

A review of the relationship between parental involvement indicators and academic achievement

Lisa Boonk^{1,2}, Hieronymus J. M. Gijsselaers¹, Henk Ritzen², Saskia Brand-Gruwel¹

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Author note

¹ Welten Institute - Research Centre for Learning, Teaching and Technology, Open University of the Netherlands. ² ROC van Twente, Regional College for Vocational Education and Training, The Netherlands.

* = Corresponding author. Lisa Boonk, ROC van Twente, Gieterij 200, 7559 VZ, The Netherlands. E-mail: lboonk@rocvantwente.nl

Abstract

This paper reviews the research literature on the relationship between parental involvement and students' academic achievement with 75 studies published between 2003 and 2017. The results first present how individual parental involvement variables correlate with academic achievement based on an age-related classification. Then we move to a more profound review of the literature to determine which variables are moderating or mediating the relationship between parental involvement and academic achievement. Finally, we describe the advancements that were made with studies from the last decade with special focus on the construct of parental involvement. Parental involvement variables that show promises according to their correlations with academic achievement are: (a) reading at home, (b) parents that are holding high expectations/aspirations for their children's academic achievement and schooling, (c) communication between parents and children regarding school, (d) parental encouragement and support for learning.

Keywords: Parent participation, educational outcomes, literature review

1. Introduction

Educational researchers have long been interested in the positive effect that parental involvement may have on the academic achievement of their children (e.g., Epstein, 1991; Fan & Chen, 2001). The perception that parental involvement has positive effects on students' academic achievement has led to a voluminous body of literature about parental involvement (Jeynes, 2003; Patall, Cooper, & Robinson, 2008; Hill & Tyson, 2009). Policymakers and researchers seem to have agreed that parental involvement is a critical ingredient for children's academic success (Graves & Wright, 2011; Mattingly et al., 2002). Parents who are active participants in their children's education are thought to promote children's social, emotional and academic growth (Green et al. 2007).

Despite the widespread belief that parental involvement is a critical ingredient for children's academic success, there are some issues related to the research on parental involvement (Desforges & Abouchaar, 2003). The degree of inconsistency surrounding findings with regard to parental involvement and its association with student's academic achievement is perhaps the most troubling aspect of current research (McNeal, 2012). Studies have found positive relations, negative relations, and also a lack of relations between parental involvement and student achievement (Fan & Chen, 2001).

A closer look at the empirical studies leads to the conclusion that these differences in the literature exist, because research has been conducted without a widely accepted theoretical framework. The concept of parental involvement has been operationalized, measured and applied in so many ways that it has become somewhat unclear what exactly is meant by the concept (e.g., Bakker & Denessen, 2007; Fantuzzo, Davis, & Ginsburg, 1995). Georgiou (1997) pointed to problems in the empirical literature which are still not resolved. These problems stem from the concept's complexity and the confusion that exists because of the absence of a clear definition. The issue of a wide range of research on parental

involvement, reflected in different study methodologies, research questions, operationalizations, and findings, can benefit from a research synthesis (Wilder, 2014). The purpose of this article is to review existing empirical literature and present the specific types of parental involvement that are related to academic achievement.

1.1 The parental involvement construct

A lack of consensus regarding parental involvement starts with 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 vary from inclusive, such as the one provided by Grolnick and Slowiaczek (1994) who describe parental involvement as “the dedication of resources by the parent to the child” (p. 238) and Larocque, Kleiman, and Darling (2011) who explain parental involvement as “the parents’ or caregivers’ investment in the education of their children” (p. 116) to more specific ones that define parental involvement as parental activities at home and at school that are related to children’s learning in school (Hoover-Dempsey & Sandler, 1997). In other studies, researchers avoid a general definition of parental involvement and instead they focus on specific involvement types. For example, Epstein (1987) and Comer (1995) distinguished between two specific types of parental involvement: home-based strategies, such as providing structure and support with regard to learning and education at home, and school-based strategies, such as communicating with the teacher or attending school events.

1.2 Parental involvement and academic achievement

The relationship between parental involvement and academic achievement has been the primary interest of researchers for years. Overall, the results of prominent meta-analyses in the field indicate that in general statistically significant relationships exists between parental

involvement and academic achievement (e.g. Fan & Chen, 2001; Jeynes, 2005, 2007; Hill & Tyson, 2012). However, empirical research does not provide a clear picture about which specific types of parental involvement are predictive of achievement. This lack of clarity is the result of mixed findings from a variety of studies. Some studies have shown that certain parental involvement types are associated with positive academic achievement, whereas others found that it is not associated with changes in students' academic achievement. Additionally, studies also found parental involvement to be negatively associated with achievement.

For example, Singh et al (1995) explored the effect of four components of parental involvement on the achievement of 8th graders namely; parental aspirations for children's education, parent-child communication about school, home-structure and parental participation in school related activities. They showed that parental involvement in school activities was not related to achievement, whilst home structure had a slight negative association. Parental involvement in the form of parent-child discussions had a moderate positive impact. And parental aspiration had the strongest positive relationship with achievement. On the contrary, Ho and Willms (1996) found that parent-child discussions at home had the strongest positive relationship with 8th graders academic achievement. They also found that parental involvement in school had a moderate impact on achievement. These studies are just examples indicating that, as is often the case with complex phenomena, findings regarding parental involvement and its relationship with academic achievement are full of inconsistencies.

1.3 The present study

This paper examines the research literature on the association between parental involvement and student academic achievement. Our goal was to examine how parental involvement has

been defined, describe the relations between parental involvement variables and academic achievement, and to generalize the results. Because studies included various ages of children across different educational contexts in their samples, we decided to organize the studies based on age-related categories. The following categorization was used:

1. Early childhood education (up to the age of 6)
2. Elementary school (ages 6-12)
3. Middle, high school and beyond (ages 12-18)

2. Method

2.1 Literature Search

Studies investigating parental involvement and their relation with children's academic achievement were identified through a search in the databases of ERIC, PsycINFO, and Web of Science. After several trial runs, the final searches were conducted in September 2017 with the following queries: [(“parental involvement” OR “parental participation”) AND (“academic achievement” OR “student outcome” OR “student effect” OR “student impact” OR “student influence”). The Web of Science search resulted in 1662 hits. The searches in ERIC and PsycINFO, returned 428 and 2345 hits, respectively.

2.2 Inclusion of studies

To be eligible for inclusion in this review, a study had to (a) investigate parental involvement and its relation with academic achievement of learners aged 0 to 18; (b) provide clear descriptions of the parental involvement construct and measurements and type of academic outcome; (c) be published in the period 2003 and 2017 in a peer reviewed journal. The reason is that although parental involvement has continued to be a frequently studied concept since 2003, no systematic review of the literature has been conducted since then. The review by

Desforges and Abouchar (2003) was the most recent comprehensive review on parental involvement and its relations with student academic achievement. We eliminated studies that investigated parental involvement effects on maladaptive student behavior, such as publications that included measures of student aggression, bullying, delinquency and/or depression, as this review focused on the involvement expressions that parents use to foster their child's academic achievement. Studies that assessed parental involvement effects in relation to learning and/or developmental disorders (e.g. autism, dyslexia, ADHD) were also excluded. The same accounts for studies that focused on the link between parental involvement and achievement in developing countries.

These aforementioned criteria were used in an initial screening of the studies' abstracts. If no abstract was available, the full publication was collected and examined. This first round of selection resulted in the provisional inclusion of 156 studies. In order to reach a final decision, these studies were retrieved from an online library. The 156 studies that were eventually obtained were read by one author for inclusion. After careful consideration of the studies, the author found that 75 studies met all inclusion and exclusion criteria. The final number of studies included in this review is 75.

