

## Working Paper

### **Collaborative Learning Intervention associated with Increases in Home-Based School Involvement for Families in Deprived Neighborhoods**

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#### *Abstract*

The current study set out to investigate the impact of the Dutch low-SES family-oriented Collaborative Learning intervention, characterized by a partnership approach and provision of personalized support. We assessed effects on parents' home-based school involvement, the quality of the relationship with their child's teacher, and parents' parenting skills. Fifty-six children in grades 1-4 and their families were randomly assigned to an intervention or waiting list condition. Results of two path models, using cluster-robust standard errors to adjust for nesting within our data, and controlling for baseline values of our outcome variables, indicated significant improvements in home-based school involvement among families in the intervention group, but no differences in the quality of the parent-teacher relationship nor in parenting skills. Our findings support the idea that a partnership approach and the provision of personalized support by means of home visits are an effective strategy to increase home-based school involvement amongst low-SES families.

Keywords: home-based school involvement, parenting, intervention, partnership approach, low-SES families

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Children from different socio-economic and ethnic backgrounds enter school with varying levels of language, reading, and reasoning skills (Azzolini et al., 2012; Bradley & Corwyn, 2002; Noble et al., 2005) and these differences increase over time (Potter & Roksa, 2013; Reardon, 2011). Recent reports show that Dutch children are no exception to this phenomenon of ‘diverging destinies’ (CPB, 2019). Parents with lower educational attainment differ from their higher educated counterparts in their approach to parenting and in their approach to supporting their children’s (school) development. Although the approaches of both groups of parents have their advantages, scholars have shown that the behavior and involvement of lower educated parents is less in line with schools’ expectations of the parental role (e.g. Lareau, 2002). As a consequence, children from low-SES families are not optimally prepared for a successful school career, which increases risks of school failure, dropout, and markedly fewer professional career opportunities in adulthood for these children (Forster et al., 2020).

In the past decades, numerous educators, policy makers, politicians, and scholars have developed, implemented, and assessed family-oriented interventions to support and strengthen low-SES parents’ capacity to promote child development and thereby reduce the gap in children’s school performances. Although there is consensus that parents play a vital role in promoting children’s school success, there is mixed evidence for the effectiveness of parental involvement interventions (see for overviews Fishel & Ramirez, 2005; Jeynes, 2012; Mattingly et al., 2002; See & Gorard, 2013). Several scholars did not find support for the effectiveness of this type of interventions and suggest this is caused by the fact that programs have not been developed with, and tailored to, the needs and obstacles of families (e.g., Abdul-Adil, & Farmer Jr, 2006; Applrys, 2018; Bower & Griffin, 2011). The traditional paradigm for parent involvement interventions focuses on knowledge and skill deficiencies of parents and is perceived as insensitive to family members’ time, financial, or educational

limitations (e.g., Halgunseth et al., 2009). These concerns resonate with the finding that many interventions do not meet two important criteria for effectiveness namely (1) treating parents as partners in the intervention, and (2) tailoring interventions to the needs of both the parent and the child (National Academies of Sciences, Engineering, and Medicine 2016).

In the current study, we investigated the effectiveness of the intervention programme ‘Collaborative Learning’ [Samen Leren in Dutch], explicitly designed to meet the above-mentioned criteria (Huyts & Groeneweg, 2016). Collaborative Learning aims to improve low-SES parents’ home-based school involvement, their parenting skills, and the quality of the parent-teacher relationship, in order to ultimately improve children’s school performances. The intervention provides personalized support to families in deprived neighbourhoods by means of home visits, during which professionals engage parents in guided practice.

*Differences in home-based school involvement, the relationship with teachers, parenting skills, and school performances by parents’ socioeconomic status*

There is consensus among scholars that differences in parenting behavior fuel the trend of children’s diverging destinies (Conger et al., 2010; Ermisch et al., 2012; Gershoff, et al., 2007; Kalil, 2014; Putnam, 2015). Using data collected from extensive fieldwork among 88 White and Black children from middle class, working class, and poor families, Lareau (2002) argued that middle- and higher-class families engage in *concerted cultivation*: deliberate efforts to facilitate their children’s development by creating a stimulating home environment using games and educational material (i.e., books). Lower class families, on the other hand, rely to a greater extent on *natural growth*: they perceive children’s development as more spontaneous, and thus create a less orchestrated environment. In line with this, studies have shown that home-based parental involvement differs between low and high SES parents in several respects: high SES parents spend more time playfully teaching their children skills

and knowledge (e.g., Altintas, 2016; Keizer et al., 2020), they more often help their children with their homework (e.g., van Otter, 2014), and they have more books and educational material in their homes (e.g., Bradley et al., 2001a; Desforges & Abouchaar, 2013). Other scholars have shown that the home-based school involvement of high SES parents is more beneficial for children's academic outcomes than that of low SES parents (e.g., Cheadle & Amato, 2011; Henderson & Mapp, 2002; Lee & Bowen, 2006; Roksa & Potter, 2011).

