtosis are reported as z-scores.

Table 5.

Correlation Matrix for Study Variables With Reverse Coded PSOC

Measure	1	2	3	4	5	6
1. PSE	1					
2. AA	.15	1				
3. SD	.14	.52··	1			
4. CL	.08	.14	.18	1		
5. CO	-.45··	-.07	-.15	-.16	1	
6. AAch	-.06	-.00	-.06	.34·	.15	1

Note. N=48. PSE = Parent self-efficacy; AA = Quantity of parental involvement in academic activities; SD = Quantity of parental involvement in school-focused discussions; CL = Quality of parental involvement regarding closeness; CO = Quality of parental involvement regarding conflict; AAch = Child academic achievement;
$^{*}p < .05$, $^{**}p < .01$

Table 6.

Multiple Regression Analyses Predicting Child Academic Achievement From Parent Variables With Reverse Coded PSOC

	B	SE B	β	*t*	*p*
Model 1					
Constant	95.09	13.91		6.84	.00*
PSE	.49	3.05	.02	.16	.87
Model 2					
Constant	19.47	30.64		.64	.53
PSE	2.47	3.27	.12	.76	.45
PI Quantity					
Academic activities	-.05	2.90	-.00	-.02	.99
School discussions	-1.59	2.47	-.11	-.64	.52
PI Quality					
Closeness	13.65	5.08	.39	2.69	.01*
Conflict	4.23	2.74	.25	1.55	.13

Note. N=48. Sig.=2-tailed significance. R^2 = .001 for Model 1; ΔR^2 = .18 for Model 2 (p = .08). Child academic outcome was measured by the *WJ-3 Brief Achievement.* Parent self-efficacy was assessed with the *Parent Sense of Competence Scale* while parental involvement was assessed with the *Parent Involvement Questionnaire*.
* $p < .05$, ** $p < .01$

Discussion

The following addendum is to correct the error in the scoring and coding of the *PSOC* measure. Following the correction of this error, all analyses were conducted again with the corrected *PSOC* scale scores.

Reliability of the *PSOC*

The PSOC is comprised of two subscales: parental efficacy and parental satisfaction. The efficacy subscale includes items 1, 6, 7, 10, 11, 13, and 15. Agreement with these items indicates

greater PSE. The satisfaction subscale includes items 2, 3, 4, 5, 8, 9, 12, 14, and 16. Disagreement with these items indicates greater satisfaction. Therefore, reverse coding was necessary for the satisfaction items. Once these items were reverse coded, this scale's Chronbach's alpha for the present sample was .77.

Descriptive Statistics of the *PSOC*

The means, standard deviations, and ranges for all variables of the present study, along with the corrected scores of the *PSOC*, are presented in Table 4. In general, parents reported high levels of parent self-efficacy. Variability was also found among the parents' reported level of PSE.

Question 1: What is the relationship between PSE and the quantity and quality of parental involvement?

Correlation analyses were run again in order to determine the relationship between all variables. The resulting correlation matrix, with the corrected scores of the *PSOC,* is presented in Table 5. Consistent with my hypothesis, the results indicate a significant and moderate negative relationship between PSE and parents' reported level of conflict with their child. The results suggest that higher levels of PSE are associated with lower levels of conflict between parent and child. A significant and moderate positive relationship was also found between children's academic achievement and the level of closeness that parents felt with their child. The results also show a large and significant positive relationship between parents' reported involvement in academic related activities and school-focused discussions at home with their child.

Although still no significant relationships were found between PSE, the quantity of parental involvement, and the closeness that parents felt with their child, it is interesting to note the change in the direction of the relationships. After the reverse coding of the *PSOC*, the

correlation between PSE, the quantity of parental involvement, and closeness are all positive. These positive correlations are consistent with my hypotheses.

Question 2: Is the relationship between PSE and child academic achievement mediated through the quantity and quality of parental involvement?

Conditions for mediation. Based on the lack of significant relationship between PSE (predictor) and child academic achievement (outcome), the conditions for mediation were still not met after the correction of the scoring of the *PSOC*.

Regression. Although the conditions of mediation were not met, a two-stage hierarchical multiple regression was conducted again to examine how the parent variables contribute to the variance in child academic achievement. The results of the multiple regression analysis are presented in Table 6. At stage one, PSE still did not contribute significantly to the regression model ($F(1,46) = .03$, $R^2 = .001$, *ns)*. This indicated that parent self-efficacy was not a significant predictor of child academic achievement, even after the reverse coding. In the second stage, when the components of the quantity and quality of parental involvement were added as predictors, the change in R^2 was not statistically significant ($F(5,42) = 1.79$, $R^2 = .18$, *ns)*. Therefore the increase in the variability in academic achievement could not be accounted for by the regression models. As previously found, only parents' perceived level of closeness with their child was a significant predictor of child academic achievement.