2.3 Defining parental involvement

Table 1 provides an overview of the most prominent aspects of parental involvement. Many studies examine underlying aspects of parental involvement, yet few do it in exactly the same way. Such differences make it difficult to assess cumulative knowledge across studies and can lead to contradictory findings. We will point these out in the result section as they arise. After a consideration of the different indicators used in the studies, we grouped these indicators into the two main categories of parental involvement:

(1) *Home-based involvement* refers to what parents do at home to promote their children's learning. Definitions of involvement at home included: parents' communication with their child on school issues and other types of home involvement such as monitoring school progress, guidance in learning activities at home or helping with homework. Multiple researchers also considered parental expectations for their child's academic achievement as a form of involvement.

(2) *School-based involvement* is basically defined by activities and behaviors parents engage in at school, such as attending parent-teacher conferences and attending school events. Common operational definitions of school-based involvement in previous studies also include participation in school activities such as volunteering in the classroom, going on class trips, and participation in school functions.

When considering the link between parental involvement and academic achievement, the distinction between home-based and school-based dimensions is important. Forms of involvement at home are very different in nature compared to forms of involvement at school. Therefore, throughout this review we treat involvement at home as conceptually and empirically distinct from involvement at school.

Table 1*Commonly used Indicators of Parental Involvement in the Literature*

Parental involvement dimension	Indicators
Home-based involvement	Educational expectations /aspirations Valuing of education/academic achievement Reading with children Educational trips (going to the library or the museum) Academic pressure/ control Engagement in learning activities at home Assistance/help with homework Parent-child discussions about school experiences Parent-child discussions about selecting courses/programs Parent-child discussions about post-high school plans Parental support/encouragement in learning Rules for TV/ parental limit-setting
School-based involvement	Attendance at Parent-Teacher Association (PTA) meetings Volunteering at school Visiting the classroom Attendance at school or class events Participation in school functions (such as membership in PTA) Teacher-parent communication about academic performance Teacher-parent communication about problems or difficulties at school

2.4 Analysis

The included studies were reported according to eight study features: (a) author(s), (b) study design, (c) parental involvement indicators (independent variable), (d) student academic outcome (dependent variable), (e) the measured effect of parental involvement on academic achievement, (f) moderators and/or mediators, (g) sample size, and, (h) country where the study was conducted. Tables 2, 3, and 4 present the included studies grouped into three age-related categories.

Furthermore, in the result section, we discuss the effect sizes for associations between parental involvement and academic achievement that were reported in the reviewed studies.

Studies used different effect sizes. To convey meaning of these different effect sizes we report effect sizes small, medium or large according to Cohen (1992).

3. Results

In the next section, the results of our analysis will be presented. We discuss how prominent individual parental involvement variables correlate with academic achievement. This analysis will be presented in three sections based on age-related categories. The results will be presented for (a) early childhood education, (b) elementary school and (c) middle school and beyond. We end the result section by discussing variables that influence the relation between parental involvement and academic achievement.

3.1 Parental involvement and early childhood academic achievement (22 studies)

In this section, we looked at the results of 22 studies on prominent parental involvement variables that were found to be related to children's academic achievement such as reading at home and parental engagement in learning activities at home. Table 2 presents an overview of the included studies for young children up to the age of six. The majority of studies reported positive associations between parental involvement and academic achievement. The effect sizes are small to medium. We now discuss beneficial involvement indicators.

Reading at home reflects parental modeling and support of their child's reading combined with the provision of a stimulating literacy environment. Studies have shown a positive association with academic achievement (Aikens & Barbarin, 2008; Graves & Brown Wright, 2011; Stylianides & Stylianides, 2011). For example, Crosby and colleagues (2015) found that parent reading lessons at home have an impact on their children's literacy development. Their study examined the effectiveness of a parent involvement program that teaches parents how to provide their children reading lessons at home. Results indicate that

implementation of the program was associated with higher levels of children's literacy achievement. Children whose parents implemented the parental literacy lessons at home made gains in literacy achievement over those children whose parents implemented fewer lessons or did not implement the lessons at all.

Parental engagement in learning activities at home has shown a positive association with the academic achievement of preschoolers. Research suggests that enriching activities, such as telling stories, teaching letters and numbers, problem solving activities, singing songs and playing games have been found to improve children's literacy skills (Durand, 2011; Fantuzzo et al., 2004; Manolitsis, Georgiou, & Tziraki, 2013) and reading achievement (Cooper, Crosnoe, Suizzo, & Pituch, 2010; Wen, Bulotsky-Shearer, Hahs-Vaughn, & Korfmacher, 2012; Youn, Leon, & Lee, 2012).

School involvement refers to the amount of contact between parents and teachers and participation in school activities. Several studies reported positive associations between school involvement and the academic achievement of young children (Aikens & Barbarin, 2008; Chang, Choi, & Kim, 2015; Cooper, Crosnoe, Suizzo, & Pituch, 2010; Dearing, McCartney, Weiss, Kreider, & Simpkins, 2004; Dearing, Kreider, & Simpkins, 2006; Englund, Luckner, Whaley, & Egeland, 2004; Hill & Craft, 2003; Hughes & Kwok, 2007; McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004; Sibley & Dearing, 2014). For instance, Schulting, Malone and Dodge (2005) examined the association of parental school involvement with the academic achievement for 17,212 children from 992 schools and found that parental involvement in their child's school significantly predicted children's reading and math performance ($b = 0.89$). Other studies, however, showed no significant relation with school involvement such as volunteering at the school and keeping in touch with child's teacher on academic outcomes (Fantuzzo et al., 2004; Kicklighter Dove, Neuharth-Pritchett, Wright, & Wallinga, 2015; Hindman, Skibbe, Miller, & Zimmerman, 2010).

Table 2*Empirical Studies of the Relations between Parental Involvement and Academic Achievement: Early Childhood Education (Ages 0-6)*

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
1.	Hill & Craft (2003)	Survey	- Valuing education - Extent to which parents were involved in school activities - Involvement with children in educational types of activities at home	Math and reading achievement	Positive for math and reading Positive for math Positive for math	Academic and social competence	Ethnicity	103	U.S.
2.	Dearing et al. (2004)	Longitudinal survey	- Involvement in school (attendance PTA, volunteering at school, visit the classroom)	Literacy achievement	Positive		Maternal education	167	U.S.
3.	Dearing et al. (2004)	Longitudinal survey	- Involvement in school (attendance PTA, volunteering at school, visit the classroom)	Literacy achievement	Positive	Children's feelings about literacy	Maternal education	167	U.S.
4.	Englund et al. (2004)	Longitudinal survey & observation	- Parental expectations - Level of parental involvement with school (teachers were asked (a) whether they knew the parents, (b) whether the parents demonstrated concern and interest in the child's schoolwork, and (c) whether the parents participated in parent conferences or other meetings with the teacher)	Academic progress (rated by teachers)	Positive Positive	Mothers quality of instruction	Parents educational level	187	U.S.
5.	Fantuzzo et al. (2004)	Survey	- School-based involvement (e.g., volunteering in the classroom, going on class trips, meeting other parents to plan events) - Home-based involvement (e.g., creating space for learning activities at home, providing learning opportunities for the child in the community) - Home-school conferencing (e.g., talking with the child's teacher about	Literacy skills	No effects Positive No effects			144	U.S.

Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
		learning difficulties and accomplishments, discussing with the child's teacher ways to promote learning at home)						
6. McWayne et al. (2004)	Survey	- Supportive home learning environment - Direct school contact - Inhibited involvement	Reading and math achievement rated by teachers	Positive No significant association Negative			307	U.S.
7. Schulting et al. (2005)	Survey	- School involvement (Parent-Teacher Association meetings, parent-advisory group or policy council meetings, regularly scheduled parent-teacher conferences, school or class events, volunteering at school, and fundraising activities)	Reading, math and general knowledge achievement	Positive	School-level transition practices	SES	172 12	U.S.
8. Hughes & Kwok (2007)	Survey	- Home-school relationship reported by teachers	Math and reading achievement	Positive	Child classroom engagement	Ethnicity	443	U.S.
9. Aikens & Barbarin (2008)	Survey	- Involvement in child's school - Home literacy environment - Parental warmth	Reading achievement	Positive Positive Positive			212 60	U.S.
10. Cooper et al. (2010)	Survey	- Provision of cognitively stimulating materials - Enrollment in organized activities outside the home - Home-learning activities with parents - School involvement	Math and reading achievement	Positive for math and reading Positive for math and reading Not related to math or reading Positive for math and reading		Ethnicity	203 56	U.S.
11. Fekonja-Pekljaj et al. (2010)	Survey	- Quality of the home learning environment	Literacy skills	Positive	Mothers education level		229	Slovenia
12. Hindman et al. (2010)	Longitudinal survey	- Home involvement (teaching about letters and numbers, playing games) - School involvement (volunteering in the classroom, attending workshops)	Literacy and math skill growth	No effects			945	U.S.
13. Durand (2011)	Survey	- Engaged in a variety of school	Literacy skills	Positive overall		Ethnicity	205	U.S.

Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
		readiness activities with children at home (reading, telling stories, singing songs, doing chores)					1	
		- School involvement (scheduled conferences with teachers, PTA meetings, advisory groups, volunteering, fund-raising, attending class events)						
14. Graves & Brown Wright (2011)	Survey	- Cultural involvement (visiting a library, museum or sporting event)	Reading achievement	Positive		Ethnicity	149 51	U.S.
		- School involvement		Negative				
		- Rules for TV		Positive/negative				
		- Home involvement (reading, playing games, telling stories)		Positive				
15. Stylianides & Stylianides (2011)	Survey	- Parent-child interaction (how often parents read to their child, how often they tell their child stories etc.)	Math, reading and science achievement	Positive for math, reading and science achievement		SES	103 69	U.S.
16. Wen et al. (2012)	Survey	- School involvement (volunteering and helping out in the classroom, attending social events)	Literacy and math skills	Negative		Quality of teacher-child interactions	196 8	U.S.
		- Home involvement (told stories, taught letters, numbers or words)		Positive				
17. Youn, Leon & Lee (2012)	Survey	- School involvement (attend school events, volunteer at school, fundraising)	Math and reading achievement	Positive for reading and math			175 65	U.S.
		- Parent-child interaction (read books to children, tell stories to children and talking with children)		Positive for reading and math				
		- Educational trips (visiting library, attend concert, visiting museum)		Positive for reading and math				
18. Manolitsis, Georgiou, & Tziraki, (2013)	Longitudinal survey	Parents were asked	Math and reading fluency	Positive for math and reading			82	Greece
		- How often their child was taught to identify letters						
		- How often their child was taught letter sounds						

Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
		<ul style="list-style-type: none"> - How often their child was taught to read words - How often their child is read to at home - How many children's books are in the home - How often their child was taught to identify the names of written numbers (e.g., bus number) - How often their child was taught to count different objects - How often their child was taught to sort different objects according to their size and shape - How often their child was taught to count in a number line (e.g., 1, 2, 3, 4) - How often their child was taught to do simple calculations 						
19. Sibley & Dearing (2014)	Survey	<ul style="list-style-type: none"> - Parents' contact with the school or children's teachers - Parent-child activities in the home (read books with child, playing games or do puzzles with the child etc.) - Parental expectations 	Math and reading achievement	<p>Positive but not significant for math</p> <p>Negative for reading and math</p> <p>Positive for reading and math</p>		Ethnicity	920 3	U.S.
20. Chang, Choi, & Kim (2015)	Survey	<ul style="list-style-type: none"> - Parents participation in parent-teacher conferences - Parents participation in voluntary school activities - Informal contact with school - Parents phone contact with school 	Math achievement	<p>Positive</p> <p>Positive</p> <p>No effects</p> <p>Positive</p>		Ethnicity, SES	204 59	U.S.
21. Crosby et al (2015)	Longitudinal survey	<ul style="list-style-type: none"> - Parental reading with their children - Parents tutoring their children in reading 	Literacy achievement	Positive			117	U.S.
22. Kicklighter Dove et al (2015)	Survey	<ul style="list-style-type: none"> - Parents discuss the child's school day with child - Parents participation in school 	Literacy achievement	<p>Positive</p> <p>Positive</p>			380 8	U.S.

Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
		activities - Parents volunteering at the school - Parents keeping contact with the teacher		No effect No effect				

3.2 Parental involvement and academic achievement for elementary school children

(22 studies)

Most of the reviewed studies investigated the link between parental involvement and elementary school achievement in math and reading (see Table 3). The studies presented different results. Although most studies reported (small to medium) positive associations between parental involvement and academic achievement, some studies found no effect or a negative relation between these variables. We now present prominent parental involvement variables and their relations with academic achievement.

Parental expectations and aspirations are often described collectively or used interchangeably in the literature. Taken together, expectations and aspirations represent the degree to which parents presume that their child will perform well in school, now and in the future. This parental involvement variable appears in many research studies and is shown to have a positive relation with academic achievement (e.g, Gubbins & Otero, 2016; Hung, 2007; Phillipson & Phillipson, 2012; Xu, Benson, Mudrey-Camino, & Steiner, 2010). For example, Lee and Bowen (2006) examined the level and impact of five types of parental involvement at home and at school and found that these variables together explained 9% of the variance in reading and math achievement beyond the effects of demographic variables. They found that one type of parental involvement was the strongest predictor of academic achievement, namely parents' educational expectations for their child ($\beta = 0.23$).

Parental academic pressure through the use of commands, punishment, or coercive interactions is negatively associated with academic achievement (e.g. Domina, 2005). Academic pressure from parents is also associated with lower self-concept in math and reading (Rogers, Theule, Ryan, Adams, & Keating, 2009). By contrast, studies found that *parental encouragement and support* is positively associated with student academic

achievement. This parental involvement variable is defined as the provision of support and encouragement, such as praising children's performance, progress and efforts and letting children know they care about them and their school performance. Encouragement and support significantly predicted higher academic achievement (Hung, 2007; Rogers, Theule, Ryan, Adams, & Keating, 2009).

Also, parental support such as providing the appropriate environment and materials conducive to learning seem to have a positive significant relationship with academic achievement. Sheldon and Epstein (2005) found that one type of involvement (i.e., learning at home) was consistently related to improvement in students' performance on mathematics achievement tests. They found that effective support for mathematics learning included (a) homework assignments that required students and parents to interact and talk about mathematics and (b) the use of mathematics materials and resources at home provided for families by teachers. The relations between these types of support and mathematics achievement were positive after influential variables such as prior achievement were taken into account.