Besides differences in home-based school involvement, higher and lower SES parents also differ in the relationship they have with the teacher of their child, which is an important element of school-based involvement (Epstein et al., 2009). Lareau's (1996) work showed that middle- and higher-class parents take a very active stance towards their child's school and their child's teacher; They engage in active parenting that includes intervening and advocating to the teacher on their child's behalf. Lower class parents take a much less active stance towards school and perceive the teacher of their child to be most knowledgeable and responsible for their child's educational progress. In line with this, scholars have shown that lower SES parents are less likely to initiate (email) contact with the child's teacher (Thompson, 2008) and that the relationship with the teacher is of lower quality (Nzinga-Johnson, Baker, & Aupperlee, 2009). Although not specifically focused on the relationship with the teacher, scholars have shown that school-based involvement of high SES parents is more beneficial for children's academic outcomes than that of low SES parents (e.g., Park & Holloway, 2017).

Finally, differences between lower and higher SES parents also exist in terms of parenting skills. The economic situation of low SES parents has been shown to detrimentally influence their behavioral and emotional functioning. Specifically, parents with low SES are more likely to live in deprived neighborhoods—neighborhoods that are characterized by low income households, a poor living environment, and a high crime rate—, they are more likely

to experience financial and social problems, and they are less likely to sufficiently master the type of language schools typically use to communicate with parents. The stress incurred from living under such conditions (Masarik & Conger, 2017) has been demonstrated to, in turn, affect their parenting skills: low-SES parents often offer less warmth, nurturance, and positive stimulation, and they are less likely than high SES parents to provide arguments when they direct their children's actions or take decisions (e.g., Mistry et al., 2008). Numerous studies have shown that offering warmth, nurturance, positive stimulation, and reasoning positively influences children's school performances (Bradley et al., 2001b; Leventhal et al., 2004; Page et al., 2009).

The abovementioned review shows that high- and low-SES parents differ in terms of their home-based school involvement, the relationship they have with their child's teacher, and their parenting skills. Family-oriented interventions that aim to change these behaviors and improve relationships may enhance low-SES parents' capacity to promote child development and therefore ultimately reduce the gap in children's school performances between families of higher and lower SES families.

#### *Criteria for effective interventions*

As mentioned above, there is consensus in the literature that family interventions should fulfill two important criteria in order to be effective (e.g. National Academies of Sciences, Engineering, and Medicine, 2016), in particular among families who could benefit from these interventions the most. The first criterion is to treat parents as partners. A critique of many parental involvement interventions is that they are based on school cultures that are formed from middle-class European-American cultural norms (e.g., Freeman, 2010). These interventions focus primarily on the deficiencies of families and insist parents adapt to the preferences of the school (Tett, 2001). As such, parental practices that deviate from these

preferences but do support children's education may be overlooked and underappreciated (Halgunseth, 2009). To be effective, interventions should start from a strengths-based perspective that is built on families' home cultures and experiences as well as parents' strong motivation to help their children (Carpentieri, 2012). As such, strong family-program partnerships are often those that "are co-constructed and characterized by trust, shared values, ongoing bidirectional communication, mutual respect, and attention to each party's needs" (Halgunseth, 2009, p. 6). Indeed, research shows that treating parents as partners in the intervention enhances the quality of interactions between parents and professionals and increases parents' trust in professionals (Jago et al., 2013). In addition, consistency with families' values, routines, and resources, increases acceptance and implementation of the intervention (Manz et al., 2010). Strong and successful parental involvement interventions, such as 'Nurse Family Partnership' generally try to forge such collaborations (National Academies of Sciences, Engineering, and Medicine, 2016).

The second criterion is the tailoring of interventions to the needs of both the parent and child. Because the needs of individual parents and children vary greatly and often depend on family context, effective interventions, such as 'Early Head Start Home Visiting' or 'Parents as Teachers' generally tailor their services to fit individual needs (National Academies of Sciences, Engineering, and Medicine, 2016). First of all, children may differ in the school domain in which they need most help and support; for example, some children might need help and support with math, whereas others could gain most from aid in terms of spelling or reading. Second, parents may differ in the knowledge and expertise they have to help and support their child with school. With respect to low-SES parents in specific, an important factor to take into consideration is the parents' diversity in terms of knowledge of the school system (Forster, 2020) and in terms of language and literacy skills. Parents may thus differ in the type of support and guided practice they themselves need in order to be able

to help and support their child with school. Thirdly, practical circumstances also shape the set-up of the intervention. It is important to take account of the diversity in employment circumstances. For example, parents might be unemployed or work very long hours in double shifts. Tailoring an intervention to the context of each family decreases the likelihood of families feeling over-questioned (Borra, Van Dijk & Verboom, 2011), which increases the likelihood of dropping out of the intervention. Moreover, and importantly, tailoring an intervention to the needs of the participants is associated with higher effectiveness (Noar, Benac, & Harris, 2007). Co-constructing with the aim of creating an individualized intervention would therefore yield most benefits for each family.