Homework involvement. It is not clear how exactly parental homework involvement can be beneficial, because the relation between this type of involvement and academic achievement is inconsistent. Studies indicated that assisting children with their homework did not have a significant relationship with achievement (e.g. Driessen, Smit, & Slegers, 2005) or is negatively related to achievement (Domina, 2005; Lee & Bowen, 2006; Rogers, Theule, Ryan, Adams, & Keating, 2009). Additional studies also reported negative associations of homework help (Xu, Benson, Mudrey-Camino, & Steiner, 2010). On the contrary, Tam and Chan (2009) found that parental involvement in children's homework is positively associated with the academic development of children. And when parents are trained to help their child with homework, homework help is significantly associated with positive attitudes about math

homework and math achievement. Van Voorhis (2011) conducted a quasi-experimental study and examined the effects of a weekly interactive mathematics program (Teachers Involve Parents in Schoolwork - TIPS) on parental involvement, parental attitudes, and student achievement. This study revealed that participation in this program leads to more parental involvement. After accounting for prior achievement, students who used TIPS for 1 year ($\beta = .13$) or two ($\beta = .19$) had significantly higher standardized mathematics achievement scores than control students.

Additionally, a particular type of involvement in children's homework does seem beneficial. Gonida and Cortina (2014) examined whether different types of homework involvement (autonomy support, control, interference, cognitive engagement) could predict achievement. They found that only autonomy support is predictive of achievement. And parental interference in homework negatively predicted achievement. Similar results were found in two other studies. Moroni and others (2015) found that when homework involvement was perceived as supportive, it was positively associated with students' achievement, but when parents were perceived as intrusive and controlling in the homework process, their help was negatively associated with students' achievement. Additionally, students with low reading achievement reported more parental control ($\beta = -.12$) compared to students with higher achievement. Parental control also served as a statistically significant predictor of students' homework procrastination ($\beta = .15$): The more controlling behavior students perceived from their parents in Grade 5, the more they procrastinated in the homework process 2 years later (Dumont, Trautwein, Nagy, & Nagengast, 2014).

Reading at home was found to be significantly related to elementary school children's literacy performance. Parents who employ reading activities with their child at home, contribute to their child's reading achievement in school (Hemmerechts, Agirdag, & Kavadias, 2017; Myrberg & Rosen, 2009). Kloosterman and colleagues (2011) investigated

the extent to which parental reading socialization, that is, parental reading example and instruction, at the start of a child's educational career, is related to children's academic performance in successive primary school grades. They demonstrated that parental reading socialization positively affect children's language performance.

School involvement. The benefits of school involvement are not clear. To illustrate, studies showed that school involvement is associated with increased achievement (Dearing, Kreider, Simpkins, & Weiss, 2006; Hung, 2007; Lee & Bowen, 2003; McBride, Dyer, Liu, Brown, & Hong, 2009). Specifically, school involvement (such as volunteering and participation in school events) was found to have the largest beneficial effect on achievement ($\beta = 0.22$) among the dimensions of parental involvement examined in one study (Xu, Benson, Mudrey-Camino, & Steiner, 2010). Yet, others found that school involvement such as fundraising and volunteering was not significantly related to their children's achievement scores (Johnson & Hull, 2014; Phillipson & Phillipson, 2012). Stright and Yeo (2013) even found that parents' participation in school events negatively predicted achievement.

Table 3*Empirical Studies of the Relations between Parental Involvement and Academic Achievement: Elementary School (Ages 6-12)*

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
23.	Domina (2005)	Survey	<ul style="list-style-type: none"> - Parents attended PTA meetings - Parents attended meeting with teacher - Parents volunteer in classroom - Parents volunteer outside the classroom - Parents helped with homework - Parents checked homework 	PIAT measure (mean math and reading achievement)	Positive Positive Positive Positive Negative Positive			1445	U.S.
24.	Driessen et al. (2005)	Survey	<ul style="list-style-type: none"> - Help from parents with homework - Parent-child relation with respect to school matters - Leisure activities of child and parents - Involvement in television watching of child - Rules at home and at school - Choice of secondary education 	Math and literacy achievement	Negative No effect No effect No effect No effect Positive			12000	NL
25.	Sheldon & Epstein (2005)	Longitudinal survey	<ul style="list-style-type: none"> - School practices aimed at involving parents 	Math achievement	Positive			18	U.S.
26.	Dearing et al. (2006)	Longitudinal survey	<ul style="list-style-type: none"> - Involvement in school (attendance PTA, volunteering at school, visit the classroom) 	Literacy performance	Positive		SES	281	U.S.
27.	Lee & Bowen (2006)	Survey	<ul style="list-style-type: none"> - Involvement at school (visiting the school, going to PTA meetings, volunteering in the classroom/school, going to fun events) - Discussing educational topics with child - Helping with homework 	Math and reading achievement	Positive Positive Negative		SES, Ethnicity	415	U.S.

Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
28. Hung (2007)		- Managing child's time on literacy and nonliterary activities	Math and literacy achievement	No effect			261	Taiwan
		- Parents educational expectations for their children		Positive				
		- Parents' aspirations		All positive for math and literacy				
29. McBride et al. (2009)	Survey	- Parents' involvement at home (perceptions of the support students receive at home)	Math and reading achievement	Positive			390	U.S.
		- Parents' involvement in school						
		- Parental involvement at school (i.e., volunteered in the classroom, participated in formal conferences with child's teacher, participated in informal conversations with child's teacher, attended an extracurricular school event, attended a meeting of the PTA)						
		- Parent-child household centered activities (level of interaction with their children during household-centered activities)						
30. Myrberg & Rosen (2009)	Survey	- Parent-child child centered activities (reading stories together, playing games)	Reading achievement	No effect			10000	Sweden
		- Parental limit setting		No effect				
		- Early reading activities (reading with child, telling stories to child)		Positive				
31. Rogers et al. (2009)	Survey	- Academic pressure	Average grade for math, reading and science achievement	Negative	Child academic competencies		231	U.S.
		- Encouragement and support for learning		Positive				
		- Active management of learning environment		Positive				
		- Participation with homework		Negative				

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
32.	Tam & Chan (2009)	Survey	Involvement in homework: - Autonomy support - Direct involvement - Provision of structure	Students' learning performance	Positive No effect Positive		SES	1309	Hong Kong
33.	Xu et al. (2010)	Survey	- Parent-child communication - School involvement - TV rules - Homework help - Parental educational expectations - Extra-curricular activities	Reading achievement	No effect Positive Negative Negative Positive Positive	Self-regulated learning		10120	U.S.
34.	Kloosterman et al. (2011)	Longitudinal survey	- Parental reading socialization - School involvement	Math and reading achievement	Positive for reading Positive for math and reading			10885	NL
35.	Magi et al. (2011)	Longitudinal survey	- Parental beliefs about the child's school success	Reading and math skills	Positive	Task avoidance		1267	Finland
36.	Van Voorhis (2011)	Quasi-experimental	- Homework involvement intervention (TIPS)	Math achievement	Positive			153	U.S.
37.	Phillipson & Phillipson (2012)	Survey	- School involvement - Home involvement - Parental beliefs of their child's ability - Parental expectations	Math, English and Chinese language achievement	No effect Positive Positive Positive	Cognitive ability of the child	SES	1279	Hong Kong
38.	Stright & Yeo (2013)	Survey	- Home-based involvement (help with homework, talk about school etc.) - Home-school conferencing (Meet with teacher, talk with teacher) - School-based involvement (volunteer at school, attend	Average math, English and science achievement	Positive Positive Negative	Parenting styles		712	Singapore

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	N	Country
			special events, going on class trips)						
39.	Dumont, Trautwein, Nagy, & Nagengast (2014)	Survey	Parental homework involvement: - Parental control - Parental responsiveness - Parental structure	Reading achievement	Negative Positive Positive			2830	Germany
40.	Gonida & Cortina (2014)	Survey	Parental homework involvement: - Autonomy support - Control - Interference - Cognitive engagement	Composite score based on school grades in language and math	Positive Negative Negative No effect	Student mastery, student performance, Student academic self-efficacy		282	Greece
41.	Johnson & Hull (2014)	Longitudinal survey	- School involvement (participation in open house, PTA, school events and volunteering)	Science achievement	No effect			8070	U.S.
42.	Moroni et al (2015)	Longitudinal survey	Parental homework involvement: - Supportive - Intrusive - Quantity of homework involvement	Reading achievement and language grades	Positive Negative Negative			1685	Germany
43.	Gubbins & Otero (2016)	Survey	Parental expectations	Language and math performance	Positive			55401	Chili
44.	Hemmerechts, Agirdag, & Kavadias (2017)	Survey	Late literacy involvement (listen to child read, discuss classrooms reading, help child with reading for school)	Reading achievement	Positive			43870	Western Europe

3.3 Parental involvement and academic achievement at middle school, high school and beyond (31 studies)

The majority of the reviewed studies investigated the link between parental involvement and student achievement in math and literacy. For an overview, see Table 4. Most of these studies reported positive associations between parental involvement and academic achievement. Effect sizes are small to medium. We will now discuss the most prominent parental involvement variables.

Parental aspirations and expectations. Studies that focus on parental expectations generally report a positive association with academic achievement (Antonopoulou, Koutrouba, & Babalis, 2011; Carranza, You, Chhuon, & Hudley, 2009; Choi, Chang, Kim, & Reio, 2015; Fan, Williams, & Wolters, 2012; Gordon & Cui, 2012; Pearce, 2006; Simons-Morton & Chen, 2009; Strayhorn, 2010; You, Lim, No, & Dang, 2016). For example, Chen and Gregory (2010) found that, among involvement variables, attainment expectation was the only parental involvement type that remained significant in the prediction of GPA ($\beta = .32$) when the other involvement types were taken into account, after controlling for gender and ethnicity. Thus, students who reported their parents had higher expectations for their educational attainment had higher GPAs and were also rated as more engaged in the classroom by their teachers compared with peers who received lower parental attainment expectations.

Valuing academic achievement and reinforce learning at home. Parental involvement in the form of valuing academic achievement and then reinforcing it has shown a significant positive association with students' mathematics achievement throughout high school (Hayes, 2012; Hong, Yoo, You, & Su, 2010). Ho (2010) also found that students' science performance, which was measured by their science achievement and self-efficacy for science,

was significantly associated with certain types of parental involvement. Parental involvement in terms of organizing science learning enrichment activities was found to be significantly associated with students' science performance. Activities such as watching TV programs about science, reading books on scientific discovery, watching, reading or listening to science fictions seem effective for promoting children's science achievement and self-efficacy.

Academic encouragement and support. Across different studies, parental academic encouragement and support was found to be positively related to students' academic achievement (Bean, Bush, McKenry, & Wilson, 2003; Chen & Gregory, 2010; Dumont et al., 2012; Gordon & Cui, 2012). For example, Martinez, DeGarmo, and Eddy (2004) demonstrated that academic encouragement and being able to talk to parents about important life issues, along with academic support, led to greater student homework completion frequency. Frequency of homework completion, in turn, promoted greater academic achievement and lower drop-out rates.

Parent-child educational discussions refers to ongoing conversations between parents and their children concerning school-related activities, near- and long term school plans, and other academic issues. This variable yields positive associations with academic achievement (Altschul, 2011; Hayes, 2012; Hong & Ho, 2005; Houtenville & Conway, 2008; Hsu, Zhang, Kwok, & Ju, 2011; Gordon & Cui, 2012; Park, 2008; Park, Buyn, & Kim, 2011). McNeal (2012), for example, found that the only dimension of parental involvement that was associated with improved achievement and reduced problematic behavior (truancy) was parent-child discussions. Greater levels of communication increase student achievement ($r = .13$) and reduce truancy ($r = -.20$) in 8th grade.

Parental control or interference has shown negative relations with academic achievement. For example, students' evaluations of parental academic pressure negatively predicted their self-efficacy, mastery goal orientation, and achievement in math (Levpuscek

& Zupanic, 2009). Other studies reported similar results. Parental control, which refers to excessive control and pressure on children, is negatively related to academic achievement (Bean et al., 2003; Karbach, Gottschling, Spengler, Hegewald, & Spinath, 2013). Likewise, parental interference with homework (Gonida & Cortina, 2014) and homework-related conflict (Dumont et al., 2012), checking of homework (Strayhorn, 2010), homework control (Nunez, Suarez, Rosario, Vallejo, Valle, & Epstein, 2015) or help with homework (Altschul, 2011) were found to have negative relations with student achievement.

School involvement. Many of the school involvement measures examined in studies with adolescents are not or negatively related to achievement. Studies suggest that when parents attend events at school, meet with teachers and/or volunteer at school, it is not related to academic achievement (Altschul, 2011; Birman & Espino, 2007; Chen & Gregory, 2010; Choi, Chang, Kim, & Reio, 2015; Hayes, 2012; McNeal, 2012; Park, Buyn, & Kim, 2011; Wang & Sheik-Khalil, 2014). Parental communication with the school was negatively related to achievement (Ho, 2010). On the other hand, some studies did find positive association between school involvement and academic achievement (Hong & Ho, 2005; Martinez, DeGarmo, & Eddy, 2004; Oyserman, Brickman, Rhodes, 2007; You, Lim, No, & Dang, 2016).

Table 4

Empirical Studies of the Relations between Parental Involvement and Academic Achievement: Middle school, High school and Beyond (Ages 12-18)

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
45.	Bean et al. (2003)	Survey	Parenting behavior: - Support - Behavioral control - Psychological control	Overall academic achievement	Positive Positive/negative Negative		Ethnicity	155	U.S.
46.	Hill et al. (2004)	Longitudinal survey	Parent academic involvement - School involvement (PTA attendance visit an open house) - Home involvement (parents know what the child is doing in school, parents help choose classes, parent-child educational discussions)	Math and reading achievement	Positive	Behavioral problems	SES, Ethnicity	463	U.S.
47.	Martinez et al. (2004)	Survey	- Parent academic encouragement - Extracurricular encouragement - School involvement - Parental monitoring	Grade Point Average (GPA)	Positive Positive Positive No effect	Homework frequency		564	U.S.
48.	Hong & Ho (2005)	Survey	- Parent-child communication about school related issues - Parental educational aspiration - Parental school participation - Parental supervision	Math, reading & science achievement	Positive Positive Positive Positive	Students' self-concept, locus of control, academic aspirations	Ethnicity	1500	U.S.
49.	Pearce (2006)	Survey	- Educational expectations - Parental involvement (e.g., discuss school activities with parent, parents attend meetings at school, parents checking homework)	Average score on math, reading and science achievement	Positive Positive/negative		Ethnicity	8522	U.S.