#### *Intervention Collaborative Learning*

The intervention program Collaborative Learning was developed to support low-SES and migrant families living in deprived neighborhoods in Rotterdam by strengthening the parents' home-based school involvement, relationship between parents and their child's teacher and parenting skills. During home visits, parents are taught strategies how to undertake school activities with their child at home, receive support on how best to interact with their child during these activities, and receive support and advice on how to communicate and interact with the child's teacher. Ultimately, the aim of Collaborative Learning is to increase the educational performance of children who are currently underperforming at school (grade 1-4). Collaborative Learning is unique in that it centralizes the abovementioned two key criteria of effective interventions: (1) treat parents as partners and (2) tailor the intervention to the needs of the parent and the child. First, the intervention was developed in close collaboration with families living in deprived neighborhoods in Rotterdam. But not only in the progress of the development of the intervention, but also during the execution of the intervention itself, Collaborative Learning follows a partnership approach. Parents and home visitors decide in close cooperation how the execution of the intervention takes form. The goals to be worked

on during the intervention are developed in joint collaboration between the professional and the family itself. The professional and the family talk about the school domains in which the child needs most help/support and jointly decide what school domains should be the focus of the intervention (for example language development or math development). They also talk about and jointly decide on the type of support and guided practice that could benefit the parent the most in enabling them to help and support their child with school (for example stimulating the learning attitude of the child in connection with school or having regular functional contact with the teacher). Secondly, by taking the skills, educational and language levels and needs of the parents and children as a starting point, Collaborative Learning is able to accommodate the diversity of family contexts. As such, during the intervention each family works on goals and activities that are specifically tailored to them and in part tailored by them

### *Purpose of the Current Study*

In order to ultimately reduce the gap in children's school performances, we need to know whether programs such as Collaborative Learning, that approach parents as partners and are tailored to the needs of children and parents, are able to achieve the proximal goals of improving low-SES parents' involvement with school and their parenting behavior. In the current study we therefore scrutinized whether and to what extent the intervention Collaborative Learning is effective in improving (a) parents' home-based school involvement, (b) the quality of their relationship with the teacher of their child and (c) their parenting skills (warmth/involvement and reasoning/induction).

## **Method**

### *Design and procedure*

The current study followed a pretest-posttest quasi-experimental design; an experimental group of families participating in Collaborative Learning were compared with a waiting list control group of families not yet participating. Within six schools, and within each school grade, children from one class were randomly assigned to the intervention condition, whereas children from the other class were assigned to the control condition (e.g., children from group 4a were assigned to the intervention condition, whereas children from group 4b were assigned to the control condition). By assigning children to both the intervention and the control condition within each school, school effects are minimized as much as possible. That said, we will statistically account for the nesting of children within schools in our data. The families assigned to the intervention group started the intervention immediately after registration. The families in the control group started the intervention four months after registration, which is the average duration of the intervention. At the start and at the end of the treatment/waiting period, parents (or in some families other caregivers) in the two conditions were administered a questionnaire including questions on their home-based school involvement, the relationship with the teacher of their child, and their parenting skills during a personal interview.

### *Participants*

Initially, 69 families participated in our study. During the school year 8 families who were assigned to the intervention condition and 5 families who were assigned to the control condition dropped out of the study. Independent sample t-tests revealed no significant differences between dropouts and those families who remained in our sample on key background characteristics; children's language scores ( $t = 0.30; p = .77$ ), gender of the child ( $t = -0.25; p = .81$ ), educational attainment ( $t = 0.39; p = .70$ ), household income ( $t = 0.51; p = .61$ ), language spoken in the home ( $t = -0.79; p = .43$ ), type of caregiver involved ( $t = -0.54; p = .59$ ), and parenting stress ( $t = -0.29; p = .77$ ). Consequently, 56 families were included in

the sample at the time of the immediate posttest ( $n_{experimental} = 37$ ;  $n_{control} = 19$ ). Per school between 4-11 families participated in the intervention condition, and 1-4 in the control condition. The background characteristics of the study sample are displayed in Table 1.

We checked for significant differences between the experimental and control conditions on key background characteristics, using independent samples t-tests. In addition to the standard socio-demographic and socio-economic background characteristics, we also assessed differences on children's language scores at enrollment. The rationale for including this variable was to assess whether selection occurred in terms of the type of child that needed the intervention the most. Regarding relevant background characteristics of children (language test scores:  $t = -1.13$ ;  $p = .27$ ; gender:  $t = -0.28$ ;  $p = .78$ , and school grade:  $t = -0.01$ ,  $p = .99$ ) and parents (type of caregiver involved:  $t = -0.67$ ,  $p = .51$ ; educational attainment:  $t = -1.31$ ,  $p = .20$ , household income:  $t = 0.94$ ,  $p = .35$ ; home language:  $t = 1.69$ ,  $p = .10$ ), we found no significant differences between the experimental and control group participants at pre-test, suggesting that the two conditions were comparable on relevant background characteristics.

### *Measures*

*Home-based school involvement* was measured using the 13 items from the Family Involvement Questionnaire – Elementary Version (FIQ-E; Manz et al., 2004) that tap into home-based involvement (Fantuzzo, Tighe, & Childs, 2000). Examples of items are: 'I spend time working with my child on number skills'. 'I talk to my child about how much I love learning new things'. 'I see to it that my child has a place for books and school materials' and 'I review my child's schoolwork'. The 13 items are rated on a 4-point Likert-type scale ranging from 1 (*rarely occurs*) to 4 (*always occurs*). Cronbach's alpha for our sample was .78. Evidence of construct validity for the FIQ-E has been reported (Manz et al., 2004).

*Quality of the parent-teacher relationship* was measured with 7 items from the Parent-Teacher Involvement Questionnaire-Parent's version (PTIQ; Conduct Problems Prevention Research Group, 1995) that tapped into the quality of the relationship with the child's teacher. Examples of items are: 'I enjoy talking with my child's teacher', 'I feel the teacher cares about my child', and 'I feel comfortable talking with the teacher about my child'. These items are coded on a 5-point scale ranging from 1 (*never*) to 5 (*always*). Cronbach's alpha for our sample was .83. The validity of the PTIQ has been demonstrated in previous research (Kohl et al., 2000).

*Parenting skills* were measured by using two subscales from the Parenting Styles and Dimensions questionnaire (PSD; Robinson, et al., 1996). The PSD is a 52-item parent-report measure of parenting practices. The PSD has 11 subscales that measure more specific dimensions of parenting. Of these 11 subscales we selected the subscales Reasoning/Induction and Warmth/Involvement, because these were most in line with the subgoals of the intervention.

*Reasoning/induction* was measured with 6 items on which parents responded to on a 5-point Likert scale ranging from 1 (never) to 5 (always). Examples of scale items are: 'I explain the consequences of my child's behavior', 'I give reasons for why rules should be obeyed', and 'I explain to my child how I feel about his or her behavior'. The Cronbach's alpha coefficient for our sample was .75. *Warmth/involvement* was measured with 12 items on which parents responded on a 5-point Likert scale ranging from 1 (never) to 5 (always). Examples of scale items are: 'I encourage my child to talk about his/her troubles', 'I give praise when my child is good', 'I give comfort and understanding when my child is upset', 'I tell my child I appreciate what my child tries to accomplish' and 'I express affection by hugging, kissing, and holding my child'. The Cronbach's alpha coefficient for our sample was

.86. The validity of the PSD has been demonstrated in previous research (Robinson et al., 1996).

### *Background characteristics*

*Sex of the child* was asked to the parents using the following question “What is the sex of your child? Answering options were 0 = boy and 1 = girl.

*Family’s educational background* was measured with the question “What is the highest completed degree you (your partner) achieved?” Answering options ranged between 1 = elementary school not completed to 9 = post-academic. The highest level of educational attainment was used as the family’s educational background.

*Household income* was measured by asking the parent what the net monthly income of their household, without tax/child benefits, was. Respondents could indicate the household income in band widths of 1,000 euro, ranging from ‘less than 1,000 euro’ (1) up to ‘10,000 euro a month or more’ (11).

*Dutch spoken in the home* was included as a dummy variable indicating whether Dutch was the language that was always/mostly spoken within the household (=1) or not (=0).

*Type of caregiver involved.* We included a variable indicating which caregiver was involved in the intervention. ‘Mother’ was coded 1, ‘Father’ was coded 2, ‘Both’ was coded 3, and when ‘other family members’ (grandmothers, aunts, stepmothers) were involved this variable was coded 4.

*Language functioning.* Children’s language functioning was measured using the Peabody Picture Vocabulary Test-III (PPVT-III-NL; Dunn & Dunn, 2005). The test was conducted while the child was in school. The test leader (fourth author) showed the child a series of pages with four pictures, read aloud a word, and subsequently asked the child to

identify the picture corresponding with the word read. This widely used measure can be used with children across different socio-economic backgrounds (Pan et al., 2004). Higher scores indicated higher receptive vocabulary. Standard scores were calculated based on the norm scores in the coding manual.

### *Intervention*

The intervention Collaborative Learning was developed by Frontlijn, an organization constituted by the municipality of Rotterdam, the Netherlands. Collaborative Learning, which is offered free of charge, has been implemented since 2011 in the deprived areas of Rotterdam South. In March 2016, Collaborative Learning was recognized as theoretically sound by the Dutch Youth Institute.

Although most of the activities of the intervention are conducted within the family home (guided practice of home-based school involvement and parenting skills), some activities are organized within the school to strengthen parents' relationship with the teacher (teacher-parent meeting). Home visits are conducted by professionals, who have minimally a bachelor's degree in Pedagogy or Social Work and are employed by the municipality of Rotterdam. All professionals have to follow an intensive two-day training, in which they learn the key elements of the intervention and how to implement these. In addition, throughout the Collaborative Learning trajectories, the professionals attend follow-up trainings and receive supervision. The complete intervention trajectory of one family is guided by one professional, enabling this professional to develop a bond with the family, and to establish a high level of mutual trust.

Collaborative Learning targets parents who (1) live in deprived neighborhoods, (2) have a child in the first four years of elementary school (grades 1-4) with low school performance, and (3) have limited parenting skills or limited skills in stimulating their child's

school development. Furthermore, parents are targeted who (4) are not yet fully proficient in Dutch/who have low Dutch literacy levels, (5) have a low level of education, and (6) have few financial resources. The inclusion criteria are assessed during the intake interview.

Exclusion criteria include: (1) Parents have too little proficiency of Dutch and have no other means of communicating with the professional (e.g., through an interpreter); (2) Parents experience excessive levels of stress, due to for example severe financial, mental or health problems, or domestic violence. In these cases, other support is deployed (via the neighborhood team) and enrollment in the intervention is delayed until the basic conditions for enrollment have been met; (3) Parents have very low levels of mental abilities. For these families, appropriate alternative support is sought (for example, through the neighborhood team); (4) Parents are not motivated for counseling at home, for example because they solely would like to receive homework guidance; (5) Practical obstacles (e.g. work schedules) hinder parents' availability to such an extent that the intervention will most likely not be able to be continued.