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
50.	Birman & Espino (2007)	Survey	- Parent knowledge of school practices - Parent contact with the school	Grade Point Average (GPA)	Positive No effect			240	U.S.
51.	Oyserman et al. (2007)	Quasi-experimental	- Parent school involvement (attends PTA meetings, act as volunteer etc.)	Grade Point Average (GPA)	Positive		Possible selves intervention	239	U.S.
52.	Houtenville & Conway (2008)	Survey	- Parent discussions about activities or events of particular interest to the child - Parent discuss things child studied in class - Discuss selecting courses or programs at school - Attend school meetings - Volunteer at the child's school	Math and reading achievement	Positive Positive Positive Positive No effect			24599	U.S.
53.	Park (2008)	Survey	- Parent-child educational discussions	Reading achievement	Positive			26500 0	U.S.
54.	Carranza, You, Chhuon, & Hudley (2009)	Survey	- Communication with child about school - Help with homework - Parental expectations - Monitoring of school work	Grade Point Average (GPA)	No effect No effect Positive No effect			298	U.S.
55.	Levpuscek & Zupanic (2009)	Survey	- Parental help - Parental academic pressure - Parental academic support	Math achievement	No effect Negative Positive for motivational beliefs but not for math grade	Motivational beliefs about math		365	Slovenia
56.	Chen & Gregory (2010)	Survey	- Direct parental participation in school-related activities - Parental encouragement of success - Parental expectations	Grade Point Average (GPA)	No effect No effect Positive		Ethnicity	59	U.S.

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
57.	Ho (2010)	Survey	<ul style="list-style-type: none"> - Parental investment in the (science) resources for their children's education - Cultural communication (discussing current affairs and social issues, discussing books, films or TV and listening to music) - Educational and social communication (discussing how well children are doing at school, spending time chatting and discussing homework) - Communication with school (discussing with teachers about their child's learning, keeping contact with the school and teachers and attending parents' day) - Participation in school (keeping contact with other parents in their school, volunteering in school activities, participating in Parent Teacher Association and participating in programs offered for parents) 	Science literacy performance	<ul style="list-style-type: none"> Positive No effect No effect Negative Negative 			4645	Hong Kong
58.	Hong et al. (2010)	Longitudinal survey	<ul style="list-style-type: none"> - Parents' mathematics value - Parents' academic reinforcement 	Math achievement	<ul style="list-style-type: none"> Positive No effect 			3116	U.S.
59.	Strayhorn (2010)	Survey	<ul style="list-style-type: none"> - Parents attending school meetings - Parents visiting classes - Parents checking homework - Parents require doing chores - Limit watching TV - Limit going out - Parent-child discussions about college 	Math achievement	<ul style="list-style-type: none"> Positive Negative Negative No effect No effect No effect No effect 			24599	U.S.

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
			- Parental expectations		Positive				
60.	Weiser & Riggio (2010)	Survey	How often parents: - Inquired about school - Helped with homework - Communicated with the school	Grade Point Average (GPA)	No overall effect	Students' self-efficacy		193	U.S.
61.	Altschul (2011)	Survey	- School involvement - Discussion of school-related issues between parents and students - Parental help with homework - Parent-child involvement in enriching activities - Allocation of resources to extracurricular instruction	Average for reading, math, science and history achievement	No effect Positive Negative Positive Positive			1609	U.S.
62.	Hsu et al. (2011)	Longitudinal survey	- Parent-child discussions about career plan - Parents listening to adolescent thinking - Monitoring student behavior - Participation in school	Overall math, reading and science achievement	Positive Positive Positive Positive			8108	Taiwan
63.	Park et al. (2011)	Longitudinal survey	- School contact - Parent-child educational discussions - Monitoring - Private tutoring-related activities	Math and English achievement	No effect Positive Positive Positive			6568	Korea
64.	Cheung & Pomerantz (2012)	Longitudinal survey	- Parents' involvement (e.g., attendance of parent-teacher conferences, discussion of school with children, and assistance with homework)	Overall math, reading and science achievement	Positive	Self-regulated learning		825	U.S.
65.	Dumont et al. (2012)	Survey	Parental homework involvement: - Support - Conflict	Math and reading achievement	Positive Negative			1270	Germany

	Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
66.	Gordon & Cui (2012)	Survey	<ul style="list-style-type: none"> - School specific parenting (talking about school, and helping with school-related tasks) - General parental support (how close student feel to their parents and how satisfied they were with the way they communicated with their parents) - Parental expectations 	Grade Point Average (GPA)	Positive Positive Positive			9350	U.S.
67.	Hayes (2012)	Survey	<ul style="list-style-type: none"> - Parents values and attitudes about the importance of effort and academic success - Parent-child communication about school and learning - School involvement (attending and participating in school events) 	Grades	No effect Positive No effect			145	U.S.
68.	McNeal (2012)	Longitudinal survey	<ul style="list-style-type: none"> - Parent-child discussions about school matters - Monitoring - School involvement 	Science achievement	Positive Negative No effect			7983	U.S.
69.	Karbach, Gottschling, Spengler, Hegewald, & Spinath (2013)	Survey	<ul style="list-style-type: none"> - Autonomy supportive practices - Achievement oriented control - Structure - Emotional responsivity 	Math and German achievement	No effect Negative Negative No effect			334	Germany
70.	Wang & Sheik-Khalil (2014)	Longitudinal survey	<ul style="list-style-type: none"> - Home-based involvement (extent to which parents structure after-school time for study and provide enriching materials and events) - School-based involvement (extent to which parents attend school events and volunteer at school) 	Grade Point Average (GPA)	Positive No effect	Academic engagement	Ethnicity,SES	1056	U.S.

Authors	Study design	Parental involvement indicator	Academic outcome	Effect	Mediator	Moderator	<i>N</i>	Country
		- Academic socialization (extent to which parents communicate educational goals, values, and aspirations and discuss plans for the future with their children)		Positive				
71. Choi, Chang, Kim, & Reio (2015)	Survey	- Parent participation in school events and activities - Parental guidance on academic performance and future academic plans - Parental aspirations	Math performance	No effect Positive Positive	Mathematics efficacy		8673	U.S.
72. Nunez et al (2015)	Survey	Parental homework involvement: - Control - Support	Overall grade in math, language, and social sciences	Negative Positive	Homework behaviors		1683	U.S.
73. You, Lim, No, & Dang (2016)	Survey	- Parental school participation - Parental supervision - Parental expectations	Overall achievement in math, reading and English	Positive Positive Positive	Academic self-efficacy		6334	Korea
74. Dotterer & Wehrspann (2016)	Survey	- Parental educational involvement (school-related activities at home and at school)	Grade Point Average (GPA)	Positive	School engagement		108	U.S.
75. Perkins et al. (2016)	Survey	- Parental guidance - Parental support - Parental involvement in school activities at home - Parental involvement in non-school activities at home	Overall school grades	No effect No effect Positive Positive			607	U.S.

Table 5*Summary of Findings for Parental Involvement by Age-Related Categories*

Involvement dimension	Positive relation with achievement	Negative relation with/not related to achievement
Home	<i>Early childhood</i> Reading activities at home The provision of literacy materials Parental engagement in learning activities at home	
	<i>Elementary school</i> High parental expectations and aspirations Academic encouragement and support Providing the appropriate environment and materials conducive to learning Autonomy supportive homework help Reading activities at home	Academic pressure Homework help Homework control
	<i>Middle school and beyond</i> High parental expectations and aspirations Valuing academic achievement and reinforce learning at home Academic encouragement and support Parent-child educational discussions	Academic pressure Parental control Parental interference with homework Homework-related conflict Checking of homework Homework control Help with homework
School	<i>Early childhood</i> Volunteer at school Participation in school events (attending events, help with fundraising) Visit the classroom Attendance at PTA meetings or other meetings with the teacher	Volunteer at school Contact with teacher on child academic outcomes
	<i>Elementary school</i> Volunteer at school Participation in school events (attending events, help with fundraising) Visit the classroom Attendance at PTA meetings or other meetings with the teacher	Volunteer at school Participation in school events (attending events, help with fundraising) Visit the classroom Attendance at PTA meetings or other meetings with the teacher
	<i>Middle school and beyond</i> Volunteer at school Participation in school events (attending events, help with fundraising) Visit the classroom Attendance at PTA meetings or other meetings with the teacher	Volunteer at school Participation in school events (attending events, help with fundraising) Visit the classroom Attendance at PTA meetings or other meetings with the teacher

3.4 Relation between parental involvement and academic achievement: mediators and moderators

While each of the parental involvement variables presented in this section has shown a relation to students' academic achievement, it is also clear from recent research that the associations are complex. Across the age-related categories, multiple studies found interactions between parental involvement variables and ethnicity/race, socio-economic status, and child characteristics. Consequently, we can view these as potentially moderating or mediating variables in relation to student achievement. We will now discuss studies that found mediating or moderating variables with respect to the relationship between parental involvement and academic achievement.