The intervention consists of three phases: (1) The coordination-phase, (2) The working on goals-phase, and (3) The completion-phase, and all three phases centralize the two key criteria for effective interventions: treating parents as partners and tailoring the intervention to the needs of the parent and the child. During the first phase of the intervention, both an intake interview is conducted at the home of the family as well as several home visits. During this phase, the professional asks the parent(s) how the child performs at school and asks about the behavior of the child and the daily structure of the family. The professional asks what the parent is already doing in order to improve the performance or behavior of the child. For example, if the parent indicates that the child has low reading skills, the professional asks whether the parent pays attention to this at home. At the end of the coordination-phase, the professional and the parents jointly formulate goals specific to the issue(s) raised during

intake, expressed in concrete home-based school involvement support and parenting skills. They also discuss through which actions ('subgoals') these goals can be met (see the appendix for an overview of the goals and subgoals), and jointly draw up an action plan. On average, three to five main goals are set per family. The (sub)goals and action plan take the current level of knowledge and expertise of the parent as the starting point: they are formulated in such a way that they are practically and substantively feasible.

When the (sub)goals and action plan have been formulated, the second phase 'Working on goals' commences. During the home visits in this phase (which have an average length of one hour), professionals provide tailored support to parents in working on the goals and subgoals in the action plan. Besides providing parents with information about the importance of the targeted skills for children's school performance, the professional offers parents concrete activities for working on the (sub)goals and stimulates them to practice these outside the home visits. These activities are written down in the 'Collaborative Learning information folder for parents'. Parents choose an activity from the folder that is appropriate for a specific (sub)goal. For example, the goal "parent gives the child positive attention" includes the following activities in the folder: a quality game, a compliment box, emotion cards and a reward schedule. The professional then explains the relevance of the activity for achieving the (sub)goal and how the activity can be enacted. The activity chosen by the parent in the previous home visit will be carried out by the entire family during the next home visit. During this visit, the professional links the activity with the information about this topic discussed during the previous home visit, enabling the family to connect "being knowledgeable" with "being able". During subsequent home visits, the professional encourages the parent to reflect on what the parent implemented or has tried to implement since the previous home visit. During one of the home visits, the professional also prepares the parent for the meeting that he/she will have with the teacher of their child.

Home visits take place once or twice a week, depending on the family's needs. The duration of the working on goals-phase depends on the number of goals formulated and the presence of any obstacles in achieving the goals (e.g, due to poor Dutch language skills). The average duration of the entire process is four months (minimum 3 and maximum 9 months).

The intervention ends with the completion-phase, which consists of a final home visit, an evaluation interview, and an aftercare period. This aftercare involves a re-evaluation by asking how the family is doing with respect to the main intervention goals. If necessary, another home visit is scheduled. With the consent of the parent, the child's teacher can also be re-approached to check how the child is performing in class.

### *Procedure*

We selected six state-funded primary schools located in deprived neighborhoods in the south of Rotterdam, the Netherlands. These six schools were selected because their student population represented the target population of the intervention. In addition, these schools were selected because they had at least two school classes per grade 1-4, allowing us to randomly assign children from one class to the intervention condition and children from the other class to the control condition, in order to minimize school effects.

Prior to the study, all parents with a child in grade 1 to 4 (children aged 4-8) within these schools were informed about the intervention. The teachers were involved in the recruitment process by making an assessment of families that according to them, could benefit from this intervention as well as fell in the target group of the intervention. Subsequently, teachers invited these families to participate in the intervention study. When parents signed up for Collaborative Learning they received a leaflet explaining the background of the program and the research.

The instruments administered in the current study were incorporated into the intake

and evaluation questions by the professionals and were administered verbally to the parents/caregivers. The pre-treatment measurement was taken at the time of the intake (T0) and the post-treatment measurement was taken during the final home visit (T1). In addition to these questionnaires, children were asked to perform a language test at T0. This test was conducted at school.

Prior to beginning our research activity, the study was approved by the ethical review board of the Erasmus School of Social and Behavioural Sciences of the Erasmus University Rotterdam, the Netherlands. All parents provided informed consent for participating in the study.

### *Analyses*

To test the effects of the intervention, two path models were fitted to the data (Figures 1 and 2). We fitted two path models rather than one, as our sample size did not allow us to incorporate all variables into one single path model. The variables were grouped together based on theoretical grounds. Model 1 tests the effects of the intervention on parental home-based school involvement and the quality of the parent-teacher relationship. Model 2 tests the effect of the intervention on parenting skills, more specifically on parental warmth/involvement, and reasoning/induction. In both models the outcome variables were corrected for their baseline values. To account for the nesting in the data (with families nested in classes, and classes nested in schools) cluster-robust standard errors were calculated. Analyses were run in R using the *lavaan* package and Full Information Maximum Likelihood (Rosseel, 2012).

## **Results**

### *Descriptives*

Table 2 provides an overview of the mean scores and standard deviations on our four effect measures. The pretest scores on the effect measures were similar for the two conditions: in no

case were there significant differences between the two groups, implying they were comparable at the start of the experiment.

Parents score an average of 3.08 at T0 on home-based school involvement (theoretically ranging 1-4). Furthermore, the average quality of the parent-teacher relationship is relatively high in our sample (4.14 on a theoretical range from 1-5). Finally, parents average scores on their parenting skills are relatively high as well (for warmth and involvement the average score at T0 in our sample is 4.44 on a range of 1-5, whereas for reasoning/induction the average score is a 4.51).

### *Impact of intervention*

The first model to test the impact of the intervention initially did not fit the data sufficiently (Yuan-Bentler corrected  $\chi^2(4) = 10.97, p = .27$ ; CFI = .79; RMSEA = .176; SRMR = .096) and modification indices suggested adding covariances between *Home-based involvement* at T0 and *Quality parent/teacher relationship* at T1, and between *Quality parent-teacher relationship* at T0 and *Home-based involvement* at T1 (see Figure 1). After adding these two covariances the model fit the data well (Yuan-Bentler corrected  $\chi^2(2) = 1.44, p = .486$ ; CFI = 1.00; RMSEA = .00; SRMR = .034). The model showed that after correcting for baseline scores on *Home-based involvement* and *Quality of the parent-teacher relationship*, there was a significant difference between the control and intervention group on *Home-based involvement*, with the intervention group reporting higher levels of home-based involvement than the control group ( $b = .25, SE = .12, \beta = .275, p = .32$ ). The intervention did not have a significant effect on *Quality of the parent-teacher relationship* ( $b = -.06, SE = .21, \beta = -.037, p = .781$ ).

The second model (see Figure 2) had sufficient fit to the data (Yuan-Bentler corrected  $\chi^2(4) = 3.57, p = .468$ ; CFI = 1.00; RMSEA = .000; SRMR = .060), and showed that, after

correcting for baseline scores in the outcome variables, there were no significant differences between the control and intervention groups on Warmth/involvement ( $b = .10, SE = .12, \beta = .115, p = .408$ ) or Reasoning/induction ( $b = .08, SE = .14, \beta = .076, p = .524$ ).

### **Discussion and conclusion**

There is consensus among scholars that differences in parenting behavior fuel the trend of children's diverging destinies (e.g., Kalil, 2014; McLanahan, 2004). Over the years, numerous family-oriented interventions have been developed to support and strengthen low-SES parents' capacity to promote child development and thereby potentially reduce the gap in children's school performances. However, there is only mixed evidence for the effectiveness of parental involvement interventions. Scholars have argued that this might be explained by the fact that most interventions have not been tailored to the needs and obstacles of those families who could benefit from these interventions the most. Our study found that the intervention Collaborative Learning, characterized by a partnership approach and by the provision of personalized support by means of home visits, was associated with significant gains in home-based school involvement. In contrast, however, the intervention was not associated with significant increases in the quality of the parent-teacher relationship nor in parenting skills.

Increases in home-based school involvement have important implications for children's school performances. Amongst others, high levels of home-based school involvement have been associated with children's motivation to learn, their level of attention, task persistence, receptive vocabulary skills (Fantuzzo et al., 2004) and grade point averages (Wang & Sheikh-Khalil, 2014). Our study has shown that Collaborative Learning has succeeded in improving an important proximal variable, namely parents' home-based involvement. In a next step, it is important to assess whether this proximal effect results in

more distal effects, that is, whether stronger home-based involvement leads to better school performance.

For parents who were involved in the Collaborative Learning intervention no significant increases were detected in the quality of the parent-teacher relationship or in parenting skills. With respect to the findings for the quality of the parent-teacher relationship, it might be the case that no significant increases were detected because only one home visit was explicitly devoted to the parent-teacher relationship. Our findings may suggest that one home visit is not enough to significantly change the relationship parents have with the teacher of their child. An alternative explanation is that the intervention not only led to improved knowledge about what can be expected from the teacher, but also to a more critical stance towards the school and the teacher in specific. This could explain why the quality of the relationship between parent and teacher did not improve. With respect to the nonsignificant findings for parenting skills, it is important to re-iterate that the families in both the intervention and the control condition scored relatively high on our two measures of parenting skills at our baseline assessment. Our non-significant findings might therefore reflect little room for improvement.

Our findings support the idea that a partnership approach and the provision of personalized support by means of home visits are an effective strategy to increase home-based school involvement amongst low-SES families. During the Collaborative Learning intervention the professional and parent jointly formulated goals to be worked on and jointly drew up an action plan. The intervention trajectory was guided by one professional, which enabled the professional to develop a bond with the family he or she worked with and establish a high level of mutual trust. Furthermore, the (sub)goals and action plan incorporated the current level of knowledge and expertise of the parent as the starting point, making these goals practically and substantively feasible. In line with previous research (e.g.,

Noar, Benac, & Harris, 2007), our findings suggest that these strategies increase the effectiveness of the intervention –at least in terms of gains on home-based school involvement.

That said, interventions taking a partnership approach and providing personalized support by means of home visits, are relatively costly; tailoring an intervention to the needs and obstacles of the family requires the involvement of skilled professionals. In addition, the trajectory is often quite labour intensive. Nevertheless, the ability to increase home-based school involvement amongst families in deprived neighborhoods is a key instrument in enhancing low SES parents' capacity to promote child development and therefore ultimately reduce the gap in children's school performances. Such gains might outweigh the financial costs of these interventions.

Some limitations of the current study should be mentioned here. First of all, the sample size of our study is small. In the years prior to our data collection, more than 200 families received the intervention, and 22 schools registered families for Collaborative Learning. Based on these numbers, we were confident in collecting a large pool of participating families. However, two major changes in the context of the intervention hindered recruitment and led to much lower numbers of participating families: one on a municipality level and one on a methodological level. First of all, our data collection took place in a newly selected neighborhood in Rotterdam, in which there was no 'brand awareness' of the intervention yet, which made it relatively more difficult to recruit families. Second, given the aim of investigating the effectiveness of the intervention, schools could only participate if they had at least two school classes per grade, and when we were thus able to randomly assign classes to the intervention or control condition. As a consequence, we had to reject some schools that did indicate interest to participate in the intervention but could not meet this criterium.