Several findings indicate that the relationship between parental involvement and academic achievement is mediated by children's characteristics and competencies (Cheung & Pomerantz, 2012; Choi, Chang, Kim, & Reio, 2015; Dearing, McCartney, Weiss, Kreider, & Simpkins, 2004; Dotterer & Wehrspann, 2016; Gonida & Cortina, 2014; Hill & Craft, 2003; Hong & Ho, 2005; Levpuscek & Zupanic, 2009; Magi, Lerkkanen, Poikkeus, Rasku-Puttonen, & Nurmi, 2011; Nunez, Suarez, Rosario, Vallejo, Valle, & Epstein, 2015; Wang & Sheik-Khalil, 2014; Weiser & Riggio, 2010; Xu, Benson, Mudrey-Camino, & Steiner, 2010; You, Lim, No, & Dang, 2016). To illustrate, Rogers and colleagues (2009) found evidence that parental involvement does not influence academic achievement directly, but indirectly through the mediational role of the child's academic competencies. According to their study, parents influence their child's characteristics and, consequently, the academic achievement of their child. Similar results were found by Phillipson and Phillipson (2012). They found evidence that parents influence their child's academic achievement indirectly through the mediational role of cognitive ability beliefs. Based on their findings, they proposed a cognitive-affect model of achievement. This model shows that academic achievement

depends on subjective cognitive ability of the child, a self-evaluation of cognitive ability. And subjective cognitive ability depends on feedback from parents through their communication of beliefs of their children's ability and academic expectations.

Another relevant issue is the role of social economic status (SES) in the relationship between parental involvement and academic achievement. SES is typically measured as family income and the educational level of parents. Some studies included in this review tested if SES moderates the relation between parental involvement and academic achievement and found that SES indeed partially moderates this relationship (e.g., Wang & Sheik-Khalil, 2014). For instance, in a study conducted by Dearing and others (2004) longitudinal data for 167 children was analyzed to examine associations between parental involvement during kindergarten, children's feelings about literacy, and children's literacy achievement from kindergarten through fifth grade. The beneficial effect of involvement for feelings about literacy and literacy achievement was partially moderated by maternal education. Similar moderating effects of maternal education for associations between involvement at kindergarten and the development of children's feelings about literacy and literacy achievement were found in a subsequent study (Dearing, Kreider, Simpkins, & Weiss, 2006). According to these findings, higher educated mothers are in general more successful in their involvement activities compared to lower educated mothers. This could be explained by more effective involvement skills of educated mothers (e.g., Englund, Luckner, Whaley, & Egeland, 2004; Fekonja-Peklaj, Marjanovic-Umek, & Kranjc, 2010).

In spite of the fact that parental involvement is associated with higher achievement for children from higher social class backgrounds and this could partially be explained by the educational level of mothers, the abovementioned studies conducted by Dearing and others (2004; 2006) also found evidence that achievement gaps between children of more and less educated mothers became nonexistent if parental involvement levels were high. They found

that although children of relatively less educated mothers have more negative feelings about their literacy performance at kindergarten than do children of relatively more educated mothers, this difference diminishes over time if families are highly involved. These results indicate that high levels of involvement may have added reward for low SES children with the added risk of low parent education.

Findings about the relationship between parental involvement and achievement also vary according to the populations examined. Although the impact of certain types of parent involvement on academic achievement overall is significant among children from all racial/ethnic groups, multiple studies suggest that the association is moderated by racial/ethnic characteristics. For example, Hill and Craft (2003) found that parental involvement at home improved pro-social behavior and children's ability to control their emotions and this, in turn, enabled Euro-American children to use their academic skills to perform better in reading and math. However, home-based involvement was not related to achievement for African Americans. The reverse was found for school-based involvement: parental involvement at school, including volunteering in the classroom and sending materials to school, improved children's academic skills, which in turn improved math performance for African American children. This association was not found for Euro-American children. Other studies also indicated that racial/ethnic variations exist in the relation between parental involvement and academic achievement (Aikens & Barbarin, 2008; Bean et al., 2003; Birman & Espino, 2007; Cooper, Crosnoe, Suizzo, & Pituch, 2010; Hill & Craft, 2003; Hill et al., 2004; Hong & Ho, 2005; Hughes & Kwok, 2007; Lee & Bowen, 2006). Interestingly, however, is that when parental involvement is measured as 'parental expectations or aspirations for their children's academic achievement and schooling' it is positively associated with achievement regardless of SES or ethnicity/race (Chen & Gregory, 2010; Lee & Bowen, 2003).

4. Conclusion

This review analyzed the results of 75 studies examining the relation between parental involvement and academic achievement. Findings of studies published between 2003 and 2017 confirm that parental involvement is related to children's academic achievement. However, this association is not as great as traditionally believed. Correlational studies have found small to medium associations between various parental involvement variables and academic achievement. The most consistent and positive relations were found for: (a) reading at home, (b) parents holding high expectations/aspirations for their children's academic achievement and schooling, (c) communication between parents and children regarding school, and (d) parental encouragement and support for learning. See Table 5 for a summary of findings. Furthermore, important conclusions from the present literature review are: (1) parental involvement does not diminish as children grow older but it does change in nature, (2) several studies challenge the common assumption that parental involvement is directly related to academic achievement, (3) the beneficial forms of parental involvement should be defined more clearly because not all forms of parental involvement are positively related to academic achievement and (4) this association is not the same for all ethnic/racial groups. These conclusions and other insights will be discussed below.

5. Discussion

5.1 Relationship between parental involvement and academic achievement

In this review we considered two dimensions of parental involvement, namely parental home-based involvement and parental school-based involvement. Research has provided some interesting insights with regard to the home-based involvement dimension. Several indicators that belong to this dimension were consistently found to be related to the academic achievement of children. Interestingly, the association with academic achievement was often

found the strongest for one particular measure: parental expectations and aspirations. Apparently, parents' beliefs/attitudes are more predictive of higher achievement than behavioral forms of involvement. Parents' educational expectations and aspirations are associated with increases in reading, math and grades for children regardless of SES or ethnicity (Chen & Gregory, 2010; Lee & Bowen, 2003). Another insight from this review is that the potential benefits for the school-based involvement dimension are not clear. Some studies found positive relations with school involvement types, whereas others found no or negative relations with the same involvement types. Future research should consider this dimension more in-depth to figure out how parental school-based involvement could be beneficial for the academic achievement of children.

Another important conclusion with regard to the relation between parental involvement and academic achievement is that parental involvement does not diminish when children grow into young adults. Parental involvement is commonly thought to simply decline as children move up to middle and high school (e.g., Desforges & Abouchar, 2003). However, according to the results of this review it seems more likely that the involvement of parents does not necessarily decrease but rather that involvement changes over time as the child develops and time spent on direct involvement activities decreases. Direct involvement practices such as guidance in learning (e.g. reading with children and learning together) or forms that can be characterized as active involvement at school is most beneficial in the earlier stages of education. The results indicate that when children grow older, instead of guidance or assistance in learning, it is more important that parents create the conditions under which academic success can be fostered. Parents seem to affect their children's academic outcomes by setting high academic expectations and creating a comfortable space for them to develop their academic motivations in ways not considered intrusive or controlling.