A second limitation of the current study pertains to the reporters for our instruments. The instruments were administered verbally to caregivers by the professionals who delivered the intervention. As a consequence, firstly, our study relies on the accuracy with which the professionals were able to note our respondents' answers. Under the assumption that the professionals accurately reported the answers of our respondents, it might be the case that the answers provided by the families are biased due to a tendency for socially desirable answers. In this light we recommend future studies to make use of (1) observational measures of parents' behavior towards their child (e.g. parental sensitivity) to obtain a more objective understanding of these behaviors, and of any improvements yielded in these behaviors due to the intervention.

Third and finally, our findings are based on one post-test that was conducted immediately after the intervention was completed/the waiting period was over. As such, we do not know how stable the effects we found are and we do not know whether and to what extent sleeper effects exist. More research is needed to determine whether the effectiveness of the intervention remains to be visible over a longer period of time.

### **Conclusion**

Our study found that the Collaborative Learning intervention was associated with significant gains in home-based school involvement. In contrast, however, the intervention was not associated with significant increases in the quality of the parent-teacher relationship nor in parenting skills. Our findings support the idea that a partnership approach and the provision of personalized support by means of home visits are an effective strategy to increase home-based school involvement amongst low-SES families.

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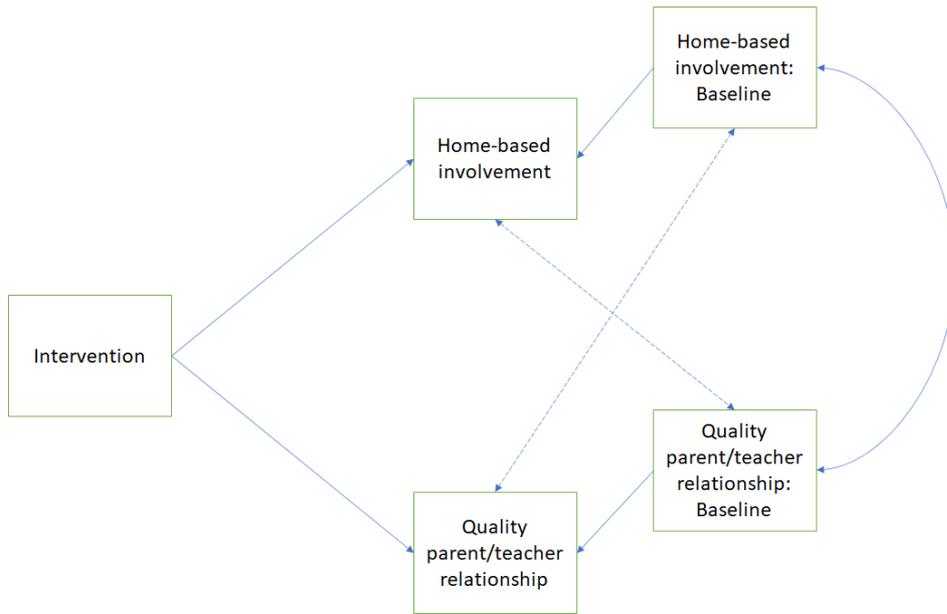
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Table 1: Demographic information by condition

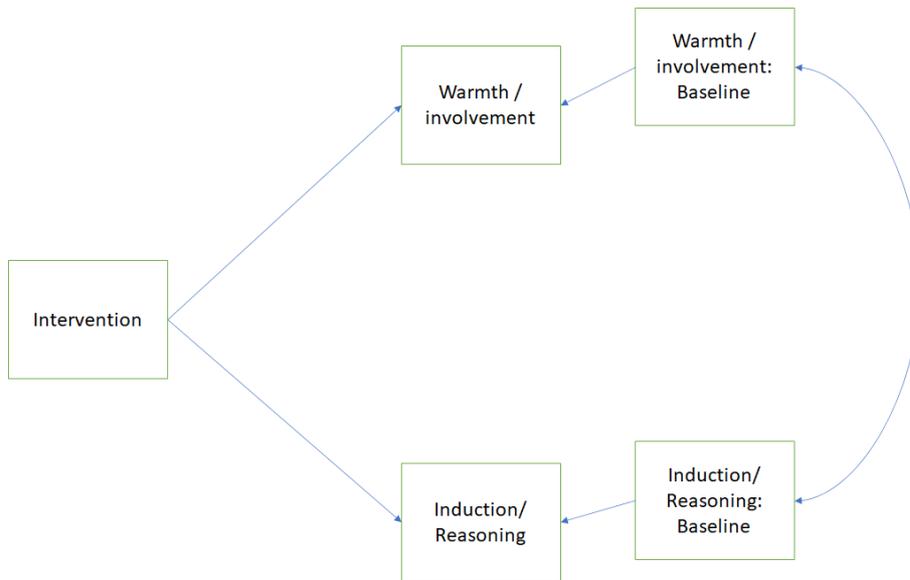
Variable	Range	Overall ( <i>n</i> = 56)	Intervention condition ( <i>n</i> = 37)	Control condition ( <i>n</i> = 19)	P-value t-test
<i>Demographic information</i>					
Language scores child at T0	57 - 118	89.04 (1.82)	90.53 (2.34)	86.22 (2.84)	.27
Educational attainment	0 - 11	6.09 (0.47)	6.54 (0.57)	5.26 (0.81)	.20
School grade	1 - 4	2.79 (0.15)	2.79 (0.19)	2.79 (0.22)	.99
Household income	1 - 7	2.67 (0.23)	2.53 (0.25)	3.00 (0.51)	.35
Language spoken at home	0 - 1	0.38 (0.07)	0.30 (0.08)	0.53 (0.12)	.10
Gender child (% girl)	0 - 100	50	51	47	.78
Type of caregiver (%)					.51
Mother	0 - 100	71	65	78	
Father	0 - 100	6	9	0	
Both	0 - 100	12	15	11	
Other family members	0 - 100	11	11	11	

Table 2: Key outcome variables at pretest by condition

Variable	Range	Overall ( <i>n</i> = 56)	Intervention condition ( <i>n</i> = 37)	Control condition ( <i>n</i> = 19)	P-value t-test
Parental home-based school involvement	1.85 – 3.92	3.08 (0.07)	3.08 (0.09)	3.09 (0.09)	.94
Quality of parent-teacher relationship	2.29 – 5.00	4.14 (0.10)	4.21 (0.12)	4.00 (0.16)	.31
Warmth/Involvement	3.08 - 5.00	4.44 (0.07)	4.42 (0.08)	4.47 (0.12)	.37
Reasoning/induction	3.16 - 5.00	4.51 (0.07)	4.51 (0.09)	4.52 (0.12)	.98



*Figure 1*



*Figure 2*

## **Appendix A: Goals and subgoals of the intervention**

### **Main goal**

The main goal of Collaborative Learning is to increase the educational performance (Cito scores) of children with underperforming school performance from grades one to four of primary schools in disadvantaged neighborhoods, and thus the development opportunities of these children.

### **Sub-goals**

To achieve the main goal, skills are taught to the parents of the children. The following sub-goals have been formulated for this:

- parent stimulates the learning attitude of the child in connection with school;
- parent stimulates the language development of the child in connection with school;
- parent stimulates the child's math development in connection with school;
- parent stimulates the fine motor skills of the child in connection with school;
- parent has regular functional contact with the teacher;
- parent provides structure to the child;
- parent sets boundaries for the child;
- parent gives the child positive attention.

These goals are in turn made concrete in several sub-goals, as shown schematically.

#### *1. Parent stimulates the child's learning attitude*

1.1 Parent and child practice in daily situations with concentration

1.2 Parent and child practice using games and materials with concentration

1.3 Parent rewards the child if he / she concentrates

1.4 Parent stimulates the child's eagerness to learn by asking questions during daily situations and games / activities with the child

1.5 Parent stimulates the child's eagerness to learn by looking together for answers to the child's questions

1.6 Parent rewards the child for asking questions and for looking for answers

## *2. Parent stimulates the child's language development*

2.1 Parent stimulates the child to look at educational, language stimulating programs

2.2 Parent reads the child regularly (if possible). In their own or Dutch language

2.3 Parent and child regularly read together (only when the child can / is learning to read)

2.4 Parent encourages the child to do exercises on educational, language-stimulating websites / computer programs

2.5 Child is a member of the library library is regularly visited by parent and child

2.6 Parent and child practice with language in everyday situations

2.7 Parent and child practice using games and materials with language

2.8 Parent rewards the child for good use of language and for practicing language

## *3. Parent stimulates the math development of the child.*

3.1 Parent encourages the child to look at educational, arithmetic skills-stimulating programs

3.2 Parent stimulates the child to do exercises on educational, arithmetic skills-stimulating websites / computer programs

3.3 Parent and child practice math in daily situations

3.4 Parent and child practice using games and materials with arithmetic

3.5 Parent rewards good results for arithmetic and for practicing arithmetic

*4. Parent stimulates the child's fine motor skills*

4.1 Parent and child practice fine motor skills in daily situations

4.2 Parent and child practice fine motor skills by means of games and materials

4.3 Parent rewards fine motor skills mobility

*5. Parent has regular functional contact with the teacher.*

5.1 Parent is present at important moments at school or remains informed in some other way

5.2 Parent is aware of the child's current and expected school level

5.3 Parent communicates with the teacher about the child's well-being and progress school and at home

*6. Parent provides the child with structure*

6.1 Parent uses a fixed daily schedule and weekly schedule, with attention to school work / educational games or activities

6.2 Parent offers the child a fixed workplace and a quiet learning environment

6.3 Parent and child make clear agreements about times and daily moments and apply them

6.4 Parent rewards the child when he / she adheres to agreements regarding structure

6.5 When something in the structure / planning changes, the parent clearly indicates this to the child

*7. Parent sets clear boundaries for the child*

7.1 Parent sets rules appropriate to the child

7.2 If the child breaks the rules, the parent responds consistently by giving warnings and a time-out

7.3 Parent rewards the child if he / she adheres to the set rules

8. *Parent gives the child positive attention*

8.1 Parent rewards good behavior, commitment and performance

8.2 Parent applies different ways of reward

8.3 Parent responds sensitively to the child's emotions

8.4 Parent regularly asks the child how it was at school

8.5 Parent spends positive attention to schoolwork