Furthermore, several recent studies examined if mediating variables could explain more accurately how parental involvement is related to the academic achievement of their children. Interestingly, these results challenge the common underlying assumption that parental involvement is directly related to students' academic achievement. The findings indicate that parental involvement could contribute to academic achievement indirectly through the influence of other proximal student outcomes, such as motivation, attitudes, and learning strategies. That is consistent with the assumptions of the parental involvement process model (Hoover-Dempsey & Sandler, 1995, 1997, 2005, 2010). In this model, students are seen as the authors of their academic success. And their parents involvement does not contribute directly to their academic achievement in school, however, they do contribute to the development of their learning attributes (academic self-efficacy, intrinsic motivation to learn, self-regulatory strategies and social self-efficacy for relating to teachers), which are, in turn, used by students in support of their academic success.

5.2 SES and ethnicity

Multiple studies included measurements of SES or ethnicity/race to determine whether these indicators influence the relationship with academic achievement. Several patterns were found across different studies. The first pattern is that when parental involvement is measured as expectations or aspirations it is positively associated with academic achievement regardless of social class or ethnicity/race. The second pattern is that the relationship between behavioral forms of involvement and academic achievement functions differently across ethnic/racial groups. The third pattern is that SES influences the relation between parental involvement and academic achievement. We will discuss these patterns and their implications more in detail below.

The first pattern is that multiple studies found that when parents have higher educational expectations or aspirations this is consistently associated with higher academic achievement of their children despite of social class or ethnicity/race (e.g., Lee & Bowen, 2003). This means that all children regardless of their background could benefit from parents who expect them to do well in school. Interestingly, however, is that when behavioral forms of involvement are taken into account in predicting the academic achievement of children it becomes unclear which types of parental involvement could be beneficial for different demographic groups. This is especially true for parents and their children from different ethnic/racial groups. What we know from recent studies is that the relation between behavioral forms of involvement (such as parent-child discussions or attending school events) and academic achievement functions differently for each racial/ethnic group. However, what has been missing in research thus far is a concrete answer to the question: which involvement activities impact children's academic achievement for each racial/ethnic group?

The third patterns refer to the academic advantage that children have when they come from higher social class backgrounds compared to those from lower social class backgrounds. Multiple studies included in this review confirm that children from higher SES families outperform children from lower SES families (e.g., Choi, Chang, Kim, & Reio, 2015; Hemmerechts, Agirdag, & Kavadias, 2017). This could, partially, be explained by the characteristics of parents. Studies found that maternal education partially moderates the relationship between parental involvement and academic achievement. Higher educated parents appear to be more effective in their involvement activities. Intriguing and promising is that some findings provided evidence that low SES children could benefit more from their parents academically if they raise their involvement levels (Dearing, Kreider, Simpkins, & Weiss, 2006). Therefore, future research should examine more in-depth how low educated parents can be guided on how to raise their involvement levels and how to become more

effective in their involvement activities so they have an opportunity to provide an academic advantage for their children.

5.3 The parental involvement construct

The construct of parent involvement has been developed in order to gain more insight in parental mechanisms that could create an academic advantage for children. Parental involvement is often conceptualized in the literature as multidimensional. This means that the construct refers to a broad variety of parental behaviors and beliefs/attitudes that directly or indirectly is related to children' school achievement. The problem, however, with this broad conceptualization is that it remains unclear how exactly parents can contribute to the academic success of their children. We will now discuss why a broad definition of parental involvement should be avoided in the future.

First, studies have included children of various ages and have not specifically tried to understand if and how parental involvement differs in nature per age group. According to this review, the benefits of involvement clearly depend on the developmental level of the children that were assessed. For example, involvement in the form of reading with children or being involved in learning activities at home such as singing or playing games together is consistently positively associated with the academic achievement of young children. These involvement behaviors are no longer beneficial when the child grows older. Instead, older children seem to benefit from high parental expectations in combination with academic encouragement and support from their parents, such as praising their children's performance and efforts. And children who experience greater levels of communication with their parents about school-related topics are academically more successful in comparison with those who talk less with their parents. Thus, future research should avoid a broad conceptualization of parental involvement, instead, they should pay more attention to creating a better

understanding of the beneficial aspects of specific types of involvement for a particular age group.

Second, another finding from this review is that not all forms of parental involvement are positively related to academic achievement. This insight challenges the notion that parental involvement as a whole has a widespread benefit on children's achievement. There clearly are forms of parental involvement that are positively related to achievement. However, several studies consistently suggest the opposite. The findings of this review suggest that rather than assuming that any form of involvement is a good thing, educators, parents, and researchers should be aware that some forms of involvement that parents employ just do not work or might actually lead to declines in achievement. With regard to the measures of parental involvement associated with declines in achievement, it is important to understand why these indicators are negatively related and how parents could be guided on how to become more effective and thus avoid compromising achievement.

One example is parental homework involvement. Parents often become involved in their children's education through homework involvement (Walker, Hoover-Dempsey, Whetsel, & Green, 2004). Unfortunately, the results of this review confirm that findings for homework involvement have been mixed (Patal, Cooper, & Robinson, 2008). Most studies found negative relations with academic achievement. When involvement was measured as the amount of 'homework help', 'homework control' or 'checking of homework' it is negatively associated with academic achievement (e.g., Xu, Benson, Mudrey-Camino, & Steiner, 2010). Interestingly, however, when parents' homework help is autonomy supportive the relation with academic achievement is positive (Gonida & Cortina, 2014; Moroni, Dumont, Trautwein, Niggli, & Baeriswyl, 2015). This suggests that the "more involvement is better" approach does not apply to this form of involvement. Rather, how parents become involved in the homework process seems to be the crucial factor. Future research should make attempts to

refine the parental homework involvement construct, as well as other broad forms of involvement, to better identify what particular elements of involvement may be most effective for students, and when.

Based on this review it is apparent that researchers remain to operationalize and test a broad variety of parental involvement indicators. Unfortunately, when researchers remain to consider and test parental involvement as a broad construct it will not be clear what exactly parents could do to support their children's academic success. Therefore, researchers who plan to examine the relationship between parental involvement and students' academic achievement should pay special attention to the operational definition and measurement of parental involvement, and should carefully document such definition and measurement. And more importantly, different dimensions should be measured separately and more in-depth, instead of being summed up into a general composite.

5.4 Limitations

Almost all reviewed studies were based on correlational data, and therefore the results cannot support causal claims. In the absence of more experimental data, it is not possible to determine whether some types of parent involvement preceded or occurred in response to children's academic achievement. Moreover, in the absence of experimental studies, it is not possible to rule out other possible causes of children's academic achievement. Thus, this research field would greatly benefit from experimental data to determine the true impact of parental involvement on the academic achievement of their children.

Another limitation of the studies reviewed was its reliance on ordinal frequency scales. Response choices on such scales may be biased. When assessing behaviors that are suggested to be indicative for measuring forms of involvement, we should keep in mind that the empirical evidence of involvement obtained with questionnaires is doubtful. Bias in ratings of

involvement should be considered as a major problem, for which a solution is very difficult to find. This limitation was attenuated to some extent by the fact that some studies used measures of parent involvement from teacher-report or student-report questionnaires. The use of multiple informants, however, does not seem satisfactory for overcoming this problem. The use of observations should be considered in future measures of parents' involvement.